

HI-FI CHOICE

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

Amplifiers

POWER ON DEMAND - FULL REVIEWS
OF 20 INTEGRATED AMPLIFIERS

MARCH 1991 £2.95

Over 950 Test Summaries

IN THE CHOICE BUYER'S GUIDE

ED AMPLIFIER

FREE ! That's VX C90 Tape

MASTE

BASS COMPENSATOR

BALANCE

Plus!

DIGITAL COMPACT CASSETTE, B&O'S
VISION OF THE FUTURE AND YOUR
CHANCE TO WIN OVER £2,500 OF QED
SYSTEMLINE EQUIPMENT

MAX

LEFT

MIN



VOTED 'FAVOURITE HI-FI MAGAZINE' BY HI-FI SHOPS NATIONWIDE

The future belongs to those who seek it

Producing one of the widest ranges of tape recorders means that our expertise extends from DASH format 24-track digital multitracks, through 24-track, 16-track, 8-track, 4-track and 2-track analogue machines, to some of the finest professional DAT recorders and cassette decks available today.

Our experience and innovation in tape transport technology and audio electronics in the studio field has now produced two new 3-head cassette decks for the audiophile – the V-3000 and V-5000.

These stylish decks feature a central

sub-chassis mounted transport assembly which, together with heavily reinforced construction, comprehensive electrical shielding and an antistatic cassette stabiliser, leads to an enhanced level of sonic performance.

This attention to detail in construction is complemented by a similar approach to electronic and functional design and has produced, we believe, a level of performance rarely found in this class of cassette deck.

To experience how innovation and technology have combined, audition the V-3000 and V-5000 at TEAC dealers nationwide.



TEAC

TEAC UK Ltd., 5 Marlin House, The Croxley Centre, Watford, Herts. WD1 8YA
Tel: 0923 225235 Fax: 0923 36290

V-5000 ■ Closed loop dual capstan drive ■ Power load/eject ■ CD direct input ■ bias & level calibration with built-in test oscillator ■ Auto-monitor
■ Remote control ■ Dolby B/C/HX Pro ■ Wow & Flutter: 0.025% ■ Frequency response: 25Hz - 20kHz (Metal), 25Hz - 19kHz (CrO₂),
25Hz - 17kHz (Normal) ■ **Retail Price £299.00**

V-3000 ■ CD direct input ■ Bias fine tune ■ Remote control ■ Dolby B/C/HX Pro ■ Wow & Flutter: 0.045%
■ Frequency response: 25Hz - 20kHz (Metal), 25Hz - 19kHz (CrO₂), 25Hz - 17kHz (Normal) ■ **Retail Price £219.00**

EDITOR
Andy Benham

CONSULTANT EDITOR
Paul Messenger

ART EDITOR
Andrew Ryan

REVIEWS EDITOR
Jason Kennedy

PRODUCTION EDITOR
Janet Moorhouse

CHIEF SUB
Nuala Harvey

CONTRIBUTORS
Paul Miller, Barry Fox, Alvin Gold, Dan Houston

PHOTOGRAPHY
Chris Richardson

ADVERTISEMENT MANAGER
Rob Debenham

ASSISTANT ADVERTISEMENT MANAGER
Miriam Young

CLASSIFIED SALES EXECUTIVE
Jane Woolner

PRODUCTION MANAGER
Judith Middleton

ADVERTISEMENT PRODUCTION MANAGER
Lisa Nickson

SUBSCRIPTION MANAGER
June Smith

NEWSTRADE CIRCULATION MANAGER
Sean Farmer

PUBLISHING DIRECTOR
Marianne McNicholas

ADVERTISEMENT DIRECTOR
Alistair Ramsay

MANAGING DIRECTOR
Colin Crawford

CHAIRMAN
Felix Dennis

PUBLISHED by Dennis Publishing Ltd, 14 Rathbone Place, London W1P 1DE.
Tel: 071-631 1433. Fax: 071-323 3547 (Editorial); 071-6361640 (Advertising)
Company registered in England.
ORIGINATION: Point Ltd & Quadcolour Reprographics Ltd REPRO: Graphic
Ideas. PRINTING: Riverside Press, StIves Plc.
DISTRIBUTED by: SM Distribution,
6 Leigham Court Road, Streatham, London SW16 2PG.
Tel: 081-677 8111.

A



PUBLICATION

Enquiries regarding the content of this journal should be made in writing to *Hi-Fi Choice* Editorial, 14 Rathbone Place, London W1P 1DE. We regret enquiries cannot be dealt with by telephone. 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. This edition ©1991, Felden Productions. ISSN No. 0955 111 5.

Member of the Audit Bureau of Circulation.



Menu

The birth of a new format is always a difficult affair. The latest format to be thrust upon a blissfully unaware public is DCC, or Digital Compact Cassette to its friends.

The format is billed as a replacement for DAT, which isn't exactly setting your sights that high, however it's also being touted as a long term replacement for compact cassettes, an altogether more serious undertaking.

The success or failure of DCC has to be left in the hands of the consumer, and at this stage of its development the format is a long way away from being ready for the High Street. The fact that Philips is behind the new format could be both a drawback and an advantage. Were the Dutch multi-national to end up as a contestant on *Mastermind*, the company's specialist subject could well be 'how not to launch a format'. However, if the company got through to the second round, it could also answer questions on 'how to establish a new world standard', such has been its success with both CD and cassette. It's always easy to point out Philips' long and distinguished list of failed formats, but there is no other company that has had so many successes to sit alongside the failures.

It would seem that if anyone can launch DCC, then Philips can.

Whatever the outcome for DCC, it does appear that digital audio tape will never become a mass market medium. Even the advent of Sony's non-tracking technique (see page 14) is unlikely to move the format out of the up-market specialist recording niche that it has carved for itself. DAT has only sold an estimated 20,000 machines in the pro market ever since the format's introduction in December 1987. To put this in perspective, a single amplifier model could easily do this in 12 months in the UK market alone.

As mentioned in this month's *Update* pages, John Bamford, illustrious editor of this tome for the last couple of years, has gone to pastures new. I'd just like to take this opportunity to wish him all the best in the future and to thank him for all the hard work he put into *Choice* over the years. I just hope I can keep up the same high standards.

As a going away present from John and a hello present from me, we've decided to give all you nice people out there a free That's *VX 90* which you should have found attached to the front of your magazine. If yours was missing, kindly hassle your newsagent.

Andy Benham



Photography by
Chris Richardson

Contents

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

The Front End

5

UPDATE

The *Choice* team brings you the hottest news from the hell bent world of hi-fi, the latest products, innovations and technologies are all on these pages.

14

CHOICE SESSIONS

Paul Messenger has taken over the *Sessions* pages this month with an overview of TV technology and a review of Sony's 'Non Tracking' personal DAT player.

37

READERS WRITE/CHOICE ANSWERS

Choice readers air their views and queries, and, of course, there's a prize each month for the best letter.

40

COMPETITION

Win over £2,700 worth of QED *Systemline* multi-room equipment and extend your system all around the house. Just answer six easy questions and send off the form.



The latest stylish offering from that doyen of the high end midi system, B&O.

43

21ST CENTURY FOX

Award winning industry pundit Barry Fox kicks off a series of features with a look at the implications of a European tape levy.

48

STATEMENTS

Resident tubeophile JK gets to grips with a perspex clad transistor preamplifier from Yorkshire based

JDI, are his anachrophile days dead and buried?

Aspirations

20

SOUND OF SILENTS

Carl Davis is the man responsible for soundtracks ranging from *The French Lieutenant's Woman* to *Napoleon*. Our dynamic duo visited his London home ...

Lifestyle

26

THE BIG BANG

Mogul of the upmarket midi system Bang & Olufsen has been busy working on a new and very stylish variation on this theme. Paul Messenger has brought back pictures of some pretty radical kit.

Perspectives

32

PERSPECTIVES

This month Alvin Gold has been to Eindhoven to find out about Philips.



Piles of power; a selection of the integrated amps in this month's main review.

new baby - DCC (Digital Compact Cassette). Could this be the future of tape?

Amplifiers

51

CHOOSING AND USING AMPLIFIERS

Paul Miller gives a few hints and tips on what to look and listen for when selecting an amplifier.

53

THE REVIEWS

Full technical and subjective reviews of 18 integrated amps, two power amps and a solitary pre/power combo.

93

CONCLUSIONS, BEST BUYS AND RECOMMENDATIONS

If you haven't the energy to plough through the reviews but want more than a Recommended tag to go by, this is the page for you.

94

TECH TALK

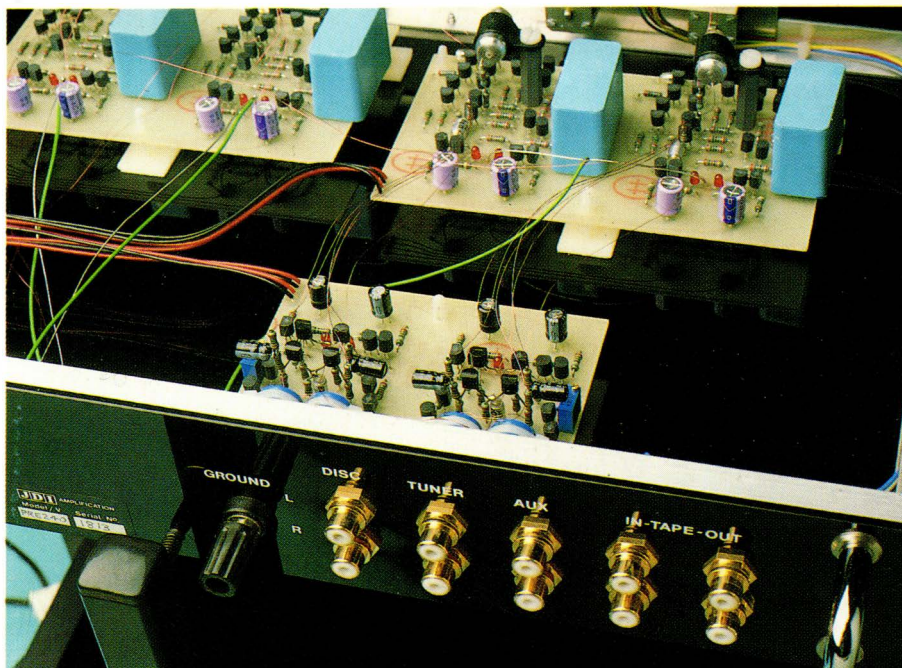
A discussion of the technical procedures and listening tests used for our amplifier reviews.

The Directory

102

CHOICE DEALER DIRECTORY

A *Choice* guide to the specialist hi-fi dealers in your area. A geographical



The heart of the machine: Statements focuses on a perspex clad preamp from JDI.

listing including brands stocked and demonstration facilities.

111

THE CHOICE DIRECTORY

At-a-glance information on all the current products that we've tested in past issues of *Hi-Fi Choice*.

Choice Matters

12

COMING UP

Next month Alvin Gold reviews a batch of new cassette decks, *Aspirations* visits the home of 'hitchhiker' Douglas Adams, there's the chance to win a pair of new Acoustic Research loudspeakers or

some AKG cans, and your April issue of *Choice* comes with a **FREE** tuner supplement with reviews of ten budget models.

47

CHOICE SUBSCRIPTIONS

Save money by subscribing, and have your favourite hi-fi magazine delivered to your home every month of the year.

97

READER OFFERS

You can buy Furukawa cables and CD Xtracts at a discount from *Choice's* mail-order department.

98

AUDIOPHILE RECORDINGS

A choice collection of superb recordings from around the world, each one guaranteed to bring out the best in your hi-fi system.

101

BACK ISSUES

Missed an issue of *Choice*, or want to read a past review? Order your copies with this page.

144

PERSONAL MESSAGES

The Kontak/Lingo saga is unravelled: Paul Messenger justifies some of his more controversial ramblings of recent months.



Over two and a half grands worth of QED Systemline is up for grabs this month.



M A R A N T Z.
 N O T F O R T H E
 C A S U A L
 L I S T E N E R.

PM-30 SE You don't buy the Marantz PM-30 SE Audiophile Amplifier to hear music. You buy it to listen. To appreciate every aspect, every subtle nuance of sound in a musical piece. This crystal clear music experience is something we call Pure High Fidelity. It is the impeccable standard we impose on all Hi-fi equipment that bears the Marantz name. That's why we still use our own custom components and technologies. Because it's still the only way to ensure perfect natural sound quality.

Thirty years ago Saul Marantz said, "For us the realistic reproduction of music is the essential premise". Each year, the awards and reviews from around the world prove that this premise remains unchanged. The PM-30 SE proves it too. Its superb sound performance and advanced circuitry give it a proud place in the Marantz heritage. Test it yourself at one of our selected dealers. And treat your ears to some Pure High Fidelity.

■ Special edition version of the PM-30 ■ 2 x 40 watt RMS into 8 Ohm but with low impedance drive capability ■ Source direct switching for highest possible clarity and resolution ■ Ultra low-noise op-amp for magnetic phono input ■ Two tape monitors with tape 1 to tape 2 dubbing ■ Bi-wiring speaker sockets built-in ■ Linear drive power supply (LDPS) guarantees tonal and dynamic fidelity even into difficult loudspeaker loads ■ High resolution (HR) circuitry and custom components give maximum channel separation, low noise and highest resolution ■ Direct wired speaker terminals ■ Gold-plated phono sockets (CD and phono inputs) ■ Total of six inputs ■ No tone controls ■ Automatic subsonic filter on phono input ■ Gold RCA for all inputs ■ Gold-plated loudspeaker terminals accept 4 mm banana plugs.

marantz®
 PURE HIGH FIDELITY

Update

PRODUCTS

DAT's the way

The Japan Victor Company (JVC) has leapt into the DAT market with two hardware products and a range of digital audio tapes. Both DAT machines use the SCMS (or Serial Copy Management System) method of protecting music copyright - which means that tape-to-tape copying in the digital domain isn't possible.

Both machines feature remote control and offer a long play mode which doubles the effective length of a tape (if absolute sound quality isn't required), giving these decks the longest recording capacity of any machine on the market, with 240 minutes from a normal 120 tape. They both use JVC's 'fine tracking' system similar to that developed for the company's range of VCRs.

The decks use bitstream analogue to digital converters and feature 64-times oversampling rates.

The cheaper *XD-Z505BK* (£599) uses a PEM DAC, (digital to analogue converter) while the more expensive *XD-Z1010TN* (£999) uses JVC's K2 digital interface system to deliver 'superior sound quality'.

JVC's DAT cassettes come in four different lengths and use a metal tape formula especially designed by the company using its video and analogue audio tape technology. Besides the 60, 90 and 120 minute lengths, the range includes a 100 minute



The Epos ES11 - yet another high quality compact speaker.

tape especially suited to the average length of a Compact Disc. The cassettes are priced between £6.99 and £9.99.

A spokesman for JVC said he hoped the market for DAT wouldn't be compromised by a 'painful birth'. The medium was developed several years ago but production was held up while the copyright issue was sorted out between the manufacturers and representatives of musician's unions

. He also envisaged audiophiles waiting to see what the outcome of Digital Compact Cassette (a new Philips system) would be before buying a DAT

machine. "But I think it's going to be a system which lives alongside CD - more so than conventional cassette decks or DCC. It's had a slow start and there is still a shortage of pre-recorded software but I think the record companies are going to wake up to the fact that there are several decks on the market now and it is a viable medium. And prices of the decks will come down - look at how CD player prices have been reduced," he added.

Epos arrival

Joining the swelling ranks of compact loudspeakers which

offer high sound quality to well off audiophiles comes Epos' new *ES11* loudspeaker. The £300 two-way monitor incorporates a 165mm polypropylene bass driver and 25mm aluminium dome tweeter in a 37cm high cabinet. Both drivers are new designs made especially for the *ES11*.

The cabinet itself uses radical new injection moulded front and rear baffles which are tensioned by steel rods. The baffles are made from a polymer which is described as being both highly rigid and having excellent damping characteristics. The rest of the cabinet is original real wood veneered MDF. Another interesting feature of the new speaker is that the woofer chassis is moulded as an integral part of the baffle - a development which is supposed to bring increased precision to the speaker's handling of transients. The new woofer features a phase plug which has been contoured to modify diffraction at the centre of the cone, and which Epos says delivers better polar performance than a traditional dust cap.

The *ES11* is bi-wireable with two sets of terminals, boasts a sensitivity rating of 87dB/w and is suitable for amplifiers from 25 to 75 watts. Dedicated stands are available.

Dirak from Glasgow

Careful attention to power supplies is one of the preoccupations of an audiophile, as Glasgow-based Linn Products well knows.

The company has just developed the *Dirak*, a dedicated power supply to improve isolation for the *LK1* preamplifier and *Aktiv Isobarik* crossover.

"The more care taken to nurture the signal as close as possible to the source itself the greater the benefit... substantial enhancements in sound quality are possible,"



JVC - hoping for an easy birth for its first DAT offspring.

says Linn which named the *Dirak* after 'a famous physicist'. Described as enhancing the performance of the system by using a high frequency filter for the mains, large transformer and reservoir capacitance with output voltage regulators, the *Dirak* is now a standard feature of the *Aktiv* crossover. It weighs seven pounds and measures 8 x 15 x 32cms (h x w x d).

It is also available as an upgrade kit to *LK1* owners. But it's not cheap. On its own it commands a £395 purchase price, while it increases the *LK1* price to £870 and the *Aktiv* crossover to £1,275.

No arm done...

Aiming to impress, the new Thorens 'high end' turntable arrives this month - without an arm. The £650 *TD-3001* breaks with tradition by merely incorporating a mass loaded suspension system to cope with different types of tonearm.

Proprietary boards are available for Linn, Roksan/ Rega and SME types of arm with Thorens sensibly (and uniquely we think) supplying a series of 'mass pellets' to balance the suspension whatever weight of arm is fitted (400 to 800 grams). This ensures, says Thorens, that the 'piston vertical motion' of the suspension retains its accuracy and that none of the suspension springs are under different tensions. The



Thorens TD-3001 - pick your own arm.

suspension system uses leaf springs, set in a triangular layout to isolate both vertical and horizontal frequencies. Setting up is apparently a doddle and adjusting can be carried out from the top plate.

Elsewhere, every element of the belt-drive system, split phase power supply, platter and steel bearing has been given think-tank attention to make this top of the range deck even more refined than the *TD2001*.

While it may seem to some that the new Thorens apes and therefore flatters the Linns and Roksans of this world, the company will come to no harm by offering such a well-designed product.

Marampz

Bridging the gap between the esoteric *Music Link* range of high end hi-fi and its more run of the mill products, Marantz has come up with a

new pre and power amplifier combination for its *Audiophile* range of equipment. The *SC80* preamplifier and *SM80* stereo power amp cost £479 and £499 respectively.

Ergonomically well laid out, the preamplifier is also a fully remote control model. It offers seven inputs including a switchable moving magnet and moving coil input, DAT input and two full tape loops.

New five incher from MA

Metal dome magnate Monitor Audio has produced a new bookshelf model to join the *Studio* range of metal driver speakers. The new baby, dubbed *Studio 5*, costs ten pence less than £600 and features a new five inch metal coned bass/mid driver made of a ceramic and aluminium sandwich, coupled with Monitor Audio's familiar gold dome tweeter.

Given its price and dimensions (32 x 20 x 18cm) the 5 appears to be aimed at the market for small powerhouse style speakers exploited by Acoustic Energy with its first model. Although unlike the *AE1*, the 5 is an infinite baffle design and features a lighter bass/mid driver. It's also a pretty substantial box - each unit is constructed from 18mm MDF and weighs five and a half kilos. As usual with MA, the *Studio 5* is available in a range of veneers, and as is increasingly more common, it is fitted with two pairs of terminals for bi-wiring. Stay tuned for a full review in a future issue of *Hi-Fi Choice*.



Monitor Audio's new baby - a powerhouse on the bookshelf?

Bearding the competition

Bill Beard's British Built Audiophile Products has upgraded its *BB100* integrated valve amplifier and gained a distributor. The upgrades include improvements to the power supply and the replacement of important passive components with higher spec alternatives. The 50W *BB100* MkII costs £1,195. The company's new distributor is Oxford Distribution which handles a variety of European brands as well as its own Oxford Acoustics turntables.



The Beard *BB100* integrated amp - new specs, and a new distributor.

Fabricating sound

Loudspeaker crafts-company ProAc has revamped its *Studio 1* and *Super Tower* models by doing away with metal dome tweeters. While some manufacturers have maintained that metal dome technology isn't the panacea to tweeter development, many specialists increasingly embrace it.

While he still recognises the competence of the metal dome tweeter, Stewart Tyler, ProAc's designer, says that in the areas of sweetness and transparency one cannot beat a well-designed soft fabric dome.

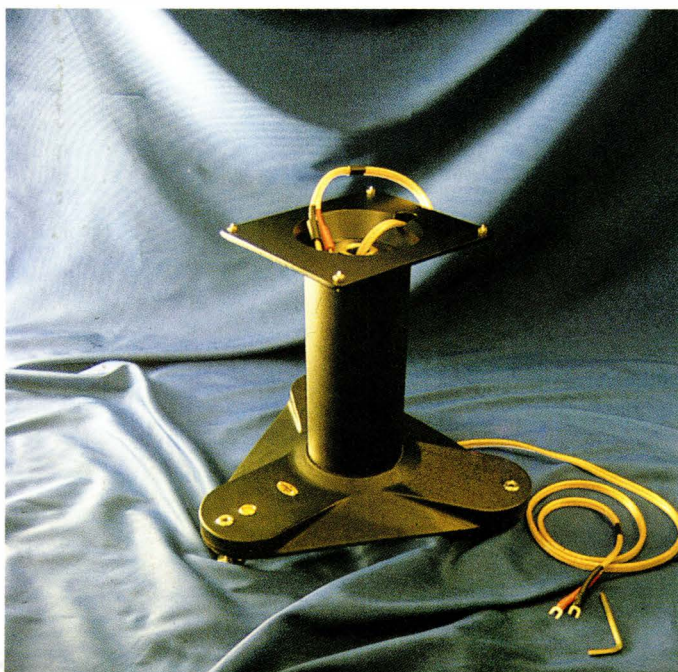
Having scoured the market for a year in search of the right design, he has now found a one-inch soft-dome tweeter which he says delivers exceptional performance in the two models.

Refining the crossover design and cabinet damping of these three-year old models results in 'greatly enhanced treble smoothness and overall transparency', he says.

Moreover, there is no price increase on either unit; the *Studio 1* remains at £600 and the *Super Tower* at £1,200 for any of the black ash, walnut, teak, oak or mahogany finishes (rosewood costs around £100 extra).

ProAC, 130 - 132, Thirsk Road, Borehamwood, Herts. Tel: (081) 207 1150.

A flying stand - how's that for Kudos?



At last, a domestic DAT machine from Technics, but from its top dealers only!

Stand for Kudos

A Kentish aircraft parts manufacturer has branched into audio design with a loudspeaker stand which aims to be all things to all audiophiles. The *Project S100* is the result of a year long foray into loudspeaker stand design by Kudos Audio, a division of FRM Supplies, of Sevenoaks.

The stand's main attraction is its versatility. It is available in five different heights from six to 30 inches and offers three top plate sizes to cater for different sizes of cabinet. An integral spirit level allows for quick vertical alignment using an allen key from above the stand's three spiked feet. "Optimum relocation for loudspeakers is an easy task - the stand can be accurately adjusted within seconds," says Kudos.

The base is made from a concrete composite designed to absorb energy and the stand's mass can be tuned by filling the cylindrical column with lead shot and sand.

There is even a cable duct to hide unsightly wiring within the stand. Prices for

the *S100* start at £289 but finish at £297 - the difference reflecting the height of the column and the size of the top plate.

Kudos is also planning an anti-vibration equipment table and two-column equipment stack to match the *S100*.

Kudos Audio Division, FRM Supplies, 28 - 34, Bradbourne Road, Sevenoaks, Kent. Tel: (0732) 458151.

the recording drum head and there is a digital optical link system to connect the machine to outboard DACs.

The player is finished in gold to match Technics stylish new *Digital Reference Series* and will be available from the company's top dealers.

A complete range of S-VHS videos complement That's audio range.



For DAT get MASH

The new year stork-run dropped off a sexy-looking DAT machine from Technics. The *SV-DA10*, is the Japanese giant's first domestic machine and will cost £666.

The *SV-DA10* uses the SCMS copyright chip (of course), and incorporates Technics' MASH one-bit analogue to digital and back to analogue converters. Features include a shuttle search dial which makes cueing very quick, digital fade in and out for truly debonair dubs, timer, programmable numbering and playing and various post recording editing facilities.

Technics' silent shaft bearing reduces noise from

Tape clearer to see clearer?

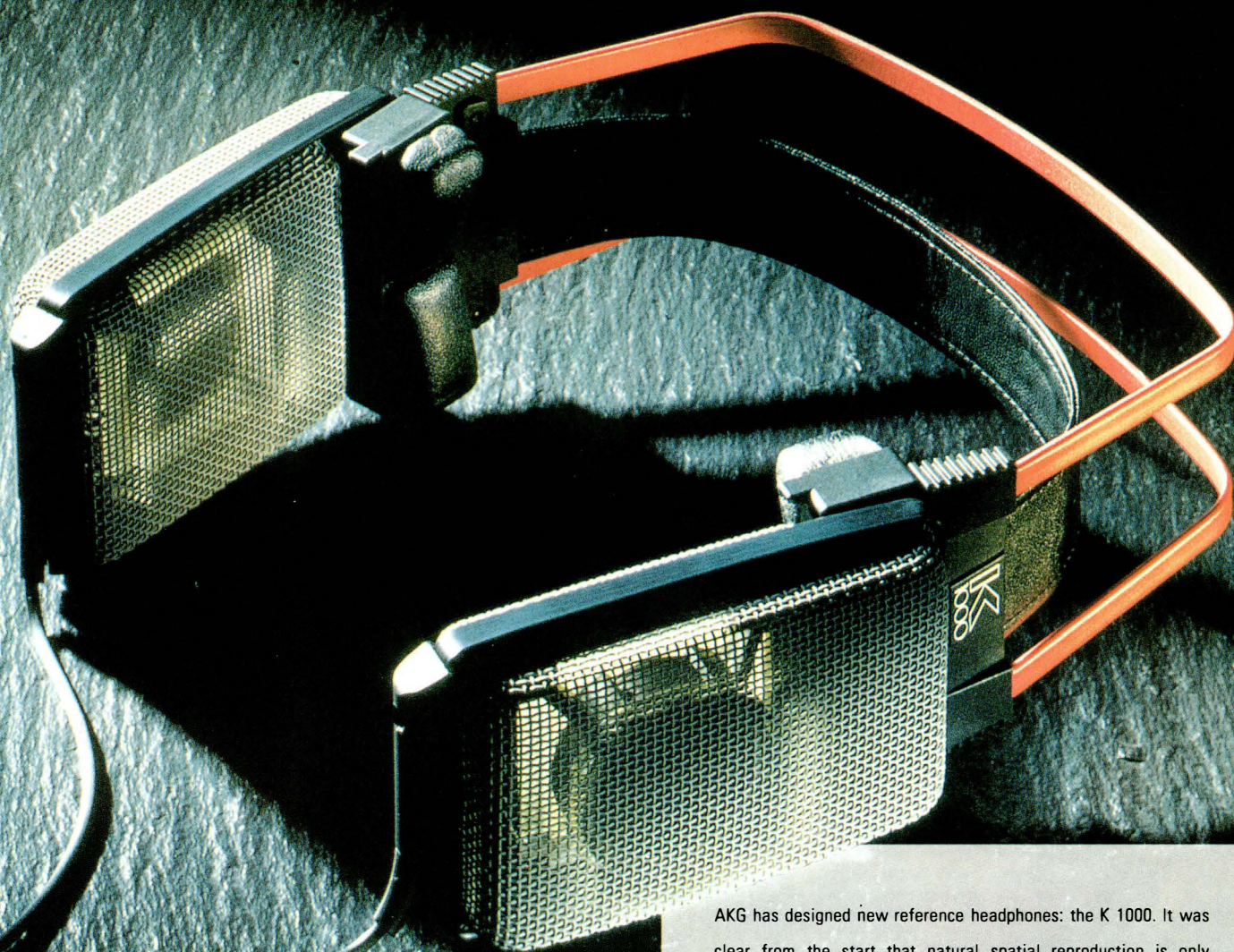
That's Tape is introducing three grades of video tape to complement its popular range of audio cassettes. Promising a similar quality on video to that achieved in audio, That's says it has produced a new more acicular magnetic particle for its premier S-VHS video tape. The needle-like particle is smaller and more uniform in shape than conventional particles and is reported to be free from pores and swarf-like anomalies.

The tape uses a compound of two different types of binder to achieve optimum particle dispersion and durability so giving a more densely packed and

AKG

ACOUSTICS

A New Reference: The AKG K 1000



AKG has designed new reference headphones: the K 1000. It was clear from the start that natural spatial reproduction is only possible without any ear cushions that would change the sound. This was the idea.

Based on unbiased studies of all transducer types, AKG chose the proven dynamic transducer. However, AKG has updated this concept by developing a new type of magnet assembly called the VDL (Ventilated Linear Dynamic) magnet, using laser interferometry, and coating the diaphragm with an organic violin varnish formulation that has been in use for centuries.

The way in which state-of-the-art audio technology has been put to work in carrying out a revolutionary idea placed the K 1000 in the "Reference" class in all reviews that appeared to date. Listen to the Reference at the selected K 1000 dealer nearest you.

AKG AKUSTISCHE U. KINO-GERÄTE GESELLSCHAFT M.B.H.
Brunnhildengasse 1. P.O.B. 584, A-1150 Vienna/AUSTRIA
Tel: (1) 95 65 17-0, Telex: 131839 akgac a, Fax: (1) 95 65 17-245

AKG ACOUSTICS LTD.,
Vienna Court, Lammas Road, Godalming, Surrey GU7
1JG/GREAT BRITAIN
Tel: (4868) 25 702. Telex: 859013 akgmic g. Fax: (4868) 28 967



uniformly oriented coating, says That's.

Two further coatings act to reduce jitter and enhance smoother running in the S-VHS or Ultra Acicular System format.

That's also offers a Super Acicular System tape dubbed HG (high grade) and a standard tape - That's VR - which nevertheless uses acicular particles.

Prices are from £2.99 for the standard VR E120 minute length, £3.99 for an HG E120 and £8.99 for the S VHS E120.

Ruark's ranks swell

The new year saw the introduction of Ruark's new speaker - £1,299 worth of floorstanding *Crusader*. The three-way model uses an angled baffle aiming the drive units slightly upwards towards a seated listener, which dispels coloration according to Ruark. Each of the three drivers is isolated from the others by internal chambers and cross bracing adds to the rigidity of the cabinet.

The reflex loaded 165mm bass unit is claimed to have a flat response to 50Hz (which isn't a tall order for Ruark), and the soft-dome midrange unit is the same as is found in Ruark's *Accolade*. A 25mm (one-inch) metal dome tweeter is dedicated to the frequencies of 4KHz and above, and is a new unit for Ruark.

Truly three-way, the *Crusader* gives the enthusiast plenty of cabling opportunities with three sets of Michell binding posts connecting directly to the crossover.

BUSINESS

Hi-Fi Choice at Bristol Show

Hi-Fi '91, the *Hi-fi Choice* sponsored Bristol Show, promises to be an extravaganza of new and established products from over 100 leading brands from all over the world.

Now in its fourth year, the show takes place at the Holiday Inn in the city centre over the weekend Friday



Ruark's Crusader - a three-way floorstander that's a must for the cable enthusiast.

February 15th to Sunday February 17th. Entry costs £2.50 which includes the chance to win a free copy of *Hi-Fi Choice* and a ten per cent discount on virtually all the products being exhibited.

The list of new products is extensive. At least 25 brands have one or more models which will be making their debut at Bristol. There will be everything from new loudspeakers, new amps from at least seven companies, CD players, several DACs and a high end turntable from Dual. AKG will exhibit its state of the art *K1000* headphones alongside the more affordable



lightweight *K33* and *K44*. Kenwood will exhibit portable and domestic DAT machines and with JVC, Sony, Technics and Philips present, undoubtedly there will be more on that subject.

A range of stylish high-end gear will be launched by new firm EDC Photonic, and Arcam is playing its cards close to its chest by refusing to reveal the nature of its new "top secret" product.

As well as some of the finest hi-fi, there will be exhibits on NICAM (stereo) television, personal stereos, in-car entertainment including the latest RDS (Radio Data Service) models and an emphasis on hi-fi in its user friendly and attractive guise with several of the new 'lifestyle' products on show.

The *Hi-fi Choice* team will be holding comparison demonstrations to see what you think of bitstream as opposed to multi bit CD players. We'll be using state of the art equipment to reveal the sonic differences between these two approaches to digital to analogue conversion. Entry is by ticket (free) and the results of the demonstrations will be analysed and published in a future issue of *Choice* - so become a contributor!

The show opens at noon on Friday and closes at 8pm. On Saturday and Sunday the opening times are from 10am to 6pm. The hotel is near the railway station and there is extensive parking close at hand.

Bye Bye Ratty

After three years editing *Hi-Fi Choice* and promoting Frank Zappa's music to both his staff and readers, John Bamford has jumped the ship and moved on to pastures new.

We'll be carrying on his conceptual continuity legacy and wish him all the best in his new '\$1000 suits and wiggly ties'!

In Brief

Lancashire-based Analogue Experience Ltd has a distributor in the Far East. Anex, which makes a highly regarded turntable power supply among other products, is handled by Reference Audio, of Singapore.

Teac UK has taken on distribution of the esoteric van den Hul range of speaker cables, interconnects, cartridges and plugs from Holland.

Home video is the subject of an exhibition and show over the first weekend in March (1 - 3) at the Business Design Centre in Islington, North London.

The Bristol and Avon Hi-Fi Society has reformed after a two year hibernation. The society holds quarterly meetings and sends members a quarterly newsletter as a forum on recorded music and hi-fi. This informal society can be approached at 100, Bishop Road, Bishopston, Bristol. BS7 8LY. Tel: (0272) 428972.

Woodside Electronics, maker of the Radford amplifiers and CD player has appointed the following new dealers: Audioscene, of Chesterfield, Marpaul Hi-Fi, of Hartley, Kent, Surrey Hi-Fi, of Godstone, (guess where) and Mike Manning Audio of Yeovil, Somerset.

Despite our comments last month, the Ariston *Pro* Turntable is not fitted with a cartridge.

Cornwall now has a high-end dealer - Art of Music - offering a range of esoterica including Acoustat, Diamond Acoustics, Forsell, Cary Audio and Cogan Hall. It is run by 'obsessive audiophile of 25 years standing' Gabrielle Gorna near Launceston. Telephone (0566) 86649 for appointments.

WHAT HI-FI? DOUBLE AWARD WINNER.
BEST AMPLIFIER. BEST BUY OVERALL.

PIONEER A-400

A-300 — "NO OTHER BUDGET AMP IN MY EXPERIENCE
CAN MATCH THE DETAIL AND DEFINITION POSSIBLE
FROM THIS AMP"

Audiophile October 1990

A-227 — "A SOLID PERFORMANCE AND SIMILAR BUILD
QUALITY MAKE IT A BARGAIN FIRST TIME BUY"

What Hi-Fi? November 1990



REFERENCE POINT



Integrated Stereo Amplifier
SUPER LINEAR CIRCUIT

VOLUME CONTROL

OFF SOURCE
TAPE 1
TAPE 2
SELECTOR

DAT/TAPE 1 CD PHONO
TUNE 2
TUNER
LINE
INPUT SELECTOR

0 1 2 3 4 5 6 7 8 9 10

PHONO SELECTOR
SUM 4MC

A-400
CLEAN GROUND SYSTEM

 PIONEER

THE BEST REFERENCE POINT DEALER CAN BE FOUND ON PAGE 13 OR PHONE FREE ON 0800 300340 FOR A BROCHURE

Don't miss next month's issue of

HI-FI CHOICE

Packed with in-depth reviews!



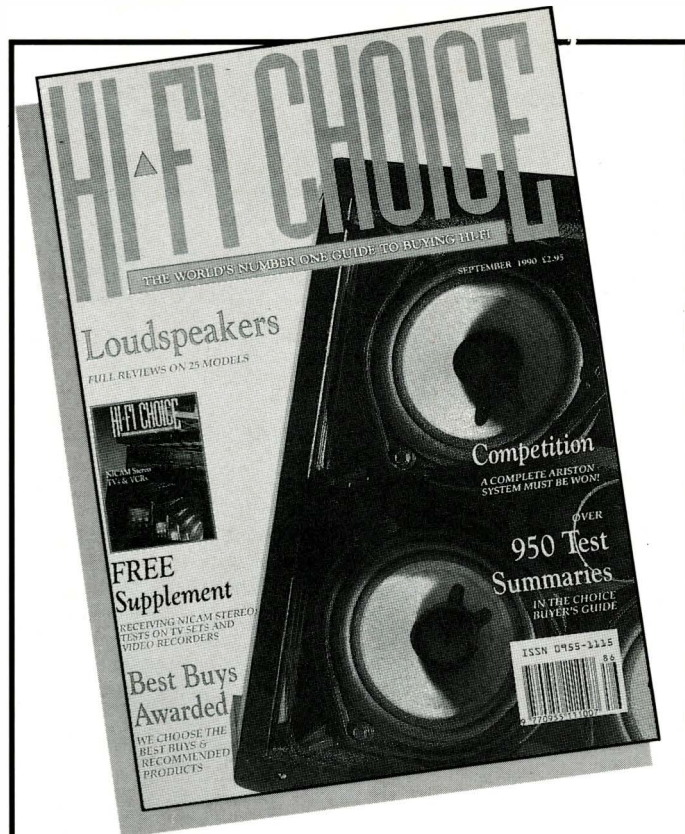
CASSETTE DECKS ON TEST

We review the latest models from Aiwa, Denon, Nakamichi, Pioneer, Sony and many more . . . PLUS . . . Another FREE Hi-Fi Choice supplement. This one is all about tuners, and contains ten detailed reviews of the latest budget models.

AND, OF COURSE . . . News, views, and much, much more!

HI-FI CHOICE

APRIL ISSUE ON SALE
MARCH 8th



Why don't you have your copy of Hi Fi Choice, the World's No.1 guide to buying Hi Fi, saved or delivered by your newsagent every month? That way you'll be sure to receive *the* most comprehensive guide to Hi Fi on a regular basis.



Just cut out the coupon below and hand it to your local newsagent

To: The Newsagent please deliver/save* my copy of Hi Fi Choice each month until further notice. (*delete as appropriate)

Name _____

Address _____

Signed _____



Reference Point is a nationwide network of independent hi-fi dealers who have been carefully selected and appointed by Pioneer because they are the best in their field. It is a partnership to ensure that you, the customer, can view the full range of products together with an unparalleled level of service. Visit any one of the Reference Point dealers listed below to see what we mean.

| | | |
|---|--------------------|--|
| AVON | | |
| Paul Roberts 31/33 Gloucester Road Bristol | 0272 429370 | |
| Paul Roberts 203 Milton Road Weston Super Mare | 0934 414423 | |
| Radford Hi-Fi | | |
| 53/54 Gloucester Road Bishopston Bristol | 0272 428247 | |
| BEDFORDSHIRE | | |
| Hypertec 66/68 St Lyses Street Bedford | 0234 325066 | |
| BERKSHIRE | | |
| B & B Hi-Fi 18 Kings Street Maidenhead | 0628 73420 | |
| Frasers Hi-Fi & Video 4 Park Street Slough | 0753 20244 | |
| Frasers Hi-Fi & Video 9 Peach Street Wokingham | 0734 794998 | |
| B & B Hi-Fi 11/12 Market Place Reading | 0734 583730 | |
| B & B Hi-Fi 62 North Brook Street Newbury | 0635 32474 | |
| B & B Hi-Fi The Pavilion Princess Square Bracknell | 0344 424556 | |
| BUCKINGHAMSHIRE | | |
| B & B Hi-Fi 4 Priory Road High Wycombe | 0494 35910 | |
| CAMBRIDGESHIRE | | |
| University Audio 1/2 Peas Hill Cambridge | 0223 354237 | |
| Cambridge Hi-Fi 1 Hawthorn Way Cambridge | 0223 67773 | |
| Hi-Fi People 42 Cowgate Peterborough | 0733 41755 | |
| Hi-Fi Choice 4 The Broadway St Ives | 0480 66676 | |
| CHESHIRE | | |
| Car & Home Stereo 42 Sunderland Street Macclesfield | 0625 32707 | |
| Cobalt Hi-Fi Centre 106 Bridge Street Warrington | 0925 36215 | |
| Tomorrow Studios 30 Northgate Street Chester | 0244 320414 | |
| CORNWALL | | |
| Truro Hi-Fi 25 King Street Truro | 0872 79809 | |
| CUMBRIA | | |
| Kenneth Gardner 70 Dalton Road Barrow in Furness | 0229 820308 | |
| DERBYSHIRE | | |
| Active Audio 12 & 16 Osmaison Road The Spot Derby | 0332 380385 | |
| Stuart Westmoreland Limited 2C Albert Street Derby | 0322 372494 | |
| DEVON | | |
| Bernard Smith 107 High Street Barnstaple | 0271 43503 | |
| Upton Electronics 3 Torquay Road Paignton | 0803 551329 | |
| Radford Hi-Fi 107 Cornwall Street Plymouth | 0752 226011 | |
| Radford Hi-Fi 28 Cowick Street St Thomas Exeter | 0392 218895 | |
| ESSEX | | |
| Peter Foulkes 122 High Street Colchester | 0206 767428 | |
| Chew & Osborne 148 High Street Epping | 0378 74242 | |
| Waters & Stanton 18/20 Main Road Hockley | 0702 206835/204965 | |
| Waters & Stanton 12 North Street Hornchurch | 04024 44765 | |
| Chew & Osborne 26 King Street Saffron Walden | 0799 23728 | |
| KA Cheeseman Sir Isaacs Walk Colchester | 0206 46808 | |
| Peter Foulkes 104 High Street Maldon | 0621 853148 | |
| Woolfmans | | |
| Upper Mall Eastgate Shopping Centre Basildon | 0268 285922 | |
| ACL Radio Services 1 North Mall Grays | 0375 374666 | |
| Peter Foulkes 20 Exchange Way Chelmsford | 0245 491479 | |
| GLOUCESTERSHIRE | | |
| Hutchinsons 295A High Street Cheltenham | 0242 573012 | |
| HAMPSHIRE | | |
| Bryants Hi-Fi 81 High Street Aldershot | 0252 20728 | |

| | | |
|--|--------------|--|
| Sinclair Youngs 9/11 Church Street Basingstoke | 0256 28623 | |
| Now That's Hi-Fi 24 Arundel Way Portsmouth | 0705 811230 | |
| Southampton Hi-Fi Centre | | |
| 37 Bedford Place Southampton | 0703 228434 | |
| R Upfields | | |
| 6 Locks Heath Centre Locks Heath Southampton | 0489 885122 | |
| Now That's Hi-Fi 174 Fratton Road Portsmouth | 0705 811230 | |
| Cristavision | | |
| 7 Thackery Mall Fareham Shopping Centre Fareham | | |
| HERTFORDSHIRE | | |
| Hypertec 6 Bancroft Hitchin | 0462 452248 | |
| Hypertec 4 Park Place Stevenage | 0438 318218 | |
| Chew & Osborne 70 South Street Bishop's Stortford | 0279 56401 | |
| Herts Hi-Fi 93A/93B High Street Hoddesdon | 0892 441172 | |
| HUMBERSIDE | | |
| Superfi 4 Dock Street Hull | 0482 24051 | |
| ISLE OF WIGHT | | |
| Russells 40 Upper St James Street Newport | 0983 523864 | |
| JERSEY | | |
| Fotosound (Jersey) Limited 5 Charing Cross St Helier | 0534 59990 | |
| KENT | | |
| Kimberley Hi-Fi 193 Broadway Bexleyheath | 081 304 3272 | |
| Panatec Sound & Vision 83B High Street Gillingham | 0634 573141 | |
| KAC Electronics Limited | | |
| 53/57 Camden Road Tunbridge Wells | 0892 23242 | |
| V J Hi-Fi 29 Guildhall Street Folkestone | 0303 56860 | |
| V J Hi-Fi 119 High Street Margate | 0303 56860 | |
| LANCASHIRE | | |
| Clearstone 235 Blackburn Road Bolton | 0204 31423 | |
| Wigan Hi-Fi Centre 13 Centre Arcade Wigan | 0942 37977 | |
| Romers Hi-Fi Limited | | |
| 94/96 High Street Rishton Blackburn | 0254 866382 | |
| Kenneth Gardner 30/32 New Street Lancaster | 0524 64328 | |
| LEICESTERSHIRE | | |
| Mays Hi-Fi 27 Church Gate Leicester | 0533 625625 | |
| Stuart Westmoreland Limited 2 High Street Oakham | 0572 755600 | |
| Stuart Westmoreland Limited | | |
| 9/10 Cheapside Melton Mowbray | 0664 411511 | |
| Stuart Westmoreland Limited | | |
| 58 Castle Street Hinckley | 0455 637605 | |
| Hi-Fi Choice 10 St Mary's Road Market Harborough | 0858 433601 | |
| Hi-Fi Choice 5 Town Square Melton Road Syston | 0533 696996 | |
| Parker High Fidelity 49 Baxter Gate Loughborough | 0509 269888 | |
| LINCOLNSHIRE | | |
| Superfi 271A High Street Lincoln | 0522 520265 | |
| Stuart Westmoreland Limited 49 High Street Grantham | 0476 78108 | |
| LONDON | | |
| Covent Garden Records 84 Charing Cross Road | 071 379 7427 | |
| Kamla Electronics 251 Tottenham Court Road | 071 636 4611 | |
| Hi Way Hi-Fi 315 Edgware Road | 071 723 5251 | |
| Hi Spek Electronics | | |
| 344/346 Regents Park Road Finchley Central | 081 349 1166 | |
| Light & Sound 166 High Street North East Ham | 081 472 1373 | |
| Babber Electronics 158 Uxbridge Road West Ealing | 081 579 6315 | |
| Spatial Audio 29 Tottenham Court Road | 071 637 8702 | |
| Myers Audio 6 Central Parade Hoe Street | 081 520 7277 | |
| Stereo Regent Street 245 Regent Street | 071 491 7922 | |
| Brians Hi-Fi 19 Tottenham Court Road | 071 631 1109 | |
| The Studio 133 Tottenham Lane N8 | 081 340 7775 | |
| MERSEYSIDE | | |
| Beaver Hi-Fi 20-22 Whitechapel Liverpool | 051 709 9898 | |
| Tisdalls 76 Tulketh Street Southport | 0704 531500 | |
| MIDDLESEX | | |
| Heathrow Hi-Fi Limited 90 Staines Road Hounslow | 081 572 1135 | |
| NORFOLK | | |
| Martins Hi-Fi 85/87 Ber Street Norwich | 0603 627010 | |
| Adcock & Sons Limited 30/34 High Street Watton | 0953 881248 | |
| Martins Hi-Fi 5 High Street King's Lynn | 0553 761683 | |
| NRDRHAMPTONSHIRE | | |
| HG Rapkin 11 Kettering Road Northampton | 0604 37515 | |
| NOTTINGHAMSHIRE | | |
| Forum Hi-Fi & Video Centre | | |

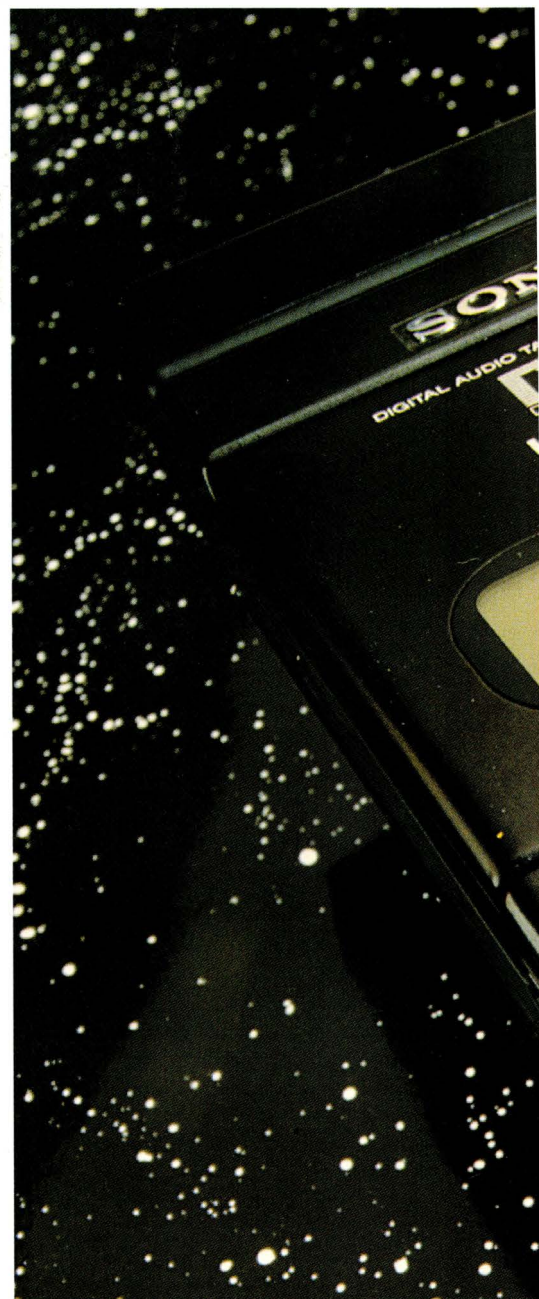
| | | |
|---|--------------------|--|
| 600/602 Mansfield Road Nottingham | 0602 622150 | |
| Superfi 15 Market Street Nottingham | 0602 412137 | |
| Parker High Fidelity 70 Long Row Nottingham | | |
| OXFORDSHIRE | | |
| Witney Audio Centre 28 High Street Witney | 0993 702414 | |
| SOMERSET | | |
| Telefringe 2/3 King Street Frome | 0373 62598 | |
| Paul Roberts 32 North Street Taunton | 0823 270000 | |
| Yeovil Audio Limited 1 Glovers Walk Yeovil | 0935 25430 | |
| STAFFORDSHIRE | | |
| Active Audio 29 Market Street Tamworth | 0827 53355 | |
| Active Audio 95 Stafford Street Hanley | 0782 214994 | |
| STOKE ON TRENT | | |
| Purkiss Hi-Fi 51/53 Piccadilly Hanley | 0782 265010 | |
| SUFFOLK | | |
| Peter Watts 1B St John's Street Bury St Edmunds | 0284 703045 | |
| System Sound 91 North Street Sudbury | 0787 72348 | |
| SURREY | | |
| Cosmic 244/256 Station Road Addlestone 0932 854522/851753 | | |
| Tru-Fi 10 Church Street Leatherhead | 0372 378780 | |
| Tru-Fi 2 Central Parade Redhill | 0737 766128 | |
| SUSSEX EAST | | |
| Smythe & Barrie 31 Langney Road Eastbourne | 0323 29192 | |
| Sunderland Electronics | | |
| 52 Norfolk Square Western Road Brighton | 0273 774113 | |
| SUSSEX WEST | | |
| Sussex Audio 163/165 Church Road Burgess Hill | 0444 242 336 | |
| Sunderland Electronics | | |
| 43 Broadwater Street West Worthing | 0903 201187 | |
| Cristavision 60 East Street Chichester | 0243 775444 | |
| TYNE AND WEAR | | |
| Bill Hutchinson Limited | | |
| 87A Clayton Street Newcastle Upon Tyne | 091 230 3600 | |
| WARWICKSHIRE | | |
| Carvells of Rugby Limited 3/7 Bank Street Rugby | 0788 541341 | |
| WEST MIDLANDS | | |
| Bridge Hi-Fi Tudor House Bridge Street Walsall | 0922 640456 | |
| Naam Hi-Fi Vision 122/123 New Street Birmingham | 021 633 4944 | |
| Superfi 67 Smallbrook Queensway Birmingham | 021 631 2675 | |
| Coventry Hi-Fi Church Lane Walsgrave Road Coventry | 0203 440529 | |
| Naam Hi-Fi Vision Lower Precinct Coventry | 0203 632086 | |
| WILTSHIRE | | |
| In-Phase Audio | | |
| 21/23 Faringdon Road Swindon | 0793 520948/526393 | |
| PR Sounds 58 Castle Street Trowbridge | 0225 77799 | |
| WORCESTERSHIRE | | |
| David Waring Cameras & Hi-Fi | | |
| Marmion House High Street Worcester | 0905 27551 | |
| YORKSHIRE SOUTH | | |
| Superfi 1 Rockingham Gate Sheffield | 0242 723768 | |
| YORKSHIRE WEST | | |
| Amrk Electronics Co Limited 57 Otley Road Leeds | 0532 752285 | |
| Superfi 7 King Edward Street Leeds | 0532 449075 | |
| Amrk Electronics Co Limited | | |
| 57/59 North Parade Bradford | 0274 722530 | |
| S C O T L A N D | | |
| GRAMPIAN | | |
| Autosonic 168 Holburn Street Aberdeen | 0224 573777 | |
| MID LOTHIAN | | |
| Bill Hutchinson Limited | | |
| 43 South Clerk Street Edinburgh | 031 667 2877 | |
| STRATHCLYDE | | |
| Bill Hutchinson Limited 43 Hope Street Glasgow | 041 248 2857 | |
| W A L E S | | |
| CLWYD | | |
| Owens Colwyn Centre Colwyn Bay | 0492 530982 | |
| Lloyds TV, Video & Hi-Fi 30 Lord Street Wrexham | 0978 364168 | |
| GLAMORGAN | | |
| Tele Electrical Services | | |
| 9 The Brackla Street Centre Bridgend | 0656 654156 | |
| GWENT | | |
| Hi-Fi Western Limited 52 Cambrian Road Newport | 0633 262790 | |
| GWYNEDD | | |
| Owens The Mall Wellfield Shopping Centre Bangor | 0248 362951 | |



Choice Sessions

Things we hear. This month:

*Sony's new 'non tracking'
technique for playback only DAT;
the long-term future of high
definition television.*



Sony's DAT boost

Paul Messenger investigates the 'non tracking' technique developed by Sony, which could give DAT a much needed boost in the marketplace.

Despite the recent formal UK launch backed by most major Japanese brands, the long term prospects for DAT (digital audio tape) as an eventual successor to the compact cassette have hitherto been apparently constrained by the need to use a costly and complex, tightly toleranced mechanism, with precision VCR-style spinning heads.

Such technology might be feasible enough at the prices charged for upmarket hi-fi and semi-pro machinery, but in order to stand a chance of ever succeeding the conventional analogue cassette, it will be necessary to come up with personal,

portable and in-car players selling for little more than three figures - and being line-fitted in Ford Escort GLs.

Indeed the comparative simplicity of its mechanism is one of the key cards held by DCC (Digital Compact Cassette), the potential rival to DAT which Philips recently announced, but which is by no means yet ready for the market.

Now Sony has come up with a possible solution to low-cost DAT playback, which could represent the ace which gets the DAT show on the road.

The high precision mechanical servo control mechanism currently used to follow precisely DAT's (unusually narrow) helical scan tracks are replaced by one with much cruder, simpler mechanicals that actually read obliquely and rapidly across several tracks at once. The data is temporarily stored in computer memory chips and then processed by high

speed compilers and assemblers to reject duplicate information and reconstruct the wanted, original signal - a sort of sophisticated averaging.

Whether the end result will match the sound quality of more conventional DAT decks must remain to be seen (and heard), since no public demonstration has yet been given. According to our resident sage, such a system is only as good as its algorithms, whatever that may mean.

Lily gilding

Gilding the lily still further, this NT (non tracking) technique uses a head drum half the diameter of normal DAT drums, and is therefore ideally suited to the miniaturisation engineering for which Sony is already renowned.

Furthermore, the storage and processing circuitry has already been reduced to just two chips, suggesting that



Will Sony's non-tracking playback only DAT system stop the Digital Compact Cassette in its tracks?

commercial availability should start at least a year ahead of DCC, probably in 1991.

A crucial point that should particularly appeal to the music business is that NT machines are strictly playback only - no nasty home recording will be available to those who opt for this low cost route to DAT replay.

NT machines will replay commercially pre-recorded DAT tapes or those recorded on expensive domestic DAT decks, but the prospects of a deluge of cheap DAT recorders that was the music biz nightmare would seem to have been replaced by an altogether more attractive scenario.

Certainly the prospects for prerecorded DAT now look altogether more appealing.

Since the Nineties battle for a digital tape format will be fought as much in the music as the consumer electronics sectors, Sony's NT technology could be a vital development in DAT's favour, even though it lacks the 'single slot' ICE (In Car Entertainment) versatility of its Philips rival.

Towards higher definition television

Paul Messenger looks at the PAL Plus initiative and the future of wide screen HDTV.

The recent collapse of BSB (British Satellite Broadcasting) has some alarming implications for the future development of television in the UK and Europe. What might be good news for Sky television and the Astra satellite is a serious setback

for the MAC transmission system.

Moreover, the BSB debacle is just the UK symptom of problems MAC is facing in its struggle to get off the starting blocks in other European countries too.

Satellite-delivered MAC (multiplexed analogue components, since you asked) is eventually intended to succeed the existing (50 year old) terrestrial PAL transmission system. Crucially, it lies at the heart of the official European strategy for the next decade's evolution towards higher definition, wide-screen television.

The technical argument for MAC is sound enough, and is sufficient to have brought about at least a public expression of unity from most European broadcast and consumer electronics interests over the past few years, even though this essentially satellite-oriented format poses something of a threat to existing terrestrial broadcasters.

Wide screen option

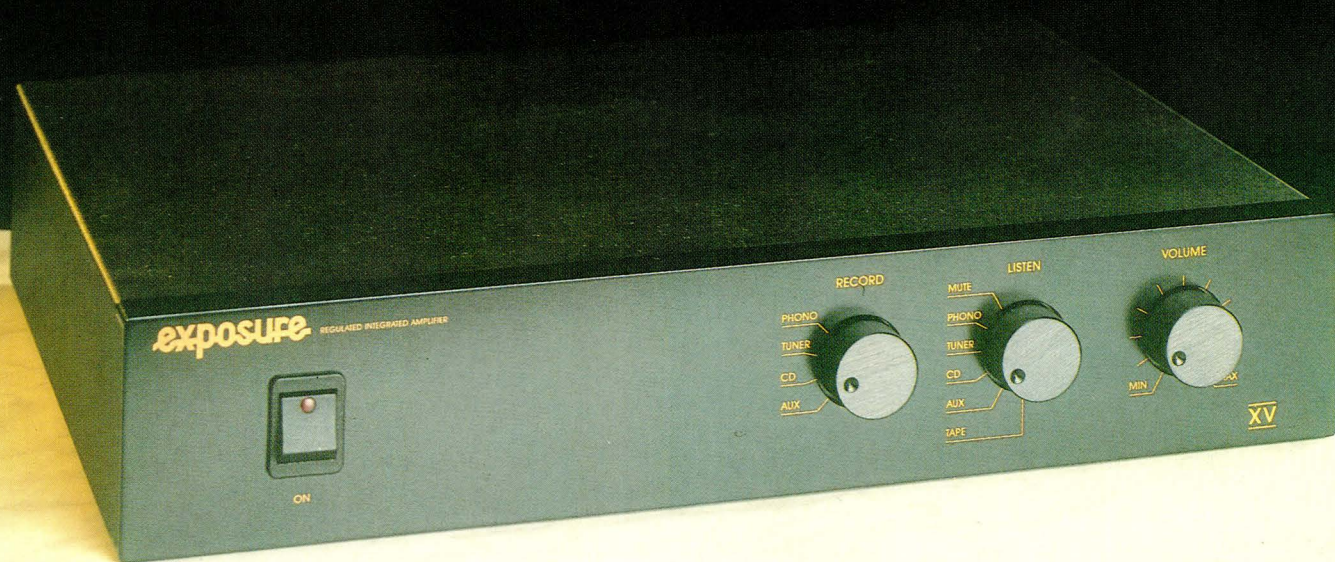
Although the full high definition (HD-MAC) variation is still several years away, D2MAC is already offering better picture (and in some instances sound) quality than existing PAL services, and will be particularly well suited to service the (limited numbers of) wide screen (16 x 9) sets that are starting to become available in some European countries, first from Thomson and later Philips.

Above all, this wide screen option is starting to get existing terrestrial broadcasters worried, and is the main stimulus behind a 'PAL Plus' initiative, extending the potential performance of the PAL system, which was one of the main talking points at last Autumn's IBC (International Broadcasting Convention).

After many years of putting all the Euroeggs in an unproven MAC basket, the good news is that there really is (at last) a formal PAL Plus initiative, and it is being backed by a rather impressive roster of European broadcasters and manufacturers.

PAL Plus has parallels with the US (ACTV) and Japanese (EDTV) enhancements to their NTSC-standard

exposure XV



THE WORKS: 59 NORTH STREET, PORTSLADE, SUSSEX BN4 1DH Tel: 0273 423877
Fax: 0273 430619



broadcast signals, initiatives which are already well under way.

The PAL Plus plan

The outline PAL Plus plan is to reduce cross-colour effects and sufficiently increase horizontal resolution so as to provide wide-screen pictures at least comparable with existing PAL signals for reception by future PAL Plus CTVs - hopefully without compromising the quality of reception via existing sets.

The bad news is that there are still a great many details to be worked out, and the timescale envisaged is rather protracted. At the press conference, the expected demonstration failed to materialise. A public demonstration is promised for the 1991 Berlin Funkausstellung, though there are no plans to introduce (German) service broadcasts before 1995.

Furthermore, the intention to take advantage of pan-European component sourcing economies of scale glosses over the very real differences in the way that PAL is transmitted in different countries. Transmission bandwidths and sound channels are just two of the more significant variations between current British and German standards, for example.

However, if the overall Eurostrategy still looks rather tentative, elsewhere at IBC, the BBC showed a most convincing - indeed technically quite stunning -

Wider screens and higher definition - unfortunately, still some years away.

demonstration of just how far its comparable Enhanced PAL laboratory work has already progressed.

Unwanted PAL artefacts (cross-colour, etc) were notably reduced, resolution was greatly improved and the display featured full 16x9 format pictures. There's still the caveat that these signals were simulated rather than terrestrially transmitted, and certain aspects of motion still need further work. But it was pretty clear evidence that clever engineering can bring PAL quite close to expected high definition standards, at least under idealised conditions.

Intriguing question

Given the remarkable results the BBC has already achieved, all within a framework that must maintain compatibility with existing sets, the intriguing question is - how has it been possible to fit all the extra information into the constraints imposed by the 50 year old PAL technology? Especially considering that some of the original spare capacity has already long ago been pinched to provide teletext and NICAM stereo sound.

Squeezing the higher definition quart into PAL's pint pot is a highly complex business, involving theory and mathematics well beyond the scope of this page (or author!).

The concept of representing a TV picture bandwidth by a three-dimensional spectrum, adding a temporal dimension to conventional horizontal and vertical axes, dates back a number of years. However, the possibility of exploiting this has only recently become possible, through the latest developments in LSI (large scale integration) circuitry.

A long wait?

Advanced CTVs which incorporate such devices as the multi-dimensional adaptive digital filtering and the digital assistance (DATV) decoders necessary for reconstituting the extra 'hidden' bandwidth information in Enhanced PAL signals have only recently started to become technically and commercially feasible.

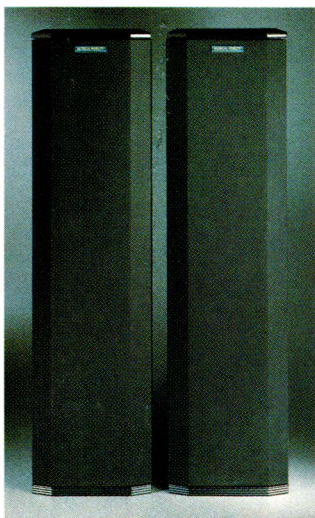
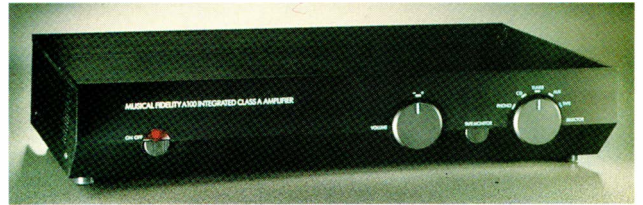
Combine this signal processing technology with the latest display developments (16x9, flicker-free, sequential scanning etc) and the Nineties should have plenty to offer in terms of television evolution, irrespective of whether or not the MAC act gets itself together in the end.

Satellites notwithstanding, it is clear enough that PAL will last well into the next century, even though waiting until 1995 for broadcasters to get Enhanced/Plus variations under way will certainly be trying for the patience of those people who have seen the benefits that higher definition and a widescreen can provide.

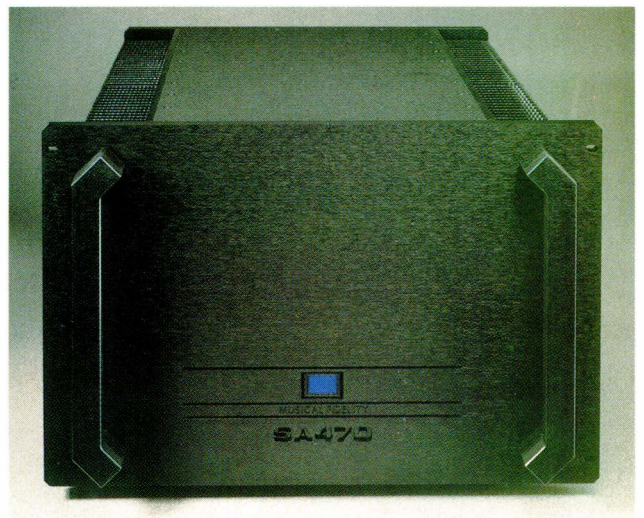
**OUR HI-FI DRIVES
THE CRITICS WILD.
WHAT WILL IT
DO TO YOU?**



Imagine you are a critic and spend all day listening to hi-fi for a living. Sounds okay until you realise how much mediocre hi-fi you have to endure. Boring isn't in it. But wake up, one British company makes hi-fi that isn't like the rest. The company is Musical Fidelity. We're different because we design hi-fi for people who want to enjoy recorded music delivered through the cleanest, most elegant signal path possible. We spare you the dross such as flashing lights and fiddly gizmos that only clutter the signal path. Our low feed-



back amplifier circuits sound open and natural, for the most realistic sound possible. They can deliver astonishing dynamic range. And create an aural image that lets you pinpoint every voice or instru-



ment. The results can be stimulating, to say the least. "From this tiny inferno issues 50 watts of the nearest thing to magic" is what Audiophile with Hi-Fi Answers say about our A100 integrated amplifier.

And in Hi-Fi News & Record Review, a critic writes that our huge 250 watts per channel



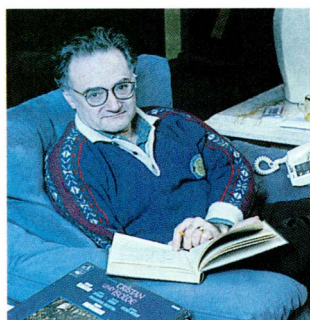
SA470 super power amplifier is "probably the best amplifier ever produced in the UK." In fact, we make a wide range of hi-fi separates and loudspeakers that deliver maximum performance. To hear hi-fi that could send you wild, visit a Musical Fidelity stockist. Where you'll soon discover why *hearing is believing*.

MUSICAL FIDELITY

The sound of silents

With film score credits to his name like The French Lieutenant's Woman, The Rainbow and the epic Napoleon, Carl Davis is used to supplying the emotion in motion pictures.

By Dan Houston with photography by Colin Clarke.



"I think I'll just go for a shave - so I don't look too grisly." A semi-be-whiskered Carl Davis disappears downstairs for his pre-

portrait ablu-tion. We're at the top of his house in south west London, in his studio where he writes music, and where he both plays and listens to it.

Designer studio

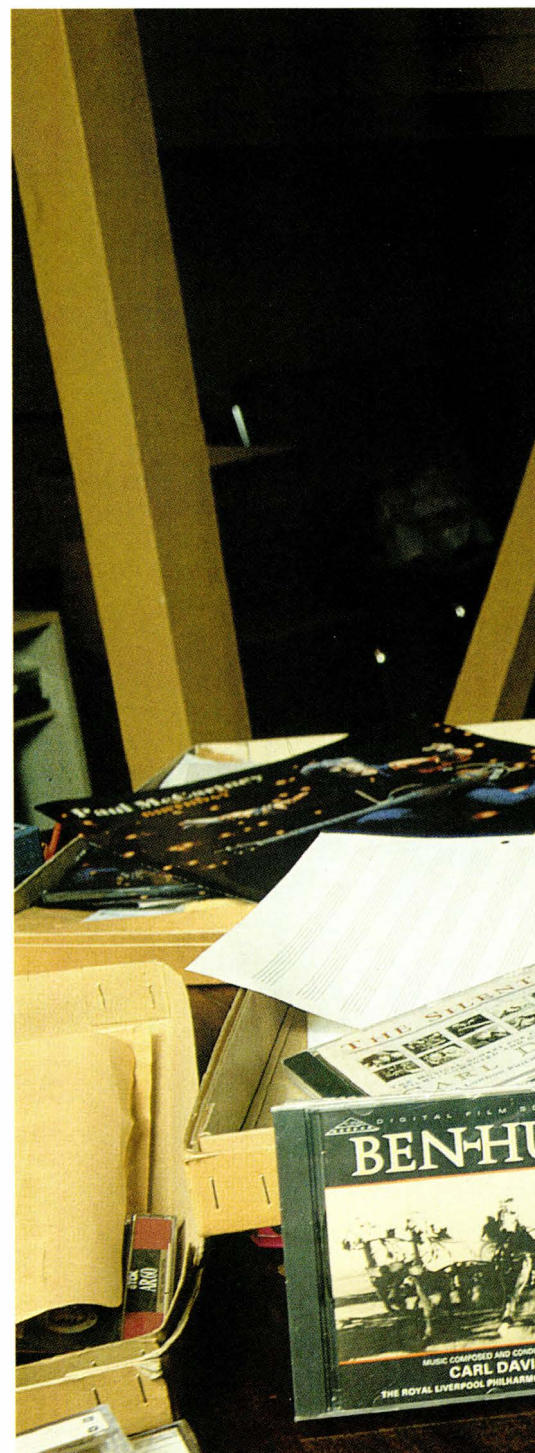
It's a large room, taking up the entire top floor space of his house, and was designed by an architect, Max Clendenning. Carl's lived here for nine years, and much of the house beneath the studio is also geared to his work, with assistants employed to photocopy scores, maintain the copious Davis files and to field telephone calls. While we were visiting, he was asked to appear on the Paul Daniels show: "What fame," he remarked dryly. "Paul Daniels and *Hi-Fi Choice*; I'm a success." Before moving here he told me he used to live next door to the notorious gentlemen's party-giver Cynthia Payne. "I sometimes had invitations to her parties. . . but I

never went," he swears.

Carl Davis was born in Brooklyn, New York, and arrived in London thirty years ago to supervise a revue, *Diversions*, which he had co-written while studying composition in Copenhagen. He remembers his early London as a dirty place with smog-blackened buildings and unclean air but he never left. Ask him why he prefers England to North America and he looks at you ruefully for a moment as if you're a movement short of a symphony. Seeing it as a straight question he just throws out his arms and replies: "Hey guys, I love the English!"

Now 54, he has a long list of film-score credits to his name and is also in demand as a conductor throughout Europe. While he has found 'specialist' notoriety for the 20 film scores he has recomposed for the *Thames Silents* series (which began with *Napoleon* in 1980), he has also written original scores for many cinema films - *The French Lieutenant's Woman* and *Scandal* to name a couple. And he is known by television production companies, who have used him for miscellaneous series and documentaries from *The Snow Goose*, *The World at War*, *Why Lockerbie?*, and *The Naked Civil Servant*.

"Excluding the silents, I've probably written music for 18 contemporary features and over 100 TV pieces," he says. "I've also written a ballet: *A Simple Man*,



based on Lowry and recorded with the English Chamber Orchestra, but none of my so-called classical pieces have been recorded."

A place to work

But his film scores are with us, and many were written in this room. It is very much a working environment in spite of homely artifacts such as his pottery collection being scattered about.

The studio is open plan, with windows on all sides and is woollen-carpeted. The ceilings slope in at the edges defining the eaves of the rambling house. Bookshelves contain a library on music and composers from Schubert to Sondheim, and books are out all over the place. There are two



A working record collection is an essential composing tool.

pianos, both Bechsteins, one an upright for playing and recording music; the other a grand - at the opposite end of the room where a video recorder and monitor allow him to compose a score while watching the film. There is also a writing table in the centre of the room under bookshelves containing musical scores in workmanlike manilla boxes.

An occasional table holds an array of slightly dusty awards, including a couple of Baftas, recognising Davis' achievements in his art over the last three decades - and some lethal-looking vintage bottles of a friend's home brew. "I tend to ignore the

awards," he boasts, "I think they are for retirement. Sometimes I look at them in this mirror and I think that's interesting." It looks as if he is also ignoring the home brew.

Classical majority

The extensive record collection, with a majority of classical works, is next to the hi-fi - in front of a group of powder-blue suede sofas and chairs.

"Records have always been central to everything for me in my life," Carl asserts. "When I realised that we were going to do a 13-hour series on silent movies called *Hollywood*, I decided I had to quadruple my record and score collection very quickly. I had to be able to pick pieces out

of the repertoire, or be able to grab the score. That was in the late Seventies and it became crucial to me to know where to look for an appropriate piece. My record collection is very much a working tool."

That is as much the case with conducting as with writing music. "Well you don't want to learn your pieces from records," Carl says, "but it is interesting to listen to an interpretation by another great conductor, and often useful to see how they handle a tricky piece. Take someone like Ashkenazy conducting Tchaikovsky - it is very revealing and extraordinary - but I'll play it through just once."

When it comes to hi-fi Carl feigns ignorance: "I don't know anything about



it really. I'm lazy and I go into a slough of despond when it comes to anything technical. When I had the studio designed I said 'look these are the things I have to have' and left it to a friend. I obviously needed to play records and to be able to use my record library for reference. And I needed to be able to play and make cassette tapes. I've got this mini demo area so that I can play and sing and then people can take it away; I need to make cassettes of music for films. I also needed to be able to dub from cassettes so I wanted a twin deck for that."

The system

The system comprises Technics turntable and cassette deck, Sansui tuner and amplifier, Sony CD player and double cassette deck, and a choice of JBL monitors or Goodmans (Q35) speakers. There is also a Revox B77 Mk II reel-to-reel tape recorder but Carl says he barely uses quarter inch tape anymore and just keeps the recorder to play his limited collection of tapes. He keeps a Sony Pro Walkman handy for local taping but this is gathering dust since it keeps breaking down. The most aspirational elements in the hi-fi are perhaps the JBL speakers. They are the Model 4312 and cost in the region of £1,000 when they were being sold four or five years ago. In many ways they formed the backbone of JBL's studio business and were recognised as one of the best monitors of the day, though they do have a recognisable character of sound and wouldn't be for every hi-fi buff. They are, however, what many engineers were listening to when they were recording music, so some synergy between the recording and listening situation is acquired.

Most of the record collection is on vinyl and Carl says he's very happy with his current turntable, but is now concentrating on collecting CDs. He'll never convert to the digital medium completely he says, because many of his vinyl records will never be released on compact disc. Recognising the limitations of compact cassette tape sound quality, his aspiration is to buy a DAT recorder. "I've got to have



one of those otherwise I'm going to keep getting into this sort of situation: I've done a recording and I want to hear the mix. The quality of the cassette is often misleading and I say to them 'what happened to this or that?' And they say it's the quality of the goddam cassette. I need a DAT machine and now... after all when you're making records it's all about 'does it sound good?' Right?"

His latest composition has been produced together with friend Carla Lane, the writer of the television series *Bread*, in which his wife, Jean Boht, plays the lead role. It's called *The Town Fox and Other Tails* (sic) and reminds one of *Peter and the Wolf* - the classic children's introduction to musical instruments. "I wrote the music based on three extended narratives by Carla," Carl explained. The album, recorded with the Liverpool Philharmonic orchestra, stars other members of the *Bread* cast and was released in November on the First Night Records label.

He is also currently working with Paul McCartney on a commission from the

The spoils of the trade: a classic Revox B77 MkII reel-to-reel and a brace of Bafta awards.

Liverpool Philharmonic celebrating over 150 years of its existence. On 'Macca', who has no classical music training, Davis says: "I am not teaching him anything, he comes here or I go to him and we're doing it together. He's humming it and I'm writing it down. But he watches me writing it (the score) down, and on Friday he tried it out himself and he seems to be overcoming this thing that a lot of pop people have about 'writing music' getting in their way."

Full-time schedule

Davis says he tries 'to write something every day - otherwise I get very unhappy'. But he is managing to hold down a full-time schedule as a conductor as well, having used live performances of the *Thames Silents* to re-establish a career that was under way in his early twenties. Before coming to England he was

mind it's actually easier to compose a completely new score than try to make an original one fit, by reorganising it."

Fast film

Carl Davis doesn't always get three months to write a score. "Most film music is very fast in its composition. There is the shooting date and the dubbing date and in between comes the editing and the musical score. Directors want as much time on editing as possible and it's rare to have any real time because it may only be a couple of weeks from when you get the finished version to the dub. And you can't write too much before the final cut is buttoned down. A film can take alarming shifts of emphasis in terms of what happens during editing. It's a tyranny and you're the last of the prima donnas!

"With the 'silents', the film is already completed, so you have more of a chance of assessing the level at which you are writing; it's a case of interpretation really. With a new film, music is just one element and you're competing with dialogue and sound effects. The sound levels and the mixing are controlled and it's more the director who assesses which element is most important. That isn't to say I prefer working on silent films; it can be very exciting when it all comes together with a new film. I think that happened with both Russell's *The Rainbow* and *The French Lieutenant's Woman*. Writing film scores is one of the few avenues in which a composer can actually earn some money, but it's not a job in which one would say one always has a wonderful time!"

Scores galore: Carl Davis' musical filing system in action.

Assistant Conductor with the New York City Opera. He describes conducting as "an antidote to life in the studio" and says that the feedback from an orchestra is vital in his other role as a creative composer. He agrees his live version of Abel Gance's *Napoleon*, performed at the Barbican in 1980, was a turning point in his career: "Tout Londres was there. And people began to say 'Carl can conduct'. And then I started to be asked to do stuff - and I would in turn offer them soundtracks." He has a full schedule including being the principal guest conductor with the Munich Symphony Orchestra, and loves periodically conducting his own pieces before audiences of 'silent cinema' buffs. His ambition is to conduct at the Philharmonie in Berlin. But the nature of the auditorium, with the audience sitting around the orchestra means that he couldn't stage a silent film there.

The score for *Napoleon* was written in three months, and like the original silent film composers, Carl 'borrowed' heavily

from the classics to write the music for the mammoth five-hour picture. "About a third of it is Beethoven," he said. The great Ludwig was apparently a fan of the young Bonaparte before the latter started carving up Europe. "There's also a lot of Mozart and Haydn and about a third of it is mine." Carl defends this 'borrowing' technique saying: "It's using the music, it's not stealing, and nor is it a deliberate plagiarism." Often with the silent series, he says he will try to find the original film score. "It's then a case of making it fit. I don't know what they used to do in the Twenties because sometimes it doesn't fit. Henri Rabaud, who wrote *The Chess Player* gives us picture cues for the music but it's murderous trying to make it work. With modern film projectors in



“Cambridge SoundWorks May Have The Best Value In The World. A Winner.”

David Clark—*Audio Magazine*

Ensemble

BY HENRY KLOSS

Ensemble is a speaker system that can provide the sound once reserved for the best speakers under laboratory conditions. It virtually disappears in your room. And because we market it directly, it costs hundreds less than it would in stores.

Ensemble consists of four speaker units. Two compact low-frequency speakers reproduce the deep bass, while two small satellite units reproduce the rest of the music, making it possible to reproduce just the right amount of energy in each part of the musical range without turning your listening room into a stereo showroom.



Not all the differences are as obvious as our *two* subwoofers.

Unlike seemingly similar systems, Ensemble uses premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustic performance. We even gold-plate all the connectors to prevent corrosion.

Unlike satellite systems which use a single large subwoofer, Ensemble features separate compact bass units for each stereo channel. They fit more gracefully into your living environment, and help minimize the effects of the listening room's standing waves.

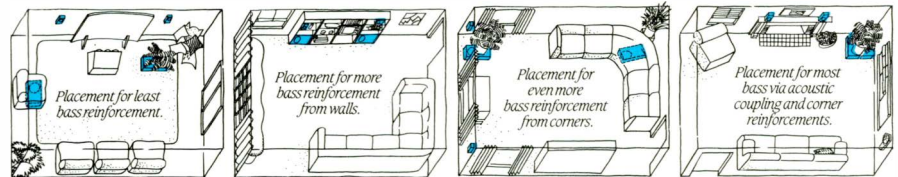
30-day money-back satisfaction guarantee.

At only £299—complete with all hardware and 100' of speaker cable,—Ensemble is *the* value on today's speaker market. America's *Esquire* magazine describes them by saying, “You get a month to play with the speakers before you either return them or keep them. But you'll keep them.” *Stereo Review* said “It's hard to imagine going wrong with Ensemble.” For literature, reviews or to order, write us at the address in the coupon, or call 0 800 622 862* or 0 800 622 286*

Your listening room works *with* Ensemble, not *against* it.

No matter how well a speaker performs, at home the listening room takes over. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa. Ensemble, on the other hand, *takes advantage* of your room's acoustics. The ear can't tell where bass comes from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furni-

ture. The satellites can be hung directly on the wall, or placed on windowsills or shelves. No bulky speaker boxes dominate your living space, yet Ensemble reproduces the deep bass that *no* mini speakers can.



You can put Ensemble's low-frequency units exactly where they should go for superb bass. You can't do this with conventional speakers because you have to be concerned about the upper frequencies coming from the same enclosures as the low ones.

“We Know Of No Small Speaker That Surpasses The Overall Sound Of Ambiance.” —*Stereo Review*

Ambiance

BY HENRY KLOSS

Ambiance is an ultra-compact speaker that proves high performance, small size and low cost need not be mutually exclusive. Ambiance is ideal for bedrooms, studies...or for use as an extension speaker or in surround sound systems. While no speaker of its size can provide the same low bass as our Ensemble and Model Eleven systems, Ambiance has more output in the

40Hz region than any “mini speaker” we've encountered. *Stereo Review* magazine described Ambiance as “...beautifully balanced, delivering a full-size sound image with not a hint of its origin in two small boxes...very few small speakers we have heard can match the overall sound of Ambiance, and we know of none that surpass it.” Available in Nextel or primed for painting for £179 pr. or in solid oak for £199 pr.—backed by our 30-day money-back guarantee—direct from Cambridge SoundWorks.



Ambiance is an ultra-compact speaker that proves high performance, small size and low cost need not be mutually exclusive.

"You get a month to play with the speakers before you have to either return them or keep them. But you'll keep them."
Esquire

Inc. Magazine

"Henry Kloss brought Dolby sound, CrO, cassette tape, and large-screen projection television into living rooms, and made the dominant speakers systems of three decades: Acoustic Research in the 1950's, KLH in the '60s, and Advent in the '70s. Now he's at it again at Cambridge SoundWorks, selling direct to the public."

"Very much in the Henry Kloss tradition... another hi-fi milestone."



"They were designed to play music—and make it sound like music. This they do very well, in a most unobtrusive way, at a bargain price... it's hard to imagine going wrong with Ensemble!"
Stereo Review

MODEL ELEVEN

BY HENRY KLOSS

Cambridge SoundWorks' Model Eleven is the world's first *transportable* full-range, high performance component system. It consists of a powerful 3-channel amplifier and two "satellite" mid/high-frequency speakers—all packed in a rugged "BassCase"[™] that, when empty, serves as the system's subwoofer. Model Eleven's performance, when coupled with your portable CD or tape player, * rivals that of the most expensive component systems. And because we market it directly from our factory, it costs hundreds less than it would in stores.

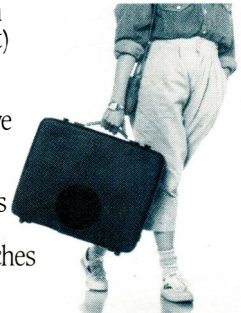


- Fits under airline seats—23 lbs.
- Can be checked as luggage.
- Works on all electrical systems.
- Delivers the full range of music.
- Is backed by a unique 5-year warranty.
- Perfect for boating, camping & holidays anywhere in the world.

The Ideal "Second Stereo" Use It 52 Weeks A Year

sound virtually identical to our acclaimed *Ensemble*[®] speaker system.

Model Eleven can be used virtually anywhere in the world—115- or 230-volt, 50 or 60 Hz AC or 12-volts DC. Because the entire system fits under an airline seat—or can be checked as baggage—you can take it just about anywhere. But Model Eleven's sound is so good, so "big," you may want to keep it home. It's an ideal second (or first) music system for a study, bedroom or kitchen. At £499 we don't know of any combination of components near its price* (transportable or not) that approaches its sound quality.



The drivers used in Model Eleven's two-way satellite speakers are no-compromise, high-performance components—just like you'd expect to find in the finest home speaker systems.

work *with* a room's acoustics for optimum performance. Remove the satellite speakers, amplifier and your portable CD player from BassCase. Place the satellites where they create a musical "stage" near ear level. Put the BassCase where it reinforces low frequency output—on the floor, even behind furniture. The result is musically accurate



Performance that rivals the best home component systems.

Until now portable music systems were, at best, a compromise. Even the most expensive ones lack the deep bass necessary for full, natural sound. But Model Eleven delivers the all-out performance previously found only in high quality home component systems. Its three speakers are designed to

Henry Kloss created the dominant speaker models of the '50s (AR), '60s (KLH) and '70s (Advent)—as well as our highly acclaimed Ensemble and Ambiance[™] speakers. While packing a stereo system into a suitcase before a holiday, he realized that an amplifier, a CD player and two small speakers take up the same space required for an acoustic suspension woofer to reproduce really deep bass. That was the inspiration for BassCase, Model Eleven's bass speaker enclosure which doubles as the entire system's carrying case.

Try Ensemble... Or Model Eleven... Or Ambiance... Risk Free For 30 Days. Call 0 800 622 862* or 0 800 622 286*.

All Cambridge SoundWorks products are sold only factory direct. This allows you to save hundreds of pounds and audition our products the *right* way—in your home for 30 days, with no risk, no sales person hovering nearby.

Our charge-free number connects you to a Cambridge SoundWorks audio expert. He or she will answer all your questions, send literature and review—or take your

order (you can use Visa, MasterCard or Access) and arrange delivery. Your Cambridge SoundWorks audio expert will continue as your personal contact with us.

*Audio experts on duty 10 AM–6 PM, Monday-Friday. To order or request a free catalog-call 24 hours a day, seven days a week. Telephone: 0494 715 414. FAX: 0494 714 962.

CAMBRIDGE SOUND WORKS UK LTD
 Hazlemere Cross Roads, High Wycombe, Bucks HP15 7LG

- Send more information and test reports.
- Send Ensemble risk-free for 30 days. £299*
- Send Model Eleven risk-free for 30 days. £499*.
- Send ___(qty.) Ambiance (Nextel) for £179 pr.*
- Send ___(qty.) Ambiance (Primed) for £179 pr.*
- Send ___(qty.) Ambiance (Oak) for £199 pr.*

I'm paying by Cheque MC Visa Access

Acct. Number _____ Exp. _____

Signature _____

Name _____

Address _____

Phone _____

* Plus P&P.

FOR IMMEDIATE SERVICE:

CALL 0 800 622 862 or 0 800 622 286

The Big Bang

Bang & Olufsen's latest creation combines sensational style and beauty with state of the art engineering. Paul Messenger gets a sneak Danish preview.

Rising at 5am, enduring half an M25 lap in dense traffic and driving rain, and waiting until after take-off for breakfast made certain I wasn't in the best of moods when touching down at Copenhagen for a sneak preview of Bang & Olufsen's latest creation.

By the time I discovered that all these tribulations had been endured for the sake of an upmarket music centre, which I wasn't allowed to write about for more than two months, I was starting to feel really crabby. Said music centre would need to be pretty damn special to avoid ending up on the wrong end of a string of sarcasm.

Happily, it's more than just a bit special. The styling and presentation is nothing short of sensational, as the accompanying photographs will confirm. And although it took me a wee while to realise the fact, the beauty is not just skin deep.

Oversize ghettoblaster

At first glance, the 2500 looks more like an oversize ghettoblaster than a music centre. It can indeed be left bolted together as a single unit - and many will doubtless use it that way for the convenience of integration and the solitary mains lead wiring. But the mains is the only source of power, and the all-up weight of 20kg - half a bag of cement - wouldn't do the average clavicle any good at all.

B&O describes the 2500 as a 'personal music system', which is as good a description as any for a system that clearly fits in with the latest trend towards compact, design-oriented packages which

a number of manufacturers are pursuing.

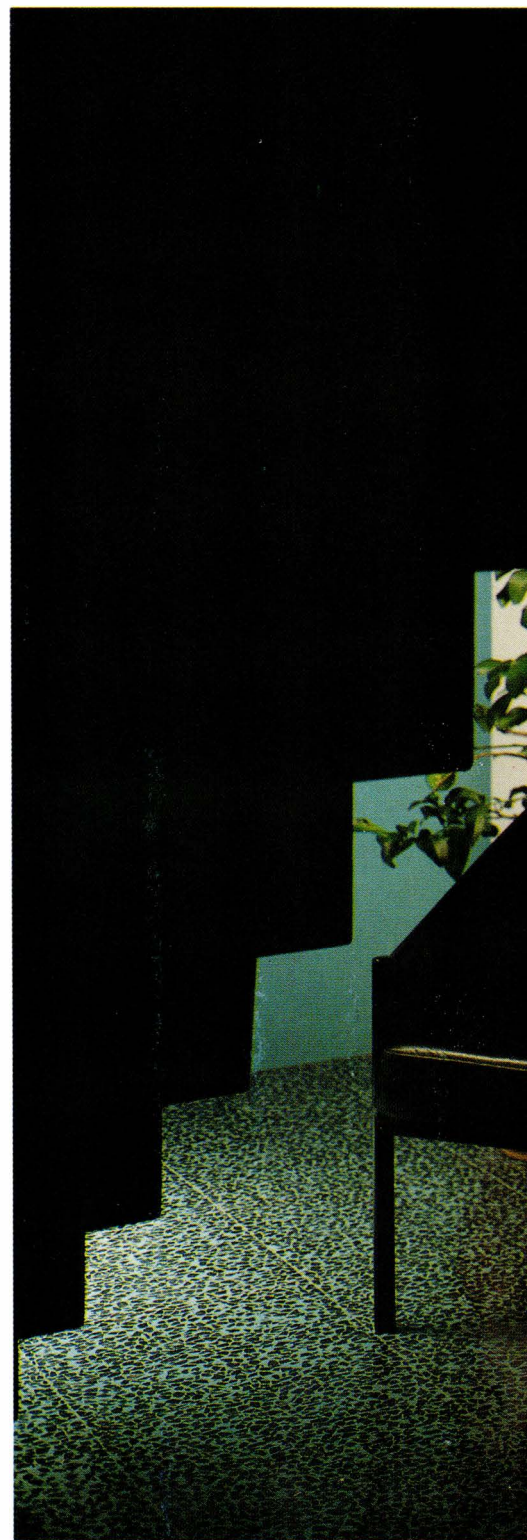
There's obvious conceptual similarity to systems such as Sony's *Mini Hi-Fi*, Yamaha's *Astarte*, and Bose's *Lifestyle*. Like these, the 2500 takes CD as the starting point, emphasising its high technology compactness throughout the design of the system as a whole.

Compared to the Japanese competition at least, £2,000 seems rather a lot of money to pay for a music centre that comprises CD player, cassette deck and tuner plus a couple of tiny loudspeakers.

Superficially that may be so, but B&O doesn't see itself as a mass market manufacturer, slugging it out with the Far East on price versus specification. Its elaborately and expensively designed and presented equipment is specifically targeted at the discriminating minority for which price is a secondary consideration, and is built to achieve exacting performance standards rather than meet popular price points.

The 2500 is the embodiment of this philosophy, starting out with the sexiest styling ever bestowed on a hi-fi product and winding up with quite a technological sting in the tail through the remarkable performance of the tiny little active loudspeakers.

Compact it most certainly is; discreet it's not. Previous recent B&O music systems like the 9500 and 4500 were low, sleek, and flat, taking pains to hide their technology beneath polished aluminium covers. As such, it's hardly surprising that their popularity is greatest amongst older customers, where technofear rules.



The 2500 makes a welcome contrast, emphasising the mechanicals in an assertive Art Deco influenced design statement which is bound to be very attractive to a significantly younger group of potential customers.

Designer tilt

Both the central *Beocenter* unit and the two *Beolab* speakers are designed with a 13 degree backward tilt when stood on a flat surface, but alternative brackets permit vertical alignment when wall mounted. Design-conscious customers can choose from a range of six nice shiny grille cloths,



from the neutral to the striking.

The units may be linked together by substantial metalwork (as shown in the pictures), which conceals all internal wiring and facilitates transportability. For the permanent installation they may be separated out to give better stereospread. Obvious configurations include wall mounted speakers connected to a shelf-standing center, with just the extra inconvenience of running mains as well as signal cabling between the units.

The sexy bit comes in the operation. Stretch out a hand towards the control panel, and the smoked glass doors slide

What no black boxes or rats nests of wire! It can't be real hi-fi, or can it?

apart invitingly while concealed lighting comes on to illuminate the control panel and loading trays.

Hands-on fun

Select Open and the cantilevered disc clamp adopts a rampant posture to allow the disc to be inserted. Select Play and the clamp comes down and the machine goes into operation, dimming the light to a faint glow and shutting the doors fifteen seconds after you leave the vicinity.

Hands-on use is so much fun, the very classy remote control seems almost an afterthought.

Immediately below the CD drive is a clear and quite informative dot-matrix function display, which comes up with a few odd phrases in Danglais (or Eurospeak) but proves its worth when helping the inexperienced pilot around the complex, 40-button operational keypad.

There's plenty of logic to help the user along the way too, the central ten buttons sufficing for most purposes, but there's no avoiding the fact that the buttons are



Pure Class. And pure enjoyment.
The NAC 52 is the latest and finest
example of Naim engineering,
Naim quality, and Naim sound.
A true state-of-the-art preamp-
lifier. You know who we are, so
you know we're worth listening
to. Ring your local Naim dealer
for the audition of a lifetime.


naim audio

SOUTHAMPTON ROAD SALISBURY SP1 2LN ENGLAND TEL 0722 332266

small, close together and identical in size, rather like those on a remote control handset. Such mimicry is perhaps defensible for its own sake, but for a 'hands on' machine like this I can't help feeling that B&O might have come up with something a little more imaginative to aid intuitive operation.

Features

I have no intention of listing all the various tricks the 2500 control panel and display are able to perform, save to wonder what sort of person is going to bother to learn all the ins and outs instead of getting on and enjoying the music.

The CD section is relatively straightforward, enabling normal or programmed play, with direct keypad track selection. To avoid any unwanted effects from vibrations fed back when the speakers are mechanically coupled to the central control unit, the disc drive mechanism is mounted on a heavy iron plate and spring-decoupled from the overall structure.

The radio tunes either FM or AM bands, and up to 40 stations can be stored in two groups of 20 - a flexibility that will be appreciated by those who want to take their system off to the cottage in the Dordogne in the summer, keeping the relevant stations stored in the alternative memory block. A simple telescopic dipole aerial may be clipped into the top of the control unit if exterior FM antenna signals are not available.

The cassette mechanism is auto practically everything (track search, reverse play, record level, tape type), includes HX Pro and Dolby B plus the capability to pre-program track selections in a similar way to CD.

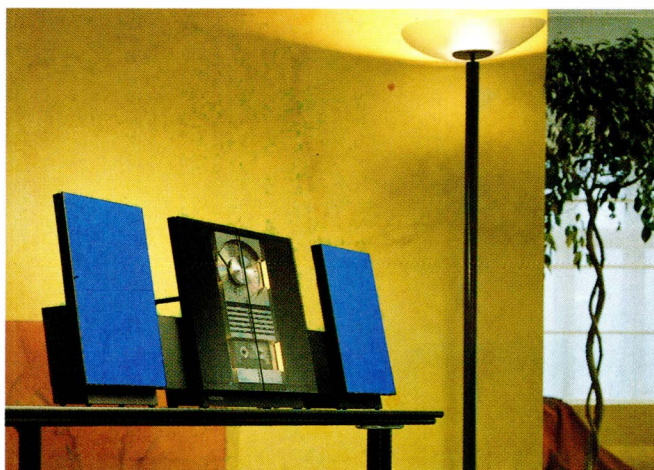
B&O makes proud claims for the quality of its auto record level setter, which avoids gain-riding by only reducing the level if something louder comes along, and not increasing it again later. This is clearly relatively non-intrusive as far as the dynamics of the music is concerned, but I'd be intrigued to find out how it handles something like Ravel's *Bolero*.

One minor weakspot of the main *Beocenter* unit is that there is only one external (line level) input. This could be a problem if you want to use it with both a turntable/RIAA equaliser and also interconnect with a TV or video, though this will be less of a difficulty if integrating with other B&O *Link* components.

If the *Beocenter* delivers the ergonomic delights (and foibles), the little active *Beolab* loudspeakers provide a very clever technological sting in the tail, and are arguably the most interesting and important elements of the whole system.

Obtaining adequate in-room bass from a miniature loudspeaker is not all that unusual these days, but doing so alongside the sort of loudness capabilities these babies are capable of is something a bit special, not least when you consider that the internal volume is less than half the miniature norm.

The very slim side profile, curved and fluted rear support and portrait shaped



Bang & Olufsen's 2500 personal music system - £2,000 worth of seriously stylish music centre.

front panel makes them look like a rather stylish Art Deco picture frame. Total volume is only three litres, so the all up weight of 7kg comes as something of a shock. The rear bulges contain power supplies, active equaliser filters and dedicated power amplifiers for each driver, plus all the necessary heatsinking and a cleverly integrated spiral shaped reflex port. The enclosure in fact consists of complex mouldings of a plastic sandwich material, which is not only stiff and self-damping but is also shaped to avoid creating internal standing waves.

The little main driver has a heavier moving mass than is normal for the size, so reducing its natural fundamental resonance and increasing low frequency extension. A longer than usual voice coil helps maintain linearity through large excursions, while the concomitant loss of LF sensitivity is taken care of by pre-equalising the driving amplifier with a +11dB boost at 55Hz and a steep 30dB/octave roll-off below. This combination maintains useful bass extension to (at a guess) 50Hz in room while protecting the

unit from being overdriven by the very lowest frequencies.

I didn't get the promised samples to try at home in time to meet this particular copy date, so haven't yet had the chance to put the speaker system under any sort of comparative scrutiny. My gut feeling, based on a couple of hours playing with a 2500 in a large hotel room with a couple of unknown compact discs, is that these may well prove to be the most interesting components in the system, worth at least half the price of the whole caboodle for all their diminutive dimensions.

Certainly the lack of bottom octave weight and scale is audible, but just as certainly they are capable of delivering remarkably high sound levels across a good sized room, sufficient enough for a modest party and to the point where I was starting to worry about complaints from neighbours.

Just as important, the sound held together well, from top to bottom of the dynamic range, and there's great comfort in knowing that there's no way of blowing anything up, 'cos amps and drivers have been designed with each other in mind.

I don't like attempting to assess value for money without at least having had a chance to try a system in familiar surroundings with known material, so I'm not going to attempt to do so for the *Beosystem 2500*.

What price beauty?

As with any B&O gear, you do pay a premium for the classy design, but how does one put a pricetag on that sort of value? Years ago I bought myself an *MX2000* B&O TV, simply because it made every other TV around look old fashioned: in many respects it still does so today, less-than-square-tube notwithstanding.

I can't tell to what extent the sound of the system is likely to appeal to specialist UK hi-fi enthusiasts. However, this example of the breed would dearly love to get hold of one, albeit as a second system.

Past experience suggests B&O is more than capable of matching or beating the best performance that the Far East can offer, and compactness notwithstanding, the components used in the 2500 - CD, tape and tuner - all represent engineering that approaches the current state of the art. The speakers may well set new standards in terms of performance versus size, so throw in the sexy styling and £2,000 doesn't look that expensive after all . . .



Chronos.

*Is it
beautiful sound
enhanced by
sensual design?*

*Or
beautiful design
enhanced by
sensual sound?*

When you hear the new Chronos tube preamplifier with separate power supply, and the new Chronos 112 Watt monobloc tube power amplifier, the decision is yours. You may think it's both.



M I C H A E L S O N A U D I O

FOR MORE INFORMATION WRITE TO MICHAELSON AUDIO, 510 HERON DRIVE, UNIT 307B, PO BOX 334, BRIDGEPORT NJ 08014 OR PHONE 609 467 5588 OR FAX 609 467 8741.
DISTRIBUTED IN THE U.K. BY MUSICAL FIDELITY, 15/16 OLYMPIC TRADING ESTATE, FULTON ROAD, WEMBLEY, MIDDLESEX HA9 0TF OR TELEPHONE (081) 900 2866.

Spring 1992 will see the launch of Philips' latest brainchild, the Digital Compact

Behind the mask

Cassette. December 1990 saw Alvin Gold in Eindhoven, listening to a prototype of this brand new format.

Newly improved with Solocopy, DAT is making a comeback this year, and again it is being suggested that it is the tape medium of the future. But prices - and scepticism about the future of the medium - remain high. DAT has never looked credible as a mass market product, and nothing has happened in the last few years to render that opinion obsolete. Current prices of £500 or more are unlikely to drop below, say, £300 for the foreseeable future, largely because of the type of technology involved. A DAT recorder is essentially a digital, miniaturised video recorder, with fast spinning head drums and complicated tape guidance systems. All the experience of VCRs is that even with a very large mass market, the hardware cannot be churned out that cheaply.

This is the background against which Philips has officially announced, following months of rumours and misinformation, a completely new form of digital tape. It is to be called DCC - Digital Compact Cassette - and has been designed from the outset to be cheap and easy to make. Philips sees the new product as a potential rival to, and eventual replacement for, compact cassette.

High Density

DCC addresses itself to several key problems in ways that are, in certain respects, highly innovative. The core problem of DAT, as with all other existing digital storage methods, is that it involves a very high density of information storage, typically 1.54Mbit per second. And that's just for the music. When you include the likes of error correction, data tracks, and subcode data you are up to the 2.5Mb mark. As we know, at practical linear tape speeds, this can only be accomplished using complicated, expensive and vulnerable helical scan technology.

The solution embodied in DCC is not one, but a package of measures. The first is to use a larger tape. DCC uses a cassette that is essentially the same size as an ordinary compact cassette, and which contains tape of cassette width which runs at the familiar 4.75cm per second cassette running speed. One difference is that the tape can only be inserted in one way; side change is achieved by using an auto-reverse mechanism.

A condition of the DCC manufacturing licence that producers will have to sign, is that all DCC players will have to be able to play ordinary cassettes along with the



digital ones. This is a very significant decision which in effect protects the astronomical investment already made in recorded cassettes by users world wide. DCC employs a novel combination thin-film head, one side of which handles playback of analogue signal, while the other records and plays digital signals.

The key to DCC is to drastically reduce the amount of data storage required. If this can be achieved, the benefits are obvious. Less data packaged onto the tape means simpler and cheaper tapes and less exacting tolerances. The eventual decision made was to use ordinary chrome video tape stock, which is a lot cheaper than the exotic tapes required for DAT, and a transport that works in the same way as an ordinary cassette transport. This means a stationary head rather than a helical scan design, and demands manufacturing tolerances no tighter than are routinely achieved with most compact cassette products. There are obvious gains in the elimination of all the fast rotating parts and spinning head drums associated with DAT. But how can this be done whilst



You've got to hand it to them: Philips' DCC will give DAT a run for its money.

recording a digital signal to a standard that is clearly better than can be achieved with analogue cassette?

Cramming it all in

One way of increasing the data rate is to simultaneously record several tracks in parallel. Philips has chosen nine - eight for the audio data (including error correction etc) and one extra channel, which, on the test rigs shown to the press, was used for lyrics and background data.

Without resorting to exotic technology it is possible to reliably record about 100kbit per second per track at a 4.75cm per second running speed, which gives a total data rate of 900kbit per second. Subtract the various overheads and you end up with a system which will record 44.1 or 48kHz (the highest sampling rate envisaged) audio with - wait for it - four bit coding. But how do you record good quality audio with only four bits, when compact disc needs 16 and is still being

criticised for inadequate resolution?

An answer to this was sought by an appeal to first principles for a more efficient coding algorithm, the results of which are described by Philips under the acronym PASC, which stands for Precision Adaptive Sub-band Coding. First and foremost PASC coding takes due note of certain psycho-acoustic factors concerning the hearing mechanism, most of which are well known and have been investigated and quantified in some depth in university research departments in Holland and elsewhere.

The key idea is to encode only those sounds that can be heard and nothing else, which means, for example, taking advantage of the fact that the human brain really can't distinguish sounds which differ in loudness by more than a certain amount, or when another slightly different frequency is presented simultaneously. The generic phenomenon of masking, of which the above are just two examples, is a complex one, but one that can be analysed. In PASC the degree of masking is computed in real time, producing an

algorithm that constantly changes to reflect the instantaneous musical spectrum of the music, and this is used to control the information that is thrown away. The result, even with what Philips insist is a cautious and conservative approach to the topic, is a signal which effectively provides 16bit resolution, *or better*, with a maximum of something *less* than 4bit coding. Or so Philips claims. Another feature of PASC is that the coding scheme is 'soft' or adaptive. The PASC algorithm involves dividing up the frequency range into 32 bands of equal width, with each band receiving the number of 'bits' or coding bandwidth it requires. Spare bits are reallocated as required, with the software itself containing the decoding 'key.' In principle at least, because the design of the DAC is soft (if you'll forgive a lapse into computer parlance), it is possible to upgrade the performance of the system without touching the hardware. Indeed Philips even suggests that there is nothing to stop the PASC converter from decoding a NICAM signal!



Enjoy Hi-Fi Sound and Vision in any room you choose, with full remote control and independent source selection via wall mount keypads or remote control handsets.

SYSTEMLINE
MULTI ROOM SYSTEMS

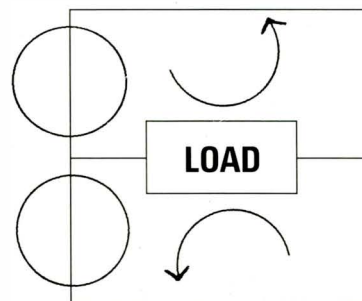
QED · UNIT 12 · ASHFORD INDUSTRIAL ESTATE · SHIELD ROAD · ASHFORD · MIDDLESEX TW15 1AU · TEL (0784) 246236

JAMES E. SUGDEN — THE DEFINITION OF CLASS A

“Method of operation in which all the transistors (or valves) operate on linear portions of their transfer characteristics all the time, the circuit drawing constant mean current from the power supply irrespective of signal.”

The new A21a series employs James E. Sugden’s output stage which can be considered as a simple common emitter stage with a driven device for its collector load.

The AC currents circulating in the output stage are anti phase in the upper and lower devices. Class A power is therefore $(2I)^2R$. With 1 amp in the emitter resistor of the load device class A output from the A21a is $= (2 \times 1)^2 \times 8$
 $= 32 \text{ WATTS}$



Ultra High Fidelity Magazine — October 1990.

“Some manufacturers specify that only part of the rated power output is in pure class A. But the A21a delivers all of its rated power without leaving class A.”

**J.E. SUGDEN & CO LTD., VALLEY WORKS, STATION LANE,
HECKMONDWIKE, WEST YORKSHIRE WF16 0NF**

Do four bits make a whole?

The obvious question to ask is whether the performance claims can be justified, and the answer is that it is not possible to answer unequivocally one way or the other. Nevertheless, on the evidence presented so far, it looks as though the answer may be yes.

I was one of a number of specialist European journalists invited to Eindhoven to hear the system in action last December, and heard prototypes driven by discrete converters (powered by some sophisticated outboard computer hardware which in the months ahead will be shrunk down onto a chip using parallel processing techniques to keep clock speeds in check). A close and fairly leisurely listen using a Philips brand system showed that under these conditions at least and with a range of commercial recordings, it was very difficult to tell the difference between the original CD and the DCC copy.

At this stage of the game, this was an impressive achievement. I *did* hear what I took to be identifiable differences, but nothing that couldn't be explained by the nature of the rest of the hi-fi system. And there is still time for improvements.

I've been duped

DCC has other important qualities too, one of the main ones being that it lends itself naturally to normal methods of software duplication, based on only slightly modified 64x mass duplicators. By contrast, the direct contact method of high speed duplication proposed for DAT is apparently seen in the trade as inflexible, because it militates against economical short runs of low volume titles interspersed - as they usually are - by short notice, long runs required to fulfil peak demand for a chart recording. Another important feature of DCC, or rather the tapes that make it work, is that they will withstand the near 100 degree temperatures frequently encountered in parked cars. The metal tape stock used for DAT has a temperature limit some 40 degrees less than this, which throws a question mark over the long term future of mobile DAT.

Philips claims that DCC is not technology driven but market driven. The cassette has been and remains the world's primary source of recorded music, but many users find it a medium that is hard pressed to provide high quality results and one which is beginning to look, well,

a little over the hill. The beauty of DCC is that it really is designed to appeal to all classes and types of cassette user, and it promises of improved performance at a potentially very attractive price.



The beauty of DCC: excellent performance at a reasonable price.

Best of all, it doesn't disenfranchise existing cassette owners, whose DCC recorders will continue to play analogue cassette tapes.

Does this mean the certain demise of DAT and guaranteed success for DCC? Not necessarily. Although I detected a newfound sense of marketing working hand in hand with the engineers on the DCC project (it has often been said of Philips, despairingly, that the left hand doesn't know what the right hand is doing), the fact remains that Philips has a poor track record for getting it right. Laservision was a litany of unrealistic claims and broken promises, and so were the various video formats that Philips was involved in prior to VHS. Mind you it's had its successes too, of which CD itself is the most obvious.

My personal worries centre on Philips' ability to master a sufficiently large launch catalogue of prerecorded music titles, though Philips seems confident that it will have positive announcements to make on this topic shortly.

I am also unhappy about certain technical issues, such as the relatively short continuous recording time before a side break is required (45 minutes initially, 60 minutes eventually), and the longevity of the thin film heads, especially with some of the older, grottier cassette stock that people are to be invited to use on their DCC machines. I'm assuming that

all outstanding technical issues such as the production of the final PASC converters will be solved on time as Philips has promised.

But I am clear in my own mind that DAT is not a mass market product, and that it does not have what it takes to replace cassette, with or without the support of the software producers, who are after all amongst the fattest and greediest (and laziest) institutions known to man. They will

eventually jump where they're pushed anyway. DAT won't die out. Its future as a professional recording medium is assured (probably for all the wrong reasons. I don't think DAT is technically good enough for many of the jobs it is asked to perform, but that's another story), and as a domestic medium DAT will undoubtedly encroach more and more on top end cassette deck sales. I can see sales rising dramatically next year, say from nothing to 200 per cent of nothing, which, as those schooled in school arithmetic will know is still bugger all.

In the meantime, Philips has what can best be described as a window of opportunity. In DCC it has the kernel of a technology, hopefully in the right place and at the right time, and incidentally a wonderful stick with which to beat the Japanese at their own game, which I suspect is close to the corporate hearts in Eindhoven. If it can pull it off, it will have set a record by scoring a hat trick of world standards for audio storage media - first compact cassette, then CD and now DCC.

One final thought: a compact disc with PASC coding would be capable of storing at least 5 hours of audio without loss of quality from a standard 12cm disc, which could finally mean *Gottterdammerung* on a single disc. Alternatively, and perhaps more usefully, a PASC encoded 8cm CD single could play for nearly 2 hours.

Launch of DCC players and tapes to the public is scheduled for spring 1992, with a promised launch catalogue of 'at least' 500 titles.

Best Integrated Amplifier* is even better...

Our goal is perfection and many advances have been made since the original Audiolab 8000A. Now there are six inputs including a video input to connect your stereo TV or VCR, so it still matches perfectly to all analogue and digital program sources.

The slew-free power amplifier design with FET inputs and peak current output of over 25 amps is compatible with all modern Hi-Fi loudspeaker systems.

While no one ever claimed to hear the tone control system when it was switched off we still designed an even more linear system, so now you hear even less of what you couldn't hear before!

As a finishing touch the fascia is available in metallic black and all phono connectors are gold plated.

Just some of the reasons why the Audiolab 8000A Integrated amplifier continues to offer outstanding sound quality and exceptional value.

Call or write for information and details of your Audiolab dealer.



AUDIOLAB

*Voted Best Amplifier 89-90
What Hi-Fi magazine

Cambridge Systems Technology Limited
26 Roman Way Industrial Estate
Godmanchester, Huntingdon
Cambs PE18 8LN, Tel. 0480 52521

Readers Write

CHOICE ANSWERS

Slap you round the face sound!

I have only recently developed a passion for music but already own a large selection of CD releases. My tastes range from Gothic Rock to New Age music, including classical works by Debussy and Handel.

My current system comprises a recently purchased Marantz CD60SE, Cambridge P50 amplifier (the original model), MonsterLink CD interconnect and Sony APM-IOES speakers on Wharfedale Diamond stands (sand filled) connected with QED 79 Strand speaker cable. My listening area is approximately 14ft by 10ft.

I wish to upgrade my amplifier and speakers but am baffled by the choice available in this area. The sound that most appeals to me is 'valve-like' in quality. This has been emphasised by a friend's Quad 2/22 valve amp and a couple of original Quad Electrostatic speakers. These both date from the late Sixties or early Seventies, and have a 'soft' relaxing sound with none of the aggression found with so many modern transistor amps, which I find have a 'slap you round the face' sound.

My budget will extend to £800 and I am open to suggestions for products available on the second-hand market. I am partial to the look of valve amps and have considered products from Croft and Audio Innovations which seem to me to be pretty good value. Michael Dugand, Dunstable, Bedfordshire.

Valve amps, especially many of those designed in the Fifties, are pretty romantic sounding devices and a great antidote for the brash sound of many CDs. However, buying a valve amp and a suitable pair of speakers for £800 may have to involve some compromise, or long term planning.

Some alternatives that would probably create the sort of results that you are after are the Pioneer A400 (£230), combined with the

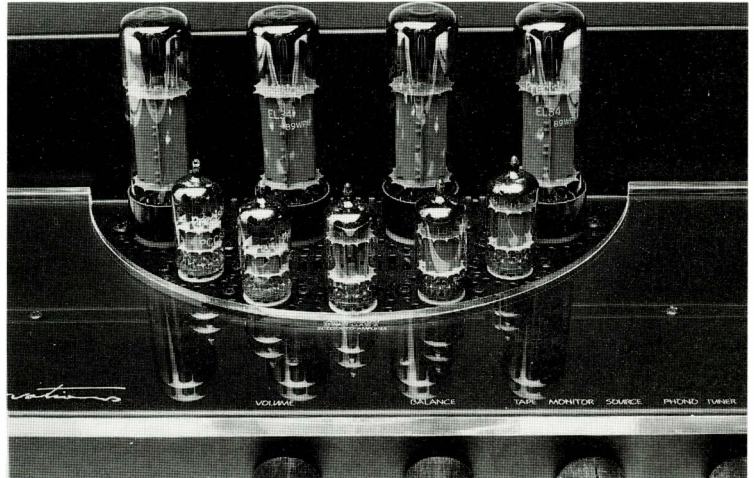
The pentode equipped Audio Innovations Series 500, the perfect antidote to aggressive compact discs.

likes of JBL LX33 (£259) floorstanding speakers, or an Audio Innovations Series 400 with JPW AP3 loudspeakers on heavyweight stands. For even better results, you could blow your entire budget on an 'Innovations Series 500 and live with the Sonys until you can afford some Snells, which won't be too difficult when you find out how good the APM10s can sound with this sort of amplification.

You might be able to find a second hand Series 500 for £500 or maybe less, which would leave plenty for one of the speakers mentioned above. Alternatively, you could combine a good line preamp with a valve power amp of yesteryear, ie Quad or Leak, and use them with the same loudspeakers.

Expensive mistakes

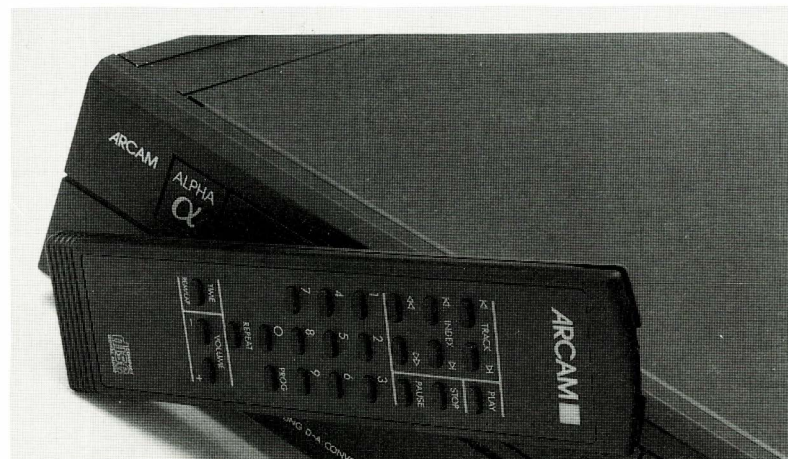
I feel I have made a mistake with my choice of either speakers or amplifier, and I don't want to make another one - it's getting expensive!



My system comprises a Thorens TD160 Mk IV with a Goldring 1012 cartridge, Arcam Delta 90.2 amplifier, Marantz CD75 Mk 2 CD player, Denon DRM12HX cassette deck, and some Rogers LS6A loudspeakers on 16 inch, sand filled Target stands. The speakers are bi-wired - the Rogers only have 3 terminals! - with vdH Clearwater cable; CD to amp interconnects are also vdH. My listening room is approximately 14ft x 12ft, and has a solid concrete floor. My listening tastes vary from Rachmaninov through Peter Gabriel and Bob Marley to Van Halen

The Rogers were purchased to replace my old, but trusty Tannoy Mercury Mk I's, and hopefully create a bigger, more detailed sound, with better imaging and a bit more treble sparkle (my amp at the time was a Marantz

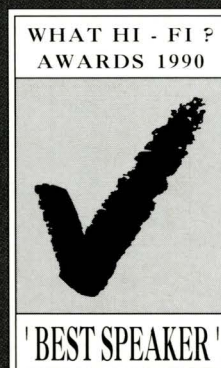
PM45), the sound was definitely bigger with better imaging, but at times a bit congested, vocals especially sounding rather harsh. My Marantz amp then gave up the ghost after 15 months! - so it was repaired and sold. I then consulted KJ Leisure Sound, and booked a dem for some amps, the Linx Nebula (no tone controls), Audiolab 8000A (too bright), and eventually settled on the Arcam. This amp improved matters somewhat but the above problems still existed. I was told that 'that's the way CD is'. Great, I thought, but I persisted, read more reviews, got more confused, and came to the conclusion that the Rogers may not be an ideal match for the Arcam. On reading your July systems issue, I've decided that some Spendor SP2.2 speakers might not be a bad idea, but as mentioned earlier, things



Arcam's simple but effective Alpha CD player, one of the more entertaining affordable machines on the market.

the Rest

the Best



The Wharfedale Diamond IV

When the 'Awards 1990' were announced we were pleased with the result. But not surprised. The 'Diamond' had won for the third time, and 'IV' is a logical progression of technical advances and stunning design which the competition simply cannot match. Now with an all new tweeter and bass unit, it will follow the path of illustrious predecessors and continue to be the BEST compact loudspeaker money can buy. Experience a 'winner' soon at your local hi-fi dealer. Or call us directly for a full colour information pack.

Wharfedale Loudspeakers Ltd, Sandleas Way, Leeds LS15 8AL. Tel: 0532 601222 Fax: 0532 600267
A MEMBER OF THE WHARFEDALE GROUP



WHARFEDALE



Features galore perhaps but Kenwood's M-54CD is a comprehensive and competitive system if you exclude the speakers.

maximum budget is £600 and I would prefer 'separable' components to an all in one unit, so that a cassette deck for example can be easily replaced.
Ben Thorpe, Oundle, Northants.

Looking through our last midi system reviews, it would seem that most of the Recommended systems made up of separate components cost more than £600, about £700 to be precise. The closest one to your budget is the Kenwood M-54CD - it has all the sources you require and costs £530 without loudspeakers (or £600 with, but we weren't too impressed with the ones that come as standard). A good pair of speakers would cost you about £100, some good examples are the Goodmans Maxim Two, JPW Sonata and Mordaunt-Short MS3.10. They are all somewhat smaller than your average midi system speaker, but sonically far superior.

If you didn't want to spend so much and were prepared to put up with an all in one unit, which shouldn't prove such a burden, Sony's Compact 302CD midi system (£400) would fit the bill. You pays your money ...

could start getting rather costly! By the same token, I am prepared to pay £500 for some speakers, as long as they are the right ones! I also realise that my stands are rather too small for the Rogers (and the Spondors for that matter), and a change to say, HBSI's might be an advantage.

With regard to my CD player, do you think the addition of an offboard DAC would improve things at all? Or should I save up and buy one of the newer bitstream models? I like Arcam products, and was thinking of a Black Box 3, but this seems to have been greeted with mixed reviews, especially when compared to say, a Meridian 203 - would this be a better bet?

Can you also recommend a cartridge to replace the Goldring, as, while it is fairly detailed, it also seems very bright, with little or no bass output. I don't want to spend too much as I buy mainly CDs these days, but have a collection of around 400 LPs already!

Lastly, I have no tuner and am after an AM/FM model for up to £300 - presets would be nice, but I could live without them. The Delta 80 appeals, but I am unsure as to whether a digital model would be better. I understand the Delta has some form of mechanical presets - are these as reliable as electrical ones? Nigel Smith, Bedford, Middlesex.

Here are a few comments that should help: in order to get your system sounding more civilised, the front ends would be the best places to start. Try out a bitstream DAC, that might do

the trick, but for the same price you could move up to an Arcam Alpha CD player, which is a remarkably good machine (probably the best one that Arcam has built, according to Martin Colloms) and doesn't suffer from harshness or congestion.

A couple of cartridges that would suit your deck are the Denon DL110 high output MC (£69) and the Glanz MFG-310LX which is outstanding for £50. If you want even better sound from LPs, upgrade the arm to a Moth, a steal at £78.

On the speaker front, better models like the Spondors you mention would help, but with higher filled stands (not HBSI's), and the aforementioned front end upgrades, you should end up with something that gets over

the harshness and congestion problems to a great extent and sounds a lot better overall.

As for tuners, I shouldn't imagine that the presets on the Delta 80 will give you any problems - in fact, they may be more reliable in the long term than their electronic counterparts.

System searching

I want to buy a good value multi-piece midi system with a tuner, cassette deck, loudspeakers, CD player and turntable (the last two being optional). I have very little experience of hi-fi and am not sure exactly what I'm looking for and would appreciate some guidance. My

Roksan Isoda Interconnect Winner

Finding the path

Before I started buying your magazine in July, I had lost interest in listening to music, spending my spare time watching videos and listening to the occasional old record on a system made up of Tandy style bits and pieces.

My system is now very different, the only reminder of its former state being a Memorex tape deck used to make cassettes for the car.

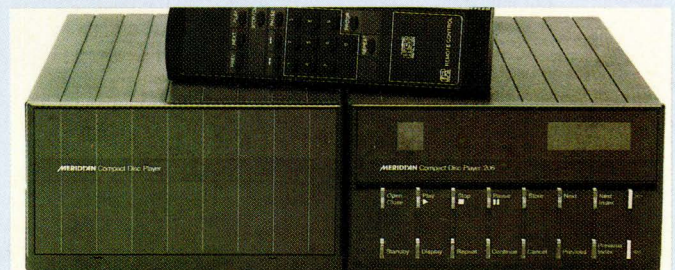
The sound now comes from a Pandora'd Meridian 206B sitting atop three Sorbothane feet, two slabs of glass and three metal cones. It's connected via Sounds

Exclusive interconnect to a Pioneer A400, which sits on Sorbothane and marble and drives a pair of Mission 763s with Monster Original and Cyrus solid core cables.

I arrived at this set-up after going through two other CD players: a £160 Philips job and a Rotel 865 (sounded good but wasn't that well built) and a couple of amps, Yamaha AX540 (not very

impressive) and an Audiolab 8000A which had a good phono stage (I own a rarely used Dual CS505.3) but couldn't compete with the A400's clarity.

It will take me a couple of years to pay for it all, but I'm very pleased with the sound and spend several hours a day listening to music with it. Paul Kellaway, Dorking, Surrey.



Meridian's 206B forms the heart of Paul's entertaining system.

Win a £2,700 QED Systemline set-up

We've got a particularly fabulous prize to give away this month - over £2,700 worth of Systemline equipment, courtesy of QED. So if you've ever fancied the idea of wiring your home for sound, this is the competition for you.

The QED Systemline components on offer allow you to extend the use of your system to an extra three rooms. A master control unit connects up to your existing system and responds to commands from sensing units in each room. Separate control amplifiers then drive speakers in the appropriate rooms, so the amount of different material being played will only be limited by the sources available.

As ever, our competition is FREE to enter.



How To Enter

Our simple hi-fi quiz requires six answers which must be written on the entry form provided. Fill in the form, remembering to include your name and address and send it to the address shown in bold type at the bottom of the form. Mark your envelope **QED Systemline Competition**.

The Prizes

The first correct entry drawn from our mailbag after the closing date will win the following QED Systemline components; three room control amplifiers (£330 each), two wall mount sensing eyes (£50 each), three wall mount status displays (£75 each), wall mount keypad (£85), master control (£990), a reel of Sytemline cable (£110), programmable handset (£175) and transmitter strip (£60).

The Questions

Please write your answers in the space provided on the entry form.

1. Which of the amps reviewed this month started out with a different manufacturer's name?
2. What has been measured using a 5msec gated 1kHz signal into 1ohm for the first time in this issue?
3. Which Yorkshire built preamp did one of *Choice's* tube junkies fall for this month?
4. B&O has made a new bid for the lifestyle market with what product?
5. Which well known British loudspeaker manufacturer has a sister company that supplies M&S with lingerie?
6. Who is the new Editor of *Hi-Fi Choice*?

Entry Form

NAME:

ADDRESS:

POSTCODE: TEL:

HFC/MARCH/91

Closing date: Monday, 8th April, 1991

Your answers:

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....
- 6.....

COMPETITION RULES

- 1) All entries must be on the entry forms provided. Photocopies will not be accepted. Incomplete forms will not be considered.
- 2) There is no cash or other alternative to the prizes.
- 3) Employees of Dennis Publishing Ltd and associated companies, the manufacturers and suppliers of the prizes, their agents and relatives, are not eligible to enter the competition.
- 4) The competition is not open to readers living outside the United Kingdom.
- 5) The prizes will be awarded to the first sets of correct answers opened after the closing date. No correspondence whatsoever will be entered into regarding the competition. The Editor's decision is final and binding.
- 6) The winners will be notified by post and the results will be published in *Hi-Fi Choice*.

Send your completed forms to:
**QED Competition, Hi-Fi Choice,
Dennis Publishing Ltd., 14 Rathbone
Place, London W1P 1DE.**

Doug Brady Hi-Fi

**BRANCH SALE LIST - MOST ITEMS ARE DEMONSTRATION STOCK,
A FEW ARE SECONDHAND**

COVENT GARDEN

CD PLAYERS

| | |
|--------------------------------------|-------|
| Denon DCD620 | £169 |
| Denon DDC820 | £225 |
| Denon DCD920 | £275 |
| Denon DCD1420 | £349 |
| Denon DCD1520 | £399 |
| Marantz CD12LE | £2250 |
| TEAC CD Trans. & DAC | £898 |
| Musical Fidelity DIGILOG CD | £249 |
| Meridian 206A..... | £699 |

AMPLIFIERS

| | |
|-------------------------------------|-------|
| Creek 5050..... | £349 |
| Musical Fidelity REF4..... | £299 |
| Musical Fidelity P172 Pre | £449 |
| Musical Fidelity 3A Pre..... | £299 |
| Cambridge C&A 75 Pre/Power | £299 |
| Linx Stratos Pre/Power Amp | £699 |
| Revox B160 | £649 |
| Audio Research D70 | £995 |
| Audio Research D115 | £1595 |
| Myst Integrated Amp | £149 |
| Solen Hybrid Amp | £699 |
| Yamaha DSR100 Pro Logic | £199 |
| Cambridge P55 | £239 |
| Cambridge C50 Pre Amp | £149 |
| Rotel RC850 Pre Amp | £75 |

LOUDSPEAKERS

| | |
|---|-------|
| Monitor Audio 452 MD Spkrs (blk) | £249 |
| Infinity Kaffa 8..... | £1249 |
| Linn Sara (WInt)..... | £399 |
| Apogee Caliper (Taupe) ... | £1495 |

| | |
|-----------------------------------|------|
| Apogee Caliper (Grey)..... | £995 |
| Naim SBL Spkrs (blk) | £895 |
| Celestion 5000 (Ribbon) | £699 |
| Alison CD7 (wInt or oak)..... | £299 |
| Alison CD8 (oak or blk) | £499 |
| SD Acoustics (blk) OBS..... | £445 |
| Pro AC Minitower & Stands..... | £699 |

TURNTABLE

| | |
|--|------|
| Alphason Solo T/T & Alcaeus PS..... | £499 |
|--|------|

WARRINGTON RECORD DECKS

| | |
|---------------------------|------|
| Thorens TD318 | £199 |
| Rotel RP830 | £125 |
| Systemdek 11X..... | £225 |
| Oracle Alexandria 1 | £495 |
| Linn Sondek/Ittok | £750 |
| Alphason Sonata..... | £595 |
| Michell Gyrodek | £495 |
| Logic DM 101 S/H..... | £119 |
| AR EB101..... | £189 |

CD PLAYERS

| | |
|-----------------------|------|
| Mission PCM7000 | £249 |
| Cambridge CD2..... | £450 |
| Yamaha CDX810..... | £265 |
| Yamaha CDX710..... | £199 |
| Denon DCD910 | £265 |
| Nakamichi OMS4 | £699 |
| Nakamichi OMS5 | £799 |

LOUDSPEAKERS

| | |
|-------------------------|-----------|
| Linn Sara, Various..... | £199/£599 |
| SD2 | £250 |

| | |
|--------------------------------|-------|
| SD3 Mk1 | £179 |
| Pro AC Studio 2..... | £250 |
| SMC Supernova | £139 |
| Spica TC50 | £379 |
| HB2 | £149 |
| HB2R..... | £149 |
| Harbeth HL1/III BI Wired | £275 |
| Rogers LS6 | £199 |
| Monitor Audio MA252..... | £129 |
| Monitor Audio MA652..... | £329 |
| Monitor Audio MA852..... | £349 |
| Musical Fidelity MC2 | £279 |
| Musical Fidelity REF2..... | £169 |
| Musical Fidelity REF4..... | £399 |
| Celestion SL12Si | £499 |
| Magnaplanar 1b..... | £895 |
| Magnaplanar 11c..... | £995 |
| Magnaplanar 111a..... | £1495 |

AMPLIFIERS

| | |
|---------------------------------------|-------|
| Rotel 840BX2..... | £165 |
| Rotel RB870..... | £219 |
| AR-04..... | £119 |
| Musical Fidelity MVT Pre Amp | £995 |
| Musical Fidelity MVX Pre | £1995 |
| Musical Fidelity P270..... | £1099 |
| Musical Fidelity A370 | £1599 |
| NAD 2600 Power | £495 |
| Sony TAF500..... | £249 |
| Rotel RA870BX..... | £279 |
| Yamaha AX900 | £379 |
| Linn LK 1PRE..... | £465 |
| Linn LK2/80..... | £650 |
| Linx Power 1..... | £695 |
| Linx Nebula Quasa..... | £399 |
| Audio Research D115..... | £1995 |
| Aragon 24k Pre | £999 |

**HUNTING FOR SOMETHING SPECIFIC?
GIVE WARRINGTON HEAD OFFICE A CALL - WE'LL HELP IF WE CAN.**

14/18 Monmouth Street,
Covent Garden,
London WC2H 9HB.
(071) 379 4010/497 1346
Fax: (071) 497 9205
Open seven days.



Kingsway Studios,
Kingsway North,
Warrington,
Cheshire.
(0925) 828009
Fax: (0925) 825773
Open six days.



401 Smithdown Road,
Liverpool L15 3JJ.
Merseyside.
(051) 733 6859
Closed on Wednesday.

One for all and all-in-one

The multi-purpose remote controls which have been on sale for a couple of years, work on the 'learning' principle. The learner has a light sensor and memory. You point all your other remotes, so that it learns their codes.

Tough luck if you have trodden on one of the originals. You can't use it to teach the learner. And the learner ends up looking a mess with handwritten labelling to identify the keys. But help is now at hand...

The *One for All* was developed in the US and is now being sold in Britain by Celtec of Basingstoke. *OFA* is not a learning remote.

It has a large memory (8 kilobytes) which can store the digital codes for much more equipment than the average household contains. Celtec employed five people to sit and build up a database library of every code for every remote available in the UK - for audio, video, TV, satellite, cable etc. The whole library won't fit in the *OFA's* memory, so the original idea was to have a copy of the database on a personal computer in their shop, and serve customers by loading only the codes they need. The *OFA* has a tiny socket for connection to a PC.

For around £80, the customer would leave the shop with a controller capable of operating whatever remote-controlled equipment they have at home. But this scheme flopped because most dealers simply couldn't be bothered.

Celtec has now rethought the strategy, and halved the price to around £40 or £45. The *OFA Mark II* can replace any five remote controls for satellite or cable systems. By discarding the codes for audio, there is room in its memory for all the TV and video equipment currently on the market. Each model is identified by three numbers.

Owners need only look up their equipment in a table and key in its identifying number. From then onwards, the *OFA* controls that equipment.

The memory in the *OFA* can be updated to cope with new equipment because each unit still has a tiny socket which Celtec can plug into its master database. The company will update handsets free within three months of purchase if owners buy new equipment and need new codes.

Technically it would be easy for Celtec now to produce an audio/hi-fi version of the *OFA II*. This would have different markings on the keypad and come pre-loaded with the codes for audio and hi-fi

its sights on a 7.5 per cent tax on the wholesale price of DAT recorders and a 1.2 US cent per minute tax on blank DAT cassettes. Translated into UK currency, this would mean around £50 on the price of a DAT recorder and around £1 on the price of a two hour DAT cassette.

And this tax is despite the fact that DAT recorders already incorporate the Serial Copy Management System (SCMS) which prevents digital tape cloning.

Needless to say the Japanese are dead set against the idea. But we now know that Philips, headed by ex-Polygram boss Jan Timmer, had already agreed to go along with the levy plan at a meeting in Athens where the hardware and software

card system which would log the records dubbed and control distribution of the tax to the artists whose music has been dubbed. Using smartcard technology (a smartcard is a credit card with built-in computer memory) this might be possible. Philips bitstream CD players already have an odd feature: the FTS circuits automatically log the number of times any indexed disc is played. But the cost of building smartcard circuitry into DAT recorders and/or CD players and the logistics of getting the circuitry to identify every piece of music played, are daunting.

The hi-fi and tape industries must now be on their guard against the IFPI and BPI lobbying for a tax on tape with vague reassurances to the

government that "technology which guarantees fair distribution is under development". It's the kind of line some gullible politicians might just fall for.

I still remember what one major record company executive said to me in an honest moment: "Of course you can't distribute fairly. But people should pay something for using tape to make music copies. The simple answer is to put a small levy on tape and just give it all in a lump sum to an agreed charity, like the deaf or blind. No one would object to that, not even the record companies."

And that's the most sensible thing I've ever heard a record company boss say.

21st Century Fox

Barry Fox looks at what's new in technology and assesses what's in it for you.

equipment instead. Obviously this would involve quite a commitment from Celtec, which the company is unlikely to make unless there is some clear sign of interest from the hi-fi trade. Perhaps trade bodies BADA or the FBA could think about backing the project.

A taxing time

Did you think the idea of a tax on tape had gone away? Think again. Although Britain's new copyright laws do not tax tape, the record companies' trade bodies, the world IFPI and British BPI, are still lobbying for a levy. They believe they are entitled to compensation for the shocking loss which their lunch fund suffers when nasty old us pay £13 for a CD that has cost less than £1 to press, and copy a few tracks for personal use.

Although the IFPI and BPI have gone quiet on this in public, there is a whole lot of behind the scenes lobbying going on. In the US, the music industry held a confidential meeting in October and agreed to use the launch of DAT as a springboard for a new offensive. The "copyright coalition" has set

industries agreed on SCMS. But they called it a "royalty", which is like referring to "killing" as "taking out".

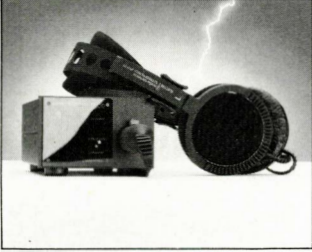
Setting aside the argument of whether it is really a crime to make copies of your own records for personal use, and setting aside the question of whether own use copying really costs the record companies much in lost sales, and setting aside the argument that sharing music may actually stimulate record sales because people turn each other onto different types of music, the scheme still suffers from a fatal flaw.

This is that there is still no way of ensuring that the collected revenue gets to the people whose records were copied. BASF recently complained that every year tens of millions of pounds collected in Germany as tax on recorders and tapes, ends up merely paying the salaries of the people employed to collect the tax.

At the Athens meeting, there was talk of some kind of credit or debit



CAREFUL LISTENERS ONLY PLEASE



ATH-70 ELECTRET CONDENSER

Audio Technica enjoy a worldwide reputation for producing the delicate transducer products which turn soundwaves into electrical impulses and vice versa. Add good ergonomic design, lightweight yet rigid construction, quality materials ... and you've created a truly supreme headphone line-up.

The hi-fi press seem to agree. Here's what they have to say about the '900' Series ... *'Audio Technica's ATH911 is a masterpiece: a delight to listen to and real alternative to high quality loudspeaker systems'* **WHICH COMPACT DISC** ... *'the ATH911 performs very well overall and it would be a safe recommendation for anyone who wants good, detailed sound, remarkable comfort and an extremely high standard of manufacture'* **GRAMOPHONE** ... *'it sounds like leopards can change their spots and even closed headphones can be thoroughly listenable'* (ATH910) **WHAT HI-FI?**

And they didn't forget about the ATH-70, our highly accurate and musically 'transparent' electret transformer/headset combination. **HI-FI REVIEW** were moved to say *'the ATH-70's compelled my feet and fingers to tap. a conscious effort to stop them was successful, but only for a few seconds'*.

When you're next in the market for 'personal listening', audition the complete A-T range at your specialist hi-fi dealer or call us directly for full colour literature.

Hz 20 200 kHz 5 10 20

ATH 909 Open Back
ATH 910 Closed Back Monitor
ATH 911 Open Back PC-OCC

audio-technica ATH-909
audio-technica ATH-910
audio-technica ATH-911

WHICH CD
HI-FI & MUSIC AWARDS
ATH 911
'Best Headphones' 1989

WHAT HI-FI?
1989
RECOMMENDED
ATH 910

The only complete transducer family

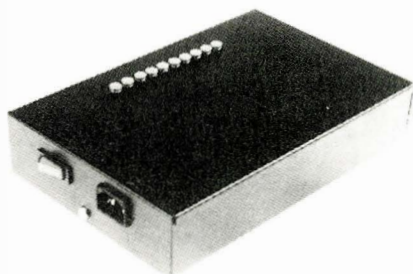
audio-technica®

□ INNOVATION □ PRECISION □ INTEGRITY

Technica House, Lockwood Close, LEEDS LS11 5UU. Tel: (0532) 771441 Fax: (0532) 704836

POWER CONDITIONERS

You'll hear music like you've never heard it before with the **Pure Power Conditioner**



Notice the huge improvement in sound quality when you run your system from a clean mains supply. How do you describe the difference? It's as if all this time your favourite artists have been playing and singing inside a wardrobe...and someone just opened the door and let them out. You could spend twenty times as much on special cables, plugs, mats etc without achieving a tenth of the difference. Try it for yourself.

The complete answer to mains conditioning.

*The sophisticated circuitry of the **Power Conditioner** eliminates all impulse spikes, smooths away every trace of noise and interference.*

Features include: complete RF filtering, transient voltage suppression, stable output voltage, low harmonic output, interference elimination display, a full 1500W load, high performance, low cost.

Made in UK.

WRITE FOR BROCHURES AND DETAILS OF 10-DAY HOME TRIAL

RADAR DEVELOPMENTS LTD
15 Sheep Street, Highworth, Nr Swindon
Wilts SN6 1AA

Tel: (0793) 765256
or (0836) 258282



A & R • Audiolab • Audio Technica • B & W • Beyer • Creek •

Stacking Systems with Separates Quality!

At Harrow Audio we have always prided ourselves on choosing and stocking only the finest Hi Fi Equipment at each price level. Often this has meant rejecting single brand systems; perhaps the amplifier was not "right" or the C.D. Player was "harsh", whatever the reason, a system made up of individually selected components was generally the only answer. **Not any more...**

Denon and Nakamichi have introduced products designed to interlink. Both feature systems remote control and no loss of sound quality.

The Denon NS1 offers auto source switching; auto shutoff and is styled with almost a total absence of knobs, switches and loose wiring. All primary controls are provided on the remote handset with secondary functions hidden behind the hinged fascia.

The Nakamichi Music Bank includes two C.D. Players that will store six discs internally without the need for fiddly cartridges and without compromising "single play" quality. Nakamichi Hi Fi is equally at home in its own "stack" or integrated with other quality products.



Inside: the 7-disc MusicBank mechanism

Both brands are supplied without turntable or speakers. So choose from the best of Mission, Tannoy, Wharfedale, Musical Fidelity speakers plus Dual or Linn turntables to combine the best of the traditional with the best of contemporary.

HARROW AUDIO

27 Springfield Rd.,
Harrow, Middlesex
Telephone: 081 863 0938

British Audio Dealers Association

TOP TAPE

Musical Fidelity • Nagaoka • Nakamichi • Ortofon • QED

Quad • Revos • Sennheiser • SME • Spendor • Spica • Stax • Tannoy • Target • Wharfedale • Yamaha

Cyrus • Denon • Dual • Epos • Gale • Goldring • Jacklin • Kenwood • Linn • Marantz • Mission

Handle with Care!

New Koss TNT Range – Digital Ready



TNT/77

Exploding on the scene comes the New TNT range from the world beating Koss stable. Three headphones which incorporate the industry's first ever Titanium Nitride coated driver elements for dynamite sound.

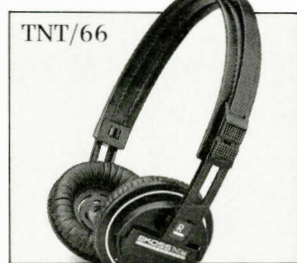
This revolutionary new design offers greater reliability, combined with increased definition throughout the midrange and high frequencies, making them ideal for both analogue and digital recordings.

Total weight of the headphone assembly is also reduced, and the comfortable ear cushions and adjustable headband ensure a superb performance every time – and remember, Koss are the only headphones covered by a Lifetime Warranty.



The word on everyone's ears

HW International, 3-5 Eden Grove, London N7 8EQ. Tel: 071-607 2717



TNT/66



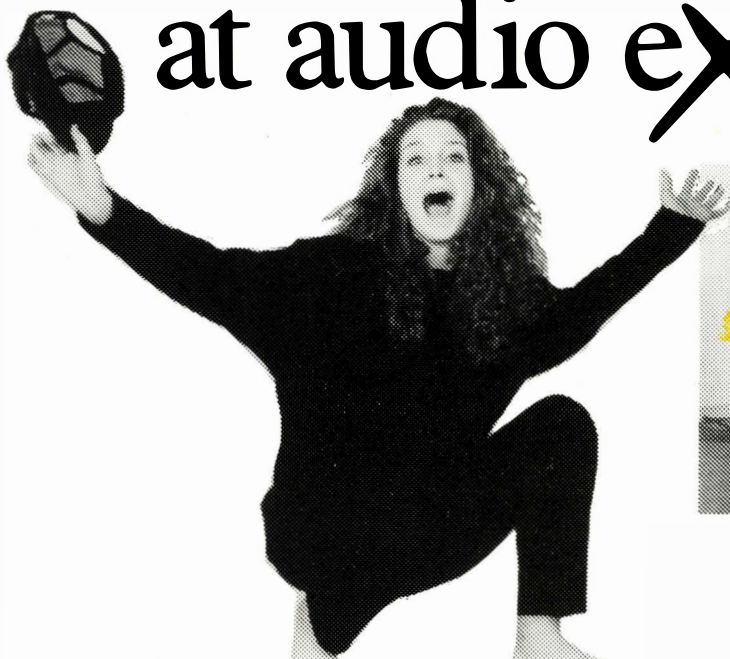
TNT/88

Please send me full details of the Koss headphone range, plus the address of my nearest dealer:

HFC/11/90

Name _____ Address _____ Postcode _____

Get the music in you at audio eXcellence!

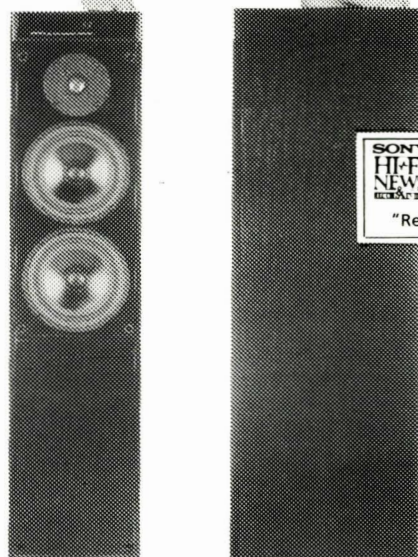
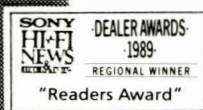


*(preferably sitting down
in our comfy dem room)*

Here you will experience hi-fi as it will sound in your home. You may be surprised by the level of performance from even the most modest system.

With our superb range of the worlds best hi-fi you can judge one system against another. Plus we can offer a full range of accessories and an in-house repair service.

So call in and get the music in you at Audio Excellence – we won't insist that you sit down!



ACOUSTAT, ACOUSTIC ENERGY, AR, ARCAM, AUDIOLAB,
AUDIO RESEARCH, CASTLE, CELESTION, DELTEC, DENON, DUAL,
HEYBROOK, KEF, KOETSU, KRELL, LINN, MAGNEPLANAR, MARANTZ,
MERIDIAN, MUSICAL FIDELITY, MISSION, NAD, NAKAMICHI, NAIM,
PINK TRIANGLE, QUAD, REVOLVER, REVOX, ROTEL, SD ACOUSTICS,
SME, SONY, STAX, TANNOY, WHARFEDALE, YAMAHA
AND FULL RANGE OF ACCESSORIES.

audio eXcellence

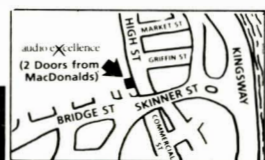
WHERE THE MUSIC MATTERS

Tuesday - Saturday 9.00 - 5.30 CLOSED MONDAY



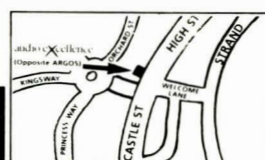
CARDIFF

134/6 Crwys Road, Cardiff
South Glamorgan CF2 4NR
Telephone (0222) 228565



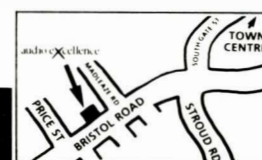
NEWPORT

37 High Street, Newport
Gwent NP9 1GF
Telephone (0633) 220012



SWANSEA

9 High Street, Swansea
West Glamorgan SA1 1LE
Telephone (0792) 474608



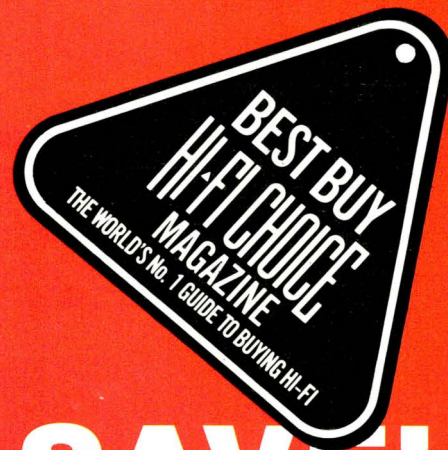
GLOUCESTER

58 Bristol Road, Gloucester
Gloucestershire GL1 5SD
Telephone (0452) 300046

Visit our Collectors Record Shop above the Sony Centre (opposite the Castle) in Cardiff Tel: (0222) 664474

HI-FI CHOICE

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



**SAVE!
SAVE!
SAVE!
OVER
£15.00
ON NEWS
STAND PRICES**

Every month Hi-Fi Choice tests more products than any other hi-fi magazine and awards 'Best Buy' and 'Recommended' accolades. A must for hi-fi buyers and enthusiasts, Hi-Fi Choice is packed with news, reviews, features and an extensive buyer's guide containing test summaries on over 900 hi-fi products. **At Hi-Fi Choice the only corners we cut are on our tags - so if you're serious about hi-fi you can't afford to miss it.**

Why not save 40% on the news-stand price of Hi-fi Choice by subscribing today? This has got to be the Hi-Fi Choice 'Best Buy' at only £19.95* for 12 issues.

Or better still, save an amazing 50% by subscribing for two years.

*UK rate only

Check the benefits:

- **Guaranteed receipt of 12 monthly issues of Hi-Fi Choice**
- **Priority despatch to your door before it reaches the shops**
- **A saving of £15.45 - 40% off the annual cover rate - that's equivalent to over five free issues!**
- **Further low cost renewal offers**
- **Special reader offers**



YES! I would like to save over £15.00 by subscribing to Hi-Fi Choice, the Number 1 Guide to Buying Hi-Fi, starting with the next available issue.

Please tick the appropriate boxes

- 12 Issues (One year)**
- UK £19.95
 - Europe/Eire £29.95
 - Rest of World £39.95

- 24 Issues (Two years)**
- UK £34.95
 - Europe/Eire £54.95
 - Rest of World £74.95

I enclose my cheque/Postal Order* made payable to Dennis Publishing Ltd (all payments should be drawn in sterling on a UK bank). *delete which is applicable

Please charge my Access Visa

Account number

Expiry Date _____

Signed _____ Date _____

Please send my copies of Hi-Fi Choice to:

Name _____

Address _____

for fast delivery please quote your Post code _____

Telephone _____

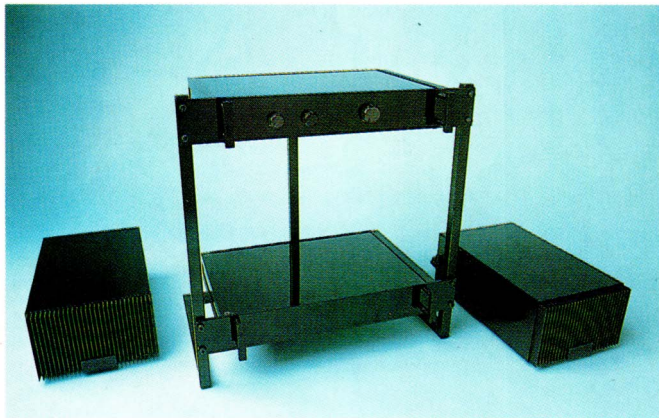
Please return completed form, with your payment to:

(UK only)
**Hi-Fi Choice
Subscriptions Department
FREEPOST 7
London W1E 4EZ**

(Abroad)
**Hi-Fi Choice
Subscriptions Department
14 Rathbone Place
London W1P 1DE
England**

Or better still, telephone the **Hi-Fi Choice Subscription Hotline on 071 580 8908** or send your completed form by **Fax on 071-636 5668**

Your details may be added to our mailing list, please tick box if you would prefer not to receive details of special offers and promotions.



Tubes may be the most wonderful thing to have hit hi-fi but, as our resident anachrophile found out, transistors, it

Statements

would seem, have something to offer as well. Jason Kennedy took JDI's perspex clad, two and a half grand preamp home for a spin, and returned a happy man.

Most people in this industry have me down as a die hard tube junky, and manufacturers of transistorised devices are not generally to be found pestering me for reviews. So it came as some surprise when Ian Hargreaves of Yorkshire based amplifier manufacturer JDI called and offered his two and a half grand transistor preamp for appraisal. Having seen and heard this particular beast at shows in the past I was quite interested and took him up on the offer. A few weeks later the listening room was graced with four shiny black boxes, the preamp and a pair of the company's monobloks.

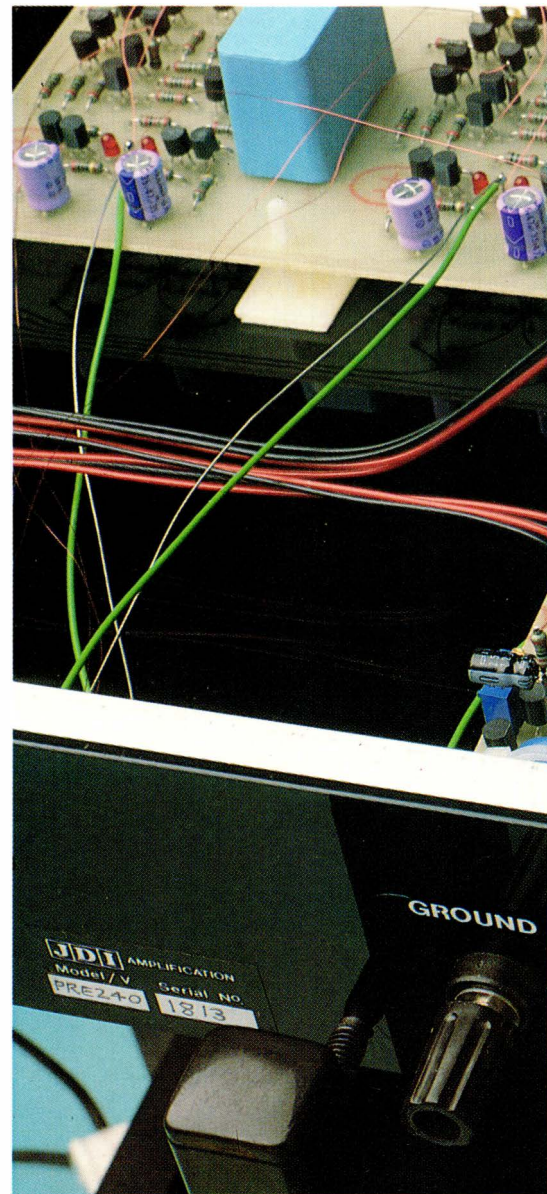
The preamp is an unusual looking piece of kit. For starters, it's broken up into two

perspex clad parts - power supply and control unit. What distinguishes it, however, is the three legged frame that supports and separates the two units. This comes as part of the package although its use is not obligatory; it does, however, support the preamp and power supply in a fairly elegant manner and maintains the minimum distance between the two units required to avoid interference. The need for the spacing (30cm) is at least partly a result of the acrylic casework's negligible screening properties. JDI tried the more common alternatives but found they added a degree of sonic harshness which the shiny black stuff manages to avoid. It also looks the business, as long as you keep it well dusted.

The preamp's build quality is exemplary. Its lack of physical weight doesn't imbue Krell-like confidence, but construction and finish are a credit to the British hi-fi industry. Quite why each unit needs four handles is a bit of a mystery, but I guess it does no harm to its street cred. Neither do the chunky Tiffany phono sockets, which look all the more sumptuous against black Perspex - they're a very tight fit and allow the earth to contact before the signal, which means no more nasty noises when you disconnect the wrong cable.

Minimal

On the facilities front, this is very much a hair shirt product, with the bare minimum of line inputs (three!), an MC only phono stage and single tape and main outputs. The reason JDI gives for this relative dearth is that it was limited by the select switches, which were the best they could find but they only had four positions - nothing, it seems, was allowed to compromise the signal path. The record selector has an off position, which I've not come across



before, though it no doubt makes a positive contribution to road safety. Aside from the two selectors, the only other knob on the fascia is the one that controls an Alps volume pot - there's no balance control or other such frivolities getting in the way.

The JDI monoblocks were produced to support the preamp when it was first introduced, but at their lower price (£850) have proved quite popular in their own right. As a pair was supplied with the preamp they ended up being used for much of the listening and made a good impression. Inserting them in place of a similarly priced valve amp resulted in a smaller, considerably better focused sound, which although leaner was somewhat more civilised than that produced by the pentodes. This constraint was, it seems, largely a result of the matching with an inexpensive tube preamp, as replacing the latter with the subject of this review resulted in a full scale soundstage with no noticeable tonal aberrations. Quite an odd result really (one generally expects the opposite) perhaps that'll teach me to listen rather

than make assumptions.

Using the full JDI set up with a pair of Snell C loudspeakers was a most enjoyable and, as result of the preamp's phenomenal bandwidth, enlightening experience. Serious HF extension is something that you don't really miss until it appears, then you think: how have I survived so long? Like dynamics, bandwidth is something extra to the fundamental - a system can give you a lot of information without these and in many cases can seem very clean and accurate as a result, but discovering the frequency extremes and dynamic nuance in a recording is almost like rediscovering the record.

Florentine Pogen

But the JDI isn't just a wide bandwidth preamp, it's also one of the most natural sounding transistor designs I've come across. Compared to a good tube design, it sounds slightly analytical, but which is more accurate isn't too easy to decide.

The delicacy of the JDI's guts contrast dramatically with the Tiffany sockets.

The point is that it has none of the aggressive brightness that can all too often be the hallmark of a revealing transistor design - it's a very unobtrusive piece of equipment. In practice, this meant that yours truly had an emotional experience listening to Frank Zappa's *One Size Fits All* LP, a mid seventies studio offering, which, in the right system, reveals phenomenal detail and the most nonsensical lyrics in the business. Amplified by the JDI, combo tracks like *Florentine Pogen* really came to life, power and subtlety being presented with equal precision.

Those of you who only use source components with a line level output can make a significant saving by purchasing the preamp in its line only guise (£1,500). As a CD preamp, the JDI's extended HF can be a bit revealing for some players - a fair amount of discs sounded a tad brash compared with what I'd been hearing through a passive preamp. A few, on the other hand, sounded truly superb. Depending on cables and impedances at inputs and outputs, passive preamps do

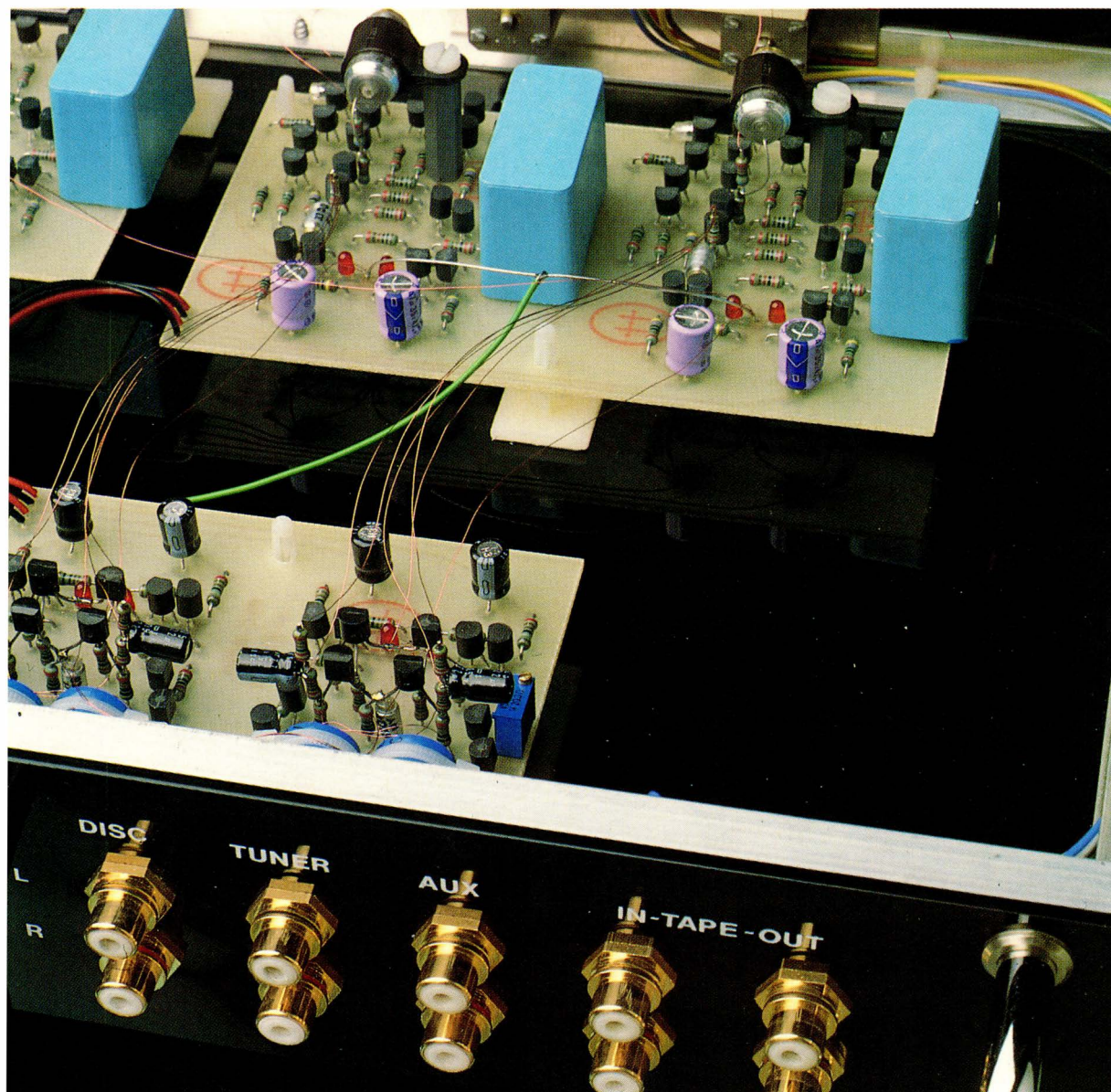
have a tendency to roll off high frequencies, which can often be beneficial but it ain't strictly accurate. I found the only way to get most of my discs sounding listenable was by adding a 'bitstream' DAC, which smoothed off the leading edges and made for more relaxed listening. The approach you choose depends on your priorities.

In a nutshell

As those of you who've read this far will realise, I liked the JDI preamp: it's well made, good looking and most importantly sounds great in the right system. It won't work well with brash sources and it needs transparent ancillaries to be fully appreciated, but this is a prerequisite of most high-end preamps and not to be held against it.

For more information, contact John Hargreaves at JDI on Tel: (0943) 816194. Or alternatively speak to Castle Acoustics - JDI's distributor.

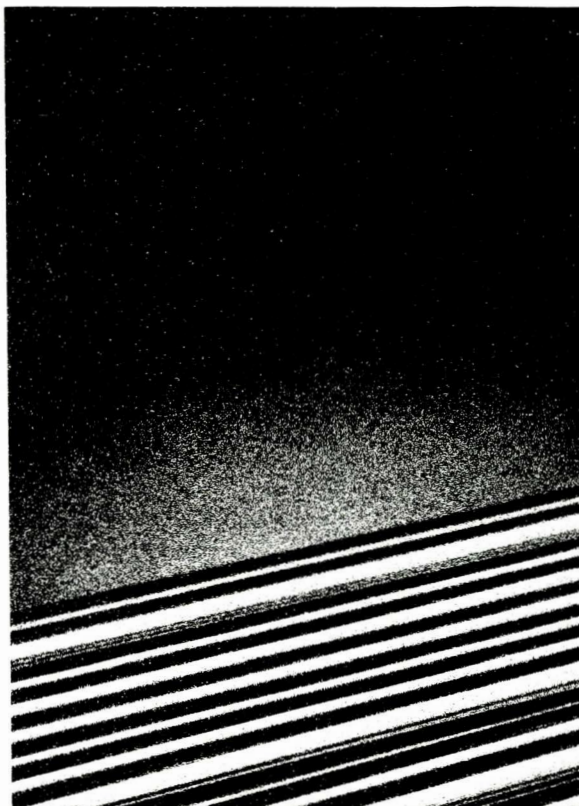
Jason Kennedy





au'diōphīle cōn'cēpt n. (-'sept-)

comb. form. hearing, as: ~LOGY (-ō'l-) n., science of hearing, whence ~LOGIST (-ō'l-) n.; ~METER (-ō'm-) n., instrument for testing hearing; ~PHILE n., devotee of high-fidelity sound reproduction; ~vi'sual, using both sight and sound. [f. L. *audire* hear + -o-]



“In terms of pace, timing and rhythmic coherence, much of the competition is left sounding tame and slow by comparison. Dynamic shading is most impressive, while stereo soundstages are well formed, with abundant detail, good focus and fine depth. Clarity is consistently high, though the tonal balance is a shade bright with it.

Conclusions
Capable of matching the sound quality of players twice its price, the 5150 well deserves its Audiophile Concept logo, and is an obvious Best Buy. Those who place honest sound quality and simplicity ahead of the more dubious complexities of the digital disc medium can ask for little more at the price.”

Hi-Fi Choice, November 1990 Edition



CD5150

In creating a CD player that could truly justify the name 'Audiophile Concept', we recognise that for some, there is only one factor which determines choice – sound quality

But we also recognise that not everyone can afford to pay an unlimited amount in pursuit of their ideal.

So we created the CD5150 for music lovers. No frills. No gimmicks. Simply the best possible sound for your money. We feel it justifies its name. It would appear that others share our view.

To audition the Dual CD5150 contact your Hi-fi dealer or, in case of difficulty, contact Ram Projects Ltd. Unit 27 Stretford Motorway Estate, Barton Dock Road, Stretford, Manchester M32 0ZH. Tel: 061-866 8101.



Choosing and Using . . . Amplifiers

Cliché or not, the amplifier is the heart of the hi-fi system. Its purpose is to accept the different signals from the various sources, conform and order them as necessary, and then provide the power to drive and control the loudspeakers. In what is known as an integrated amplifier, the first part of this task is carried out in the preamplifier section, while the power amplifier part deals with the loudspeakers, but the whole is contained within a single box. In more costly systems these two sections are often separate units, and power supplies may also be separately cased. The tasks are quite distinct, so integration is only a matter of cost, convenience and compactness.

20 years ago amplifiers were mostly low powered, using class A circuitry with valves and output transformers. Then the transistor took over rapidly, offering higher specification power, lower cost, and improved longevity. So far, so good, but the valve amplifier - like the moving coil cartridge - never quite died. And after a couple of false starts it is currently enjoying its strongest revival yet, albeit at prices which will make many readers blanch.

The other historical trend concerns the complexity of the preamplifier section. When hi-fi had to make the best of barely adequate source quality, a complicated and flexible preamplifier section was a useful means of making the best of a bad job. During the Japanese invasion of the Seventies, rival manufacturers vied with each other to invent and incorporate more and more extensive features: tone controls became graphic equalisers, and the often baffled user could fantasise that he was on the bridge of the Starship Enterprise. However, improvements in source quality have since started a 'simple is better'

backlash. Ten years ago a fledgling Naim Audio abandoned tone controls on the grounds that they degraded sound quality. This was a major heresy at the time, but the trend is now firmly established, and even some of the Japanese manufacturers have since followed suit.

Two Markets

There are now two distinct types of hi-fi amplifier. The so-called 'bells and whistles' models still exist, though they now tend to be down rather than upmarket products.

The real hi-fi amplifier has seen a movement towards improvements in sound quality, much of which has been due to simplifying the circuitry by eliminating as many frills as possible, and even in some cases omitting a complete gain stage through the use of the latest transistors. The ear has proved a more subtle tool than any spectrum analyser in adjusting circuit topography, simplifying earth patterns, beefing up power supplies, and selecting key passive components, all in the interests of improving sound quality.

As hi-fi amplifiers become increasingly minimalist, the preamp now only retains two key functions: the sorting out of the signals from the vinyl disc source, and the switching of the various inputs and outputs. Tuners, cassette decks and CD players all put out more or less the same sort of signal, which is already equalised to 'flat'. Vinyl disc apart, the preamp then becomes little more than a glorified switch with volume and balance controls. Which explains why such devices - using purely passive components and hence inherently simple - are now becoming available.

Vinyl disc replay is quite a different kettle of fish. The preamp is connected directly to the transducer itself, with

no intervening electronics, and this introduces all sorts of difficulties. Furthermore, the signal from the cartridge is very small, and requires two distinct stages of equalisation to get a 'flat' end result. To add insult to injury, there are now two popular kinds of cartridge, the high output moving magnet and low output moving coil (plus a few odd permutations), and they are different enough to need quite separate treatment. There's not even a standard for the source or input impedance of lowoutput cartridges.

For the future, it is quite possible we will see wider use of turntables with built-in cartridge preamps, so that each source feeds a 'flat' signal at line level to a simple switching and attenuating preamp. But now that the first digital signal source (CD) is fully accepted, with others planned for the future, we are beginning to see a new type of preamp which accepts digital signals directly, carrying out various functions by means of an onboard microcomputer before finally converting the signal back to analogue before feeding to the power amplifier.

This is the part of the amplifier whose job it is to drive the loudspeakers - and a right old job that can turn out to be. Like the cartridge, a loudspeaker is a transducer, and the task is to turn the electrical model of the music signal back into a mechanical (acoustical) signal for the benefit of the ears.

The loudspeaker is a form of motor, but its task of covering the whole range of audio frequencies is mechanically almost intolerable, and there is an inevitable lack of control at various resonance points. While the amplifier provides the loudspeaker with a voltage which corresponds to the amplified music signal, it is the characteristics of the loudspeaker itself which

determine the current demand. This current demand can be very unpredictable, particularly at resonance points, which is why serious hi-fi amplifiers are usually designed with plenty of surplus current capacity, and with an eye on the stability of the voltage signal whatever the current demand.

The main measurements on amplifiers relate to power output and distortion, but more important than the maximum power output itself is the way the power is maintained into different loads, and this is analysed in the reviews.

The various distortion measurements also help explore the limits of the amplifier, but paradoxically, striving for very low distortion seems to prejudice sound quality.

Choosing

There are a number of criteria one could use when selecting an amplifier, and the most valid is probably sound quality. Despite the attention it attracts, power output comes much further down the list, because measured power is by no means a reliable indicator of subjective loudness capability.

The range of facilities required should naturally be taken into account, paying particular attention to the type of cartridge being used: But it should also be borne in mind that every unused feature contributes nothing and will probably have a negative effect upon the potential sound quality.

The reviews provide an excellent guide to shortlisting some of the better sounding amplifier bargains around. But as ever they cannot replace an individual's own tastes, preferably in the correct system and ideally in an 'own room' context. Once again, the conscientious specialist dealer provides a vital link.

SONIC LINK



SONIC LINK DM20

Designed simply to exceed the sound quality of any other amplifier under £300 – and does so by a large margin!

And to match the widest choice of source and loudspeaker.

SONIC LINK DM20 GOLD

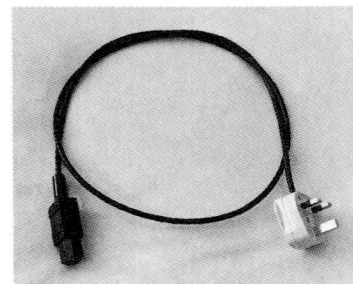
Using the basic circuit of the DM20 and some of the very best available components chosen after careful listening, the DM20 GOLD shows just how marvellous sound quality can be achieved for under £600. Includes optional MC input.

SONIC LINK MAINS CABLE

SONIC LINK mains cables show how much ordinary mains cables are degrading the sound of your Hi-Fi – a loss you can never retrieve unless you change to batteries!

An essential part of any proper Hi-Fi system. Ask your dealer for a demonstration.

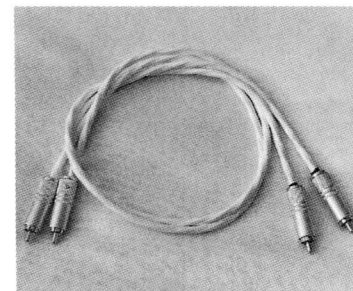
Now even better sound, especially low frequencies, with the new 30 amp SONIC LINK SUPERMAINS. A must for big amplifiers.



SONIC LINK INTERCONNECTS

High performance at economical prices (starting at £12.50) by using high quality materials. PINK, RED & WHITE cables are made from silver plated copper wire insulated with PTFE.

SONIC LINK VIOLET made from High Purity Metal Conductors insulated with PTFE have been highly acclaimed by dealers and customers alike for their real audiophile quality performance at the very affordable price of £80 per terminated metre pair.



SONIC LINK AMPLIFIERS & CABLES

Are available from the following stockists

CAMBRIDGE
CHESTERFIELD
KENT
LEICESTER
SUNDERLAND
WARRINGTON

Steve Boxshall Audio 0223 68305
Avondale Audio 0246 200095
Standens 0732 353540
MJ's Hi-Fi 0455 846977
Albion Audio 091 510 9969
Doug Brady Hi-Fi 0925 828009

CABLES ALSO AVAILABLE FROM

ABERDEEN
BRIGHTON
EASTBOURNE
HERTS
LONDON
PORTSMOUTH
SHROPSHIRE

Hi-Fi Excellence 0224 624408
The Powerplant 0273 775978
Jeffries Hi-Fi 0273 609431
Jeffries Hi-Fi 0323 31336
The Audio File 0279 506576
Grahams Hi-Fi 071 226 5500
Jeffries Hi-Fi 0705 663604
Mid Shropshire Audio 0952 630172

SONIC LINK AMPLIFICATION

6 Mill Close, Borrowash, Derby DE7 3GU.

Tel: 0332-674929

Aiwa XA-006

AIWA (UK) LTD., UNIT 5, HEATHROW SUMMIT CENTRE, SKYPORT DRIVE, WEST DRAYTON, MIDDX. UB7 0LY. TEL: (081) 897 7000



'British Made' declares the Union Jack stuck on the fascia of this distinctly un-British looking amplifier. Sure, the new XA-006 is assembled in this country, but it is a Far Eastern design at heart - packed to the hilt with twiddly-bits and all for an amazingly low £130. The satin-black alloy fascia is dotted with volume, balance and tone controls, independent A/B speaker selectors and a loudness contour. If none of this strikes a chord, then a 'Direct' input facility enables you to bypass tone and balance controls but not loudness.

Of potentially greater use is the independent rec-out and input switching, a flexible but uncommon option at this price point. Full control is thereby offered over a total of five line inputs and the single MM phono input. It's even possible to split the XA-006 into either a dedicated preamp or power amp, simply by removing two links on the rear of the case.

Still, much of this versatility is wrought at the expense of crucial electronics. There's nothing inherently wrong with the design you understand, it's just that costs have been saved by integrating the tone and line circuitry as well as the driver for the power amp. Discrete Toshiba power transistors are used as are decent Nichicon electrolytics in the power supply, so not all is lost. In line with many other manufacturers nowadays, Aiwa claims favourable differences in component selection and earthing for the UK spec of the XA-006.

Lab Report

Peak current is limited by the amp's output protection but it still managed a very healthy 67W into 8ohms with a +2dB boost to 106W into 4ohms. The 2.5dB error in channel balance might be audible at very low listening levels but the figures for noise, input sensitivity and hum are all textbook stuff. Disc headroom is also on-target at +29.7dB, while the gently

tailored MM response shows a dip of 0.7dB at 20Hz and mild lift of +0.5dB at 50kHz.

THD is unaffected by crossover artifacts, so remains a low 0.0016 per cent regardless of level or input that's selected. The linearity of the MM disc stage is marginally less impressive at higher frequencies, however. This is seen on the 3D Ultrasonic Distortion plot as a preponderance of IM rather than harmonic distortions, extending from 2nd-4th orders about the 20kHz tone.

Sound Quality

As if on cue, the XA-006 was almost universally praised via MM but was thought to be significantly rougher, leaner and brighter in tone via CD. Our Watanabe saxophone recording was portrayed with an unnaturally raw and brassy timbre, yet despite this raggedness the amp still managed to deliver plenty of confident, solid bass.

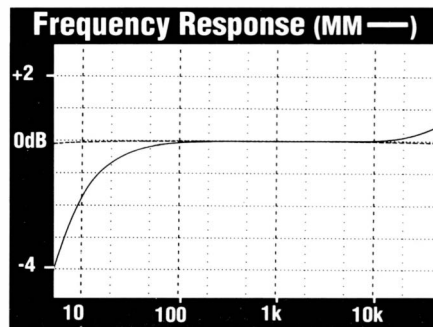
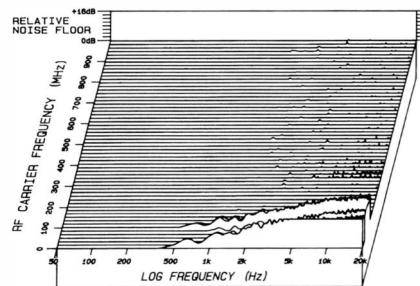
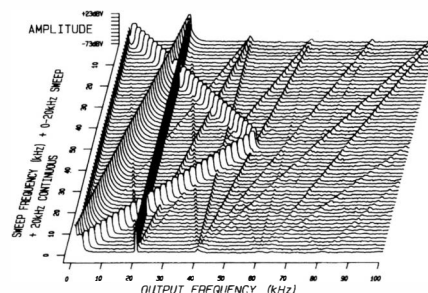
It can certainly sound very big and gutsy with the right sort of music and, likely as not, you'll also get the impression of plenty of welly in reserve. But, once again, it was the smoother-sounding disc input that won the day, despite there being some additional muddling between instruments. At the end of our listening session, the panel identified the XA-006 as a 'run-of-the-mill Far Eastern amp'. I didn't have the heart to tell them it was made in Britain!

Conclusion

This is a value-oriented product, flexible and lusty enough to form the heart of a comprehensive budget system but without the sonic merit to tackle the best at this price. If good build and features are important then give the Aiwa a whirl, but sound quality settles high on our list of priorities and so the XA-006 escapes recommendation.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|-----------------------------|----------|-------|
| Maximum Continuous Power Output, 8ohms | 65.4W | 67.2W | 66.6W |
| 4ohms | 94.1W | 105.6W | 95.1W |
| Dynamic Headroom (IHF) | +0.97dB(83.9W) | | |
| Peak Current(5msec, 1% THD) | 9.7A | | |
| Output Impedance | 0.057ohms | | |
| Damping Factor | 140.7 | | |
| | CD/Aux | MM | |
| Stereo Separation(1kHz) | 72.1dB | 72.5dB | |
| (20kHz) | 50.1dB | 49.6dB | |
| Channel Balance(1kHz, -20dBV) | 0.07dB | 0.11dB | |
| (-60dBV) | 2.48dB | 2.53dB | |
| Total Harmonic Dist.(0dBW) | -95.8dB | -94.8dB | |
| (2/3 power) | -96.6dB | -95.8dB | |
| CCIR Intermod. Dist.(0dBW) | -95.9dB | -82.6dB | |
| (2/3 power) | -96.2dB | -86.7dB | |
| Noise (A wtd, 0dBW) | -81.4dB | -79.8dB | |
| (2/3 power) | -96.2dB | -87.3dB | |
| Residual noise (unwtd) | -73.9dBV | -73.8dBV | |
| Input Sensitivity(for 0dBW) | 19.3mV | 313uV | |
| (for full output) | 159.9mV | 2.59mV | |
| Disc Overload (20Hz) | 17.4mV | | |
| (1kHz) | 153.1mV | | |
| (20kHz) | 1336mV | | |
| (50kHz) | 1830mV | | |
| Tape Output/Impedance | 9.45V (disc)/69.7ohms | | |
| Input loading | 46kohms/120pF 45kohms/200pF | | |
| Absolute Phase | Positive | | |
| DC offset, left/right | -1.4mV/-5.4mV | | |
| Retail Price | £130 | | |



We have an assortment of performance enhancing stimuli to inject new life into tired, lacklustre, HiFi Systems.

REGA/SYSTEMDEK UPGRADE KIT

Significantly improved performance from these popular turntables can be achieved by adding our acrylic platter. The results include greater clarity and tonal accuracy. For the Systemdek IIX and IIXe we also recommend the replacement of the medite "pear-shaped" armboard with our pre-cut aluminium board. Linn/Rega/SME boards available from stock. Arm height adjustment spacers also supplied. All of these modifications are readily reversible so will not affect your turntables warranty.

- Acrylic Platter69.00
- Armboard + Mounting hardware20.00

EDISON/ARIA/HFAL2

Famous Kit amplifier. We have bought back a small quantity of these highly regarded amplifiers from an overseas distributor. Available assembled with a 3 month warranty for the original price of 295. The last chance to own a legend!

CART-A-LIGN

The simplest and most accurate cartridge alignment protractor we have encountered. Includes torch, magnifying glass, screwdriver and detailed, illustrated instructions. A correctly aligned old cartridge sounds better than an incorrectly aligned new one. A correctly aligned cartridge will also significantly reduce record wear.

- Cart-a-lign System29.50

AUDIO NOTE AN-AI INTERNAL TONEARM WIRE

For the bold enthusiast. Rewire ANY tonearm with this 99.99% pure silver wire and you will find information on your records that you weren't previously aware of. Set consists of two twisted pairs terminated with gold plated, colour coded cartridge tags. Audio Note AN-AI Internal Tonearm Wire Set29.50

Rewiring service available for most tonearms. Call 0273-208649 for details.

PINE RECORD STORAGE BOXES

An attractive record storage system, these Danish made boxes can hold 150 LPs each and can be stacked. Imported for our own collections as a result of a lack of choice here, they have proved so popular with visitors that we were persuaded to make them more widely available.

- Record Storage Box49.50

DISCOVERY & ATHENA RECORDS

On the Discovery label we have two re-issues of the Marty Paich Big Band with a line up that includes Art Pepper, Victor Feldman, Jimmy Guiffre and Mel Lewis. These are astonishing late 1950s recordings which are dynamic, spacious and exceptionally natural.

On the Athena label we have the first of a series of re-issued classical recordings. This is a performance of Rachmaninov's Symphonic Dances and Vocalise with Donald Johanos and the Dallas Symphony Orchestra. By far the best re-issue we have ever listened to, the performance on, and the recording quality of this limited edition LP are beyond criticism and re-emphasise the gulf between Analogue and Digital recording for those who feel Digital has caught up. The high price is perhaps an accurate reflection of the relative prices of records of this quality when they were originally manufactured in the late 50s and early 60s.

- Marty Paich - The New York Scene 12.95
- Marty Paich - What's New 12.95
- Rachmaninov - Symphonic Dances29.50

Audio by Design Ltd., Unit 11, Dyke Road Mews, 74-76 Dyke Road, Brighton, East Sussex. Tel: 0273-821371. Fax: 0273-21597

Ortofon. The Musician's Choice.



The 1000 series of moving coil cartridges £600 - £1500

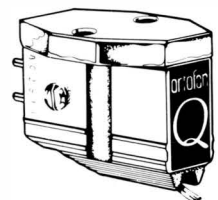
Throughout the world, professional musicians choose Ortofon Cartridges to achieve an unparalleled level of pure and unbiased reproduction.

The Critics Choice

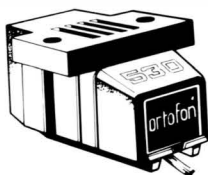
Without exception the Hi-Fi Press has showered praise on the Ortofon range, recommending it time and time again to the enthusiast.

Your Choice

Only Ortofon offers a complete range of moving coil and magnetic cartridges compatible with your record player, taste and budget. Take advantage of our unique Exchange Scheme and trade in your existing moving coil cartridge for an equivalent Ortofon with a 15% discount. For your nearest participating Premier dealer contact us today.

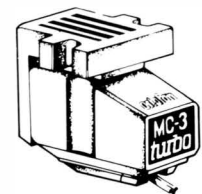


The Q Range of moving coil cartridges £130 - £450



The 500 series of moving magnet cartridges £30 - £100

ortofon
accuracy in sound

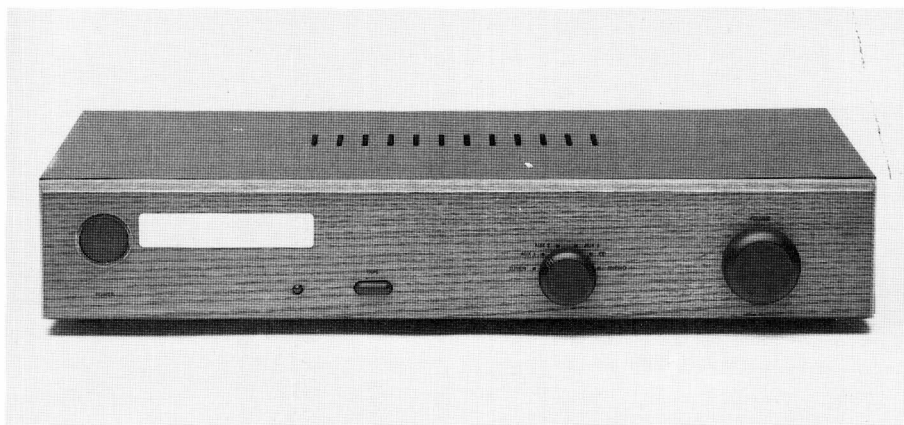


The MC range of high output moving coil cartridges £50 - £100

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

Alphason Apollo

ALPHASON DESIGNS LTD, UNIT 2, LINSTOCK WAY, WIGAN ROAD, ATHERTON, LANCS. M29 ORL. TEL: (0942) 897308



Following its success with all things mechanical, Alphason has turned its attention to electronics. Hence the *Apollo* integrated, a no-frills enthusiast product designed to complement the company's established pre/power combination. The solid ash front panel can be supplied in a variety of different stains, though its functional appearance will undoubtedly appeal to some more than others.

There's a choice of five line inputs, sourced alongside the phono input on a stiff rotary selector. A separate tape monitor facility brings the line count to six but if you want to use a MC cartridge then Alphason's proprietary headamp must be switched-in. The headamp is a fairly sophisticated, discrete affair and is followed by four TL071 op-amps which constitute the active RIAA stage for both MM and MC cartridges.

In fact, the internal construction of the amplifier is very refined. Alphason has used a large mains toroid with split secondaries for the driver and power amp stages, while independent regulators feed each stage of the RIAA network. The output transistors are protected by 1.6A rail fuses which will be updated in later models.

Lab Report

The *Apollo* achieved its 50W rating by the skin of its transistors, though output fell to below 45W at the frequency extremes. The 5.4A peak current and paltry +0.8dB dynamic headroom are hardly inspiring, while all 40hm power measurements (including the 3D Ultrasonic Distortion plot) were thwarted by the amplifier's under-rated fuses. I, for one, would not tempt the amp with insensitive, difficult loudspeaker loads.

The RIAA responses are sensibly tailored between 20Hz and 20kHz, but overload margins are far too low. This lack of headroom would normally plunge

the disc stage into gross clipping during the THD tests, so the published figures of 0.018 per cent (MM) and 0.21 per cent (MC) refer to the input levels prior to overload.

The power amp stage limits the S/N ratio at low signal levels and RF IMD is none too clever either, demonstrating breakthrough all the way up to 100MHz and at 230MHz and 540MHz.

Sound Quality

Our panel was initially unexcited by the sound of the *Apollo's* disc input, but was gradually won over by its velvety soundstaging and relaxing pace. It's certainly the sort of sound that'll provide hours of listening without a hint of fatigue, that's unless you become bothered by its lack of urgency and drive. Our panel was bothered by it, unfortunately, and thought that as a result it lacked both the clarity and purpose of the best amps in the test.

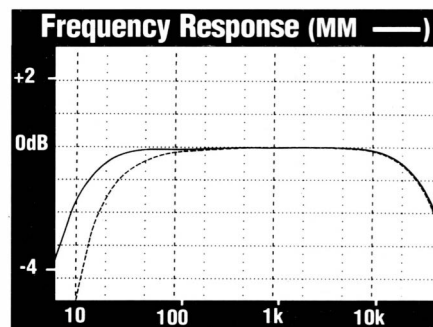
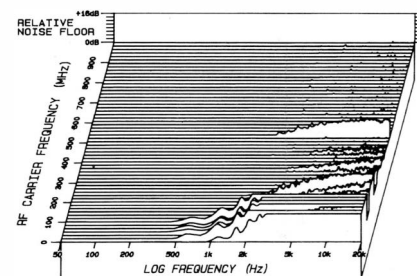
They conceded that its sound was not unduly challenging and neither was it obviously masking detail, they were simply frustrated by its laid-back approach to music making. Once the CD input was pressed into service, the thoughts of our panel became more focused, finding the balance shy of deep bass and marginally thin or reedy when handling strong brass instruments.

Conclusion

The quality PCB, neat circuit layout and woodwork obviously go some way in justifying the high cost of the *Apollo*. Yet even though I was more impressed by the gentle, underlying musical quality of the amplifier, the reaction of the panel was less than complimentary when informed of its price. This, together with the numerous technical bugbears, suggests that Alphason could do with polishing-up its *Apollo* before finally committing it to the launchpad.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|----------|----------------------|-------------------|
| Maximum Continuous Power Output, 8ohms | 41.8W | 53.8W | 44.5W |
| 40hms fuse | | fuse | fuse |
| Dynamic Headroom (IHF) | | +0.84dB (65.2W) | |
| Peak Current (5msec, 1% THD) | | | 5.4A |
| Output Impedance | | | 0.019ohms |
| Damping Factor | | | 422.7 |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 80.3dB | 70.3dB | 72.3dB |
| (20kHz) | 56.6dB | 51.7dB | 48.8dB |
| Channel Balance (1kHz, -20dBV) | 0.04dB | 0.03dB | 0.19dB |
| (-60dBV) | 3.10dB | 3.59dB | 2.87dB |
| Total Harmonic Dist. | | | |
| (0dBW) | -74.1dB | -74.9dB | -53.5dB |
| (2/3 power) | -67.8dB | -67.9dB | -53.5dB |
| CCIR Intermod. Dist. (0dBW) | -79.6dB | -60.7dB | -23.3dB |
| (2/3 power) | -71.7dB | -59.7dB | -23.3dB |
| Noise (A wtd, 0dBW) | -65.6dB | -66.9dB | -65.5dB |
| (2/3 power) | -81.9dB | -71.1dB | -66.6dB |
| Residual noise (unwtd) | -50.3dBV | -50.3dBV | -50.3dBV |
| Input Sensitivity (for 0dBW) | 33.8mV | 23.3uV | 31.6uV |
| (for full output) | 250.9mV | 1.76mV | 232uV |
| Disc Overload (20Hz) | | 3.67mV | 553uV |
| (1kHz) | | 34.12mV | 4.57mV |
| (20kHz) | | 276.7mV | 11.4mV |
| (50kHz) | | 315.9mV | 6.86mV |
| Tape Output/Impedance | | 4.98V (disc)/939ohms | |
| Input loading | | 9.4kohms/100pF | 47kohms/260pF |
| | | | 33.4ohms/7.3nF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | +17.9mV / +53.3mV |
| Retail Price | | | £300 |



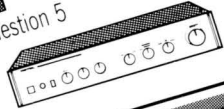


SEVENOAKS HI-FI & VIDEO

This advertisement is valid until at least 28th February 1991.

SAVE £100 SYSTEM OF THE MONTH £299.95
Including cartridge and all leads. Free carriage UK mainland

- Dual CS503/1 or (Ariston Q deck add £30) or (Dual CS505/3 add £30)
- Rotel RA810A or (Nad 3020i add £10)
- Celestion DL4 II or (Superb New Celestion 5 add £10)



SUGGESTED SYSTEMS

The suggested systems priced below all include the popular Dual CS503/1 turntable, but an alternative turntable or CD player is available at extra cost. Please see "OPTIONS" list below for further details.

| SPEAKERS <small>All system prices include the Dual CS503/1</small> | AMPS | Goodmans Maxim II Widale Delta 30.2 JPW Minim Gale GS210 | Celestion 3 JPW Sonata M/Short MS 3.10 Mission 760 Royd A7 | Celestion DL4 II JPW Sonata+ M/Short MS3 20 Widale 410 | Tannoy E11E Monitor Audio R7 (Add £15) Nad 8225e Celestion 5 | H/brook P15 Celestion DL6 II Tannoy M15 Wharfedale 505.2 Monitor Audio R9 M/Short MS 3.30 | Castle Warwick KEF C45 Celestion DL8 II Arcam Alpha | Castle Durham Heybrook HB1/3 Tannoy M20 (BK) Tannoy DC 2000 (Add £70) M. Audio Mon II (Add £50) Rogers LS4A |
|---|--------|---|--|---|--|--|--|--|
| Rotel RA820AX | 284.95 | 299.95 | 319.95 | 339.95 | 369.95 | 379.95 | 419.95 | 419.95 |
| Rotel RA820BX4 | 319.95 | 359.95 | 349.95 | 369.95 | 399.95 | 409.95 | 439.95 | 489.95 |
| Cambridge P50 | 349.95 | 379.95 | 409.95 | 399.95 | 419.95 | 439.95 | 469.95 | 519.95 |
| Pioneer A300 | 349.95 | 379.95 | 399.95 | 399.95 | 414.95 | 444.95 | 449.95 | 499.95 |
| Rotel RA840BX4 | 369.95 | 399.95 | 409.95 | 399.95 | 419.95 | 439.95 | 449.95 | 499.95 |
| Harman PM6100 | 299.95 | 309.95 | 279.95 | 299.95 | 309.95 | 339.95 | 389.95 | 434.95 |
| Rotel RA810A | 259.95 | 279.95 | 279.95 | 279.95 | 299.95 | 329.95 | 349.95 | 399.95 |
| QED A240CD II | 334.95 | 354.95 | 354.95 | 359.95 | 379.95 | 409.95 | 439.95 | 479.95 |
| Yamaha AX330 | 249.95 | 344.95 | 344.95 | 384.95 | 399.95 | 419.95 | 429.95 | 479.95 |
| NAD 3240 | 329.95 | 369.95 | 369.95 | 384.95 | 384.95 | 369.95 | 374.95 | 464.95 |
| Marantz PM40SE | 349.95 | 369.95 | 369.95 | 384.95 | 384.95 | 369.95 | 374.95 | 424.95 |
| Kenwood KA5020 | 339.95 | 349.95 | 314.95 | 309.95 | 329.95 | 354.95 | 399.95 | 424.95 |
| Nad 3225PE | 289.95 | 299.95 | 309.95 | 349.95 | 369.95 | 389.95 | 399.95 | 439.95 |
| Nad 3020 i | 274.95 | 329.95 | 329.95 | 349.95 | 369.95 | 389.95 | 399.95 | 439.95 |
| Marantz PM 30SE | 309.95 | 284.95 | 284.95 | 309.95 | 319.95 | 349.95 | 369.95 | 409.95 |
| Technics SU 810K | 274.95 | 344.95 | 369.95 | 369.95 | 379.95 | 409.95 | 419.95 | 459.95 |
| Musical Fidelity B1 | 329.95 | | | | | | | |

FREE

Cartridge supplied with these systems
Leads provided with these systems (QED 79 strand add £1/metre)
Carriage for mail order customers on all systems in excess of £250 (UK mainland only)
NB speaker stands are NOT included but highly recommended — wide range available from £20 per pair

SPECIAL OFFER
Target SP40 spiked stands only £15 per pair when purchased with any suggested System (normal price £25 per pair)

5 YEAR PARTS & LABOUR GUARANTEE
available for small extra charge at time of purchase — ask for further details and conditions.

OPTIONS

The following Compact Disc Player or Turntable may be ordered instead of the Dual CS503/1 in the above systems.

- CDs**
Denon DCD560 add £40
Denon DCD660 add £70
Denon DCD860 add £115
Denon DCD960 add £160
JVC XLV231 add £30
Marantz CD40 add £50
Marantz CD41 add £115
Marantz CD50 add £120
Marantz CD50SE add £140
Marantz CD60 add £170
Marantz CD60SE add £170
Nad 5320 add £60
Nad 5325 add £75
Philips CD624 add £65
Philips CD634 add £115
- Philips CD850
Philips CD6101
Pioneer PD6500
Rotel RCD865
Rotel RCD865
Sony CDP790
Technics SLP277
Technics SLP477
Technics SLP550
Technics SLP570
Yamaha CDX530
- TURNABLES**
Dual CS503-2 add £245
Dual CS505-3 add £35
Dual CS505-4 add £90
Dual CS430 add £115
AR EB 101 add £165
Nad 5120 add £65
Nad 5120 Revolver black inc. arm add £40
Revolver Rebel add £60
Ariston Q Deck add £60
Rotel RP855 add £110
Systemdek 1 - AT 110E add £150
Systemdek IX900 + MOTH - AT 110E add £50
add £15
add £30
add £30
deduct £30
deduct £30
add £100
add £50
add £30
add £30
add £80
add £170

MINI/MIDI SYSTEMS. Sony, Technics, Kenwood, Yamaha, JVC. Very special offers on selected models typically from £300-£1000

BUY WITH CONFIDENCE

IN STORE MAIL ORDER — You can buy with confidence from **Sevensnoaks** Hi-Fi & Video. We've been in business for nearly 18 years and have lots of experience with personal callers and Mail Order customers. All goods are **BRAND NEW, FULLY GUARANTEED** and maintained by **OUR OWN SERVICE DEPARTMENT**. For personal attention and demonstration call into any of our branches, if you live too far away, simply post or phone your order through and our efficient Mail Order department at Sevensnoaks head office should have your equipment safely delivered within 7 days, subject to availability. Carriage is only £6 per order and generally FREE if total exceeds £250 (UK mainland only). All goods are insured against loss or damage in transit. Payment may be made by cash, cheque, Access or Visa (Barclaycard).

Amplifiers

- Arcam Alpha II £189.95
- Arcam Delta 60 £299.95
- Arcam Delta 90 2 £499.95
- Arcam Delta 120 £699.95
- Arcam Delta 110 £324.95 **
- Arcam Delta 110 Mk1 £399.95
- Audiolab 8000C £365.95
- Audiolab 8000A/91 £525.95
- Audiolab 8000P/91 P.O.A.
- Cyprus One II £199.95
- Cyrus P5K II £159.95
- Cyrus Two II £199.95
- Denon PMA250 II £159.95
- Denon PMA350 £239.95
- Harman PM6300 £129.95
- Harman PM6300 £209.95
- Kenwood KA3020 £229.95
- Kenwood KA5020 £179.95
- Marantz PM30SE £269.95
- Marantz PM40SE £199.95
- Marantz PM40SE £379.95
- Musical Fidelity B1 £459.95
- Musical Fidelity PRE3A (dem) £699.95
- Musical Fidelity A100 (dem) £349.95
- Musical Fidelity B200 (dem) £399.95
- Musical Fidelity P150B (dem) £449.95
- Musical Fidelity P150B £159.95
- Nad 1240 Pre amp (dem) £139.95
- Nad 3225PE £199.95
- Nad 3020i £199.95
- Nad 3240 power amp £119.95
- Nad 3240E £229.95
- Nad monitor range £199.95
- Pioneer A271 £299.95
- Pioneer A400 £259.95
- Pioneer A400 £299.95
- QED A240CD II (dem) £399.95
- QED A270CD (dem) £299.95
- QED A270PA (dem) £299.95
- QED P300 (dem) £713.95
- QED C300 (dem) £289.95
- Quad 66 inc R1 £589.95
- Quad 34 £119.95
- Quad 30s £149.95
- Quad 50s £189.95
- Rotel RA810A £229.95
- Rotel RA820A £229.95
- Rotel RA820B4 £309.95
- Rotel RC8700X £139.95
- Rotel RB8700X £159.95
- Rotel RTC850L pretuner £229.95
- Rotel RC850 pre £229.95
- Rotel RB8700X power £299.95
- Rotel RA8700X £99.95
- Rotel RA840B4 £129.95
- Technics SU810K £159.95
- Technics SU8470K £199.95
- Technics SUV570K £249.95
- Technics SUV670K £39.95
- Technics SU330 £159.95
- Yamaha AX440 £159.95

Cassette Decks

Present this Ad to claim Free Tapes with these models (FT)

Speakers

Present this Ad to claim Free Target Stands & Cable (79 Strand) with loudspeakers over £115/pair (excluding S/Systems)

- Arcam Alpha £169.95
- Arcam Two £249.95
- A/Research 122 £299.95
- A/Research 132 £399.95
- AR Red Box £99.95
- B & W Solid £129.95
- Castle Trent £149.95
- Castle Durham £179.95
- Castle Durham B-Wire £249.95
- Castle Warrick £179.95
- Castle Windsor £179.95
- Castle Winchester £179.95
- Celestion 3 £199.95
- Celestion 5 £249.95
- Celestion DL4 II £199.95
- Celestion DL8 II £199.95
- Celestion DL8 (dem) £249.95
- Celestion 5000 (dem) £329.95
- Celestion 7000 (dem) £169.95
- Cyprus 780 £129.95
- Cyrus 782 £149.95
- Cyrus 782 £269.95
- Gale GS210 £219.95
- Goodmans Marim II £129.95 (FT)
- Goodmans MS00 £169.95 (FT)
- Heybrook HB1/3 £249.95 (FT)
- Heybrook Point Five £129.95
- Heybrook Point Seven £179.95
- Heybrook Solo £229.95
- JPW P1 £169.95
- JPW Sonata £169.95
- JPW Sonata Plus £169.95
- JPW Mimim £199.95
- Kel C45 £199.95
- Kel C85 £129.95
- Kel R101.2 £129.95
- Kel R102.2 £149.95 (FT)
- Kel R103.3 £179.95
- Kel R104.2 (dem) £229.95
- Kel R105.3 £169.95 (FT)
- Mission 760 £229.95 (FT)
- Mission 761 £229.95 (FT)
- Mission 762 £229.95 (FT)
- Mission 763 £229.95 (FT)
- Mission 764 £229.95 (FT)
- Mission 765 £229.95 (FT)
- Mon Audio 9 £229.95
- Mon Audio 9 £229.95
- Mon Audio 11 £229.95
- Mon Audio 14 £229.95
- Mon Audio R300MD (dem) £229.95
- Mon Aud R700 Gold (dem) £229.95
- Mon Aud R852 Gold (dem) £229.95
- Mon Audio R1200 (dem) £229.95
- Mon Audio Studio 10 (dem) £229.95
- Mon Aud R1800 (MS) £229.95
- Mordant Short MS 3.10 £229.95
- Mordant Short MS 3.20 £229.95
- Mordant Short MS 3.30 £229.95
- Musical Fidelity Ref 2 £229.95

Tuner Amps

Present this Ad to claim 20% OFF ALL PRODUCTS DISPLAYING THIS SIGN **

- Yamaha KX530 £229.95 (FT)
- Denon DRA335 £229.95
- Denon DRA435 £199.95
- Nad 7020E £199.95
- Nad 7225PE £239.95
- Nad 7225PE £529.95
- Rotel RX850AL £249.95

- Musical Fidelity Ref 4 £399.95 **
- Musical Fidelity MC1 £229.95
- Musical Fidelity MC2 £349.95
- Musical Fidelity MC4 £499.95
- Musical Fidelity MC5 £799.95
- Musical Fidelity MC6 £1499.95
- Philips FB825 £149.95
- Quad ELS 63 £649.95
- Rogers LS2A £189.95
- Rogers LS4A (dem) £279.95
- Rogers LS3/5A £124.95 **
- Rogers LS6A £199.95
- Rogers LS7 £99.95
- Rogers Studio 1A £189.95
- Rotel RT 950 £145.95
- Royal Sirtra £229.95
- Spendor S100 £259.95
- Spendor SP1 (dem) £159.95
- Spendor SP2/5 £159.95
- Spendor LS3/5A £199.95
- Tannoy DC 1000 £129.95
- Tannoy DC 2000 £129.95
- Tannoy DC 3000 (dem) £129.95
- Tannoy E11 £109.95
- Tannoy E11LE £139.95
- Tannoy M15 £179.95
- Tannoy M20 Black £199.95
- Tannoy M20 Rimw £79.95
- Tannoy J30 £89.95
- Tannoy M15 £79.95
- Vedestone Mimax £89.95
- Wharfedale Delta 30.2 £109.95
- Wharfedale Diamond IV £129.95
- Wharfedale 410 £189.95
- Wharfedale 505.2 £249.95
- Wharfedale 505.2M £249.95
- Arcam Delta 80 £329.95
- Alpha Tuner II £179.95
- Cyprus Tuner £299.95
- Denon TU250L £39.95
- Denon TU660L £199.95 **
- Kenwood KT1020L £129.95 **
- Kenwood KT2020L £169.95 **
- Kenwood KT5020L £249.95 **
- Marantz ST50L £159.95 **
- Musical Fidelity T1 (dem) £219.95 **
- Nad 4225 £199.95
- QED T260 (dem) £349.95 **
- Quad FM4 £199.95
- Pioneer FE56 £139.95
- Pioneer F91 (dem) £139.95
- Rotel RT830AL £179.95
- Rotel RT845AL £229.95
- Rotel RT850AL £129.95
- Rotel RT870L £159.95
- Technics STG470 £199.95
- Technics STG70LK £199.95
- Technics STG70LK £199.95

Tuners

- Arcam Delta 80 £329.95
- Alpha Tuner II £179.95
- Cyprus Tuner £299.95
- Denon TU250L £39.95
- Denon TU660L £199.95 **
- Kenwood KT1020L £129.95 **
- Kenwood KT2020L £169.95 **
- Kenwood KT5020L £249.95 **
- Marantz ST50L £159.95 **
- Musical Fidelity T1 (dem) £219.95 **
- Nad 4225 £199.95
- QED T260 (dem) £349.95 **
- Quad FM4 £199.95
- Pioneer FE56 £139.95
- Pioneer F91 (dem) £139.95
- Rotel RT830AL £179.95
- Rotel RT845AL £229.95
- Rotel RT850AL £129.95
- Rotel RT870L £159.95
- Technics STG470 £199.95
- Technics STG70LK £199.95
- Technics STG70LK £199.95

Compact Disc

Present this Ad to claim Free Discs with these models (FD)

- Arcam Delta 70.2 £599.95
- Arcam Delta 170 £599.95
- Arcam Alpha CD £349.95
- Arcam Black Box III £199.95 (FD)
- A & R Black Box I £249.95 (FD)
- A & R Black Box II £649.95 **
- P.O.A. £139.95
- Deltek £169.95
- Denon DCD 460 £249.95
- Denon DCD560 £249.95
- Denon DCD660 £249.95
- Denon DCD860 £249.95
- Denon DCD960 £249.95
- Denon DCD1560 £249.95 (FD)
- Denon DCD1444 £179.95 (FD)
- JVC XLV231 £249.95 (FD)
- Kenwood DPK9010 £269.95 (FD)
- Marantz CD40 £229.95 (FD)
- Marantz CD50 £229.95 (FD)
- Marantz CD50SE £199.95 (FD)
- Marantz CD60 £349.95 (FD)
- Marantz CD60SE £399.95 (FD)
- Marantz CD80 £399.95 (FD)
- Marantz CD94II £199.95 **
- Mission PDM II £219.95
- Nad 5320 £279.95
- Nad 5325 £159.95 (FD)
- Nad 5240R £199.95 **
- Philips CD610II £249.95 **
- Philips CD624 £399.95
- Philips CD634 £229.95 (FD)
- Philips CD850 £489.95
- Pioneer PD6500 £229.95 (FD)
- Quad 66 £299.95 (FD)
- Rotel RCD855 £199.95 (FD)
- Rotel RCD865 £159.95 (FD)
- Rotel RCD790 £199.95 (FD)
- Sony CDP790 £249.95 **
- Sony SLP277AK £249.95 **
- Technics SLP477AK £229.95 **
- Technics SLP550K £179.95 (FD)
- Technics SLP570K £229.95 (FD)
- Yamaha CDX530 £229.95
- Yamaha CDX730 £229.95

Present this ad to claim 10% OFF ALL PRODUCTS DISPLAYING THIS SIGN **

Turntables

- ARResearch EB101 £229.95
- Ariston Pro £179.95
- Ariston Q Deck £159.95
- Dual CS5000B £229.95
- Dual CS503-1 £109.95
- Dual CS503-2 £139.95
- Dual CS505-3 £159.95
- Dual CS505-4 £89.95
- Dual CS505-4 £345.95
- Nad 5120 £395.95
- Nad 5240R £185.95 **
- Little Pink Thing £249.95 **
- Pink Piano Blik (PT) £159.95
- Revolver Rebel (dem) £178.95
- Revolver (dem) £189.95
- Roksan Xerxes (ex) £138.95
- Rotel RP855 £178.95
- Rotel RP855 £159.95
- Systemdek one ex arm £267.95
- Systemdek one inc. arm £289.95
- Systemdek IIX 900 (ex) £189.95
- Systemdek IIX 900 + Math £239.95
- Systemdek IIX 900 + Tazn £269.95
- Systemdek IIX 900 Elect. £199.95
- Systemdek IIX 900V £165.95 **
- Systemdek IIX 900V £199.95 **
- Thorens TD280 II £219.95
- Thorens TD316 £279.95
- Thorens TD201 £299.95
- Thorens SL1200 II £299.95
- Technics SL1210 II £299.95

FEB SALE
Certain items marked (dem) are from display stock and available at special Feb Sale reductions.

PLEASE CALL US BEFORE TRAVELLING TO VERIFY PRICE AND AVAILABILITY

Some branches close all day Wednesday

109-113 London Road SEVENOAKS (0732) 459555
51 Beckenham Road BECKENHAM (081) 658 3450

1 The Grove Centre, Witham, Essex. ESSEX
10 miles from Colchester, 13 miles Chelmsford, 10 miles Braintree.

34 Mount Ephraim TUN. WELLS
0376 501733
0892 31543

Sevensnoaks Branch Only (0732) 458985
4 Railway Street CHATHAM (0634) 846859

73b North Street GUILDFORD (0483) 36666
162 Powis Street, Woolwich LONDON (081) 855 8016

41 St. Clements OXFORD (0424) 241171
20a Lower Bridge Street CANTERBURY (0273) 733338

0865 241773
Large car park at rear.

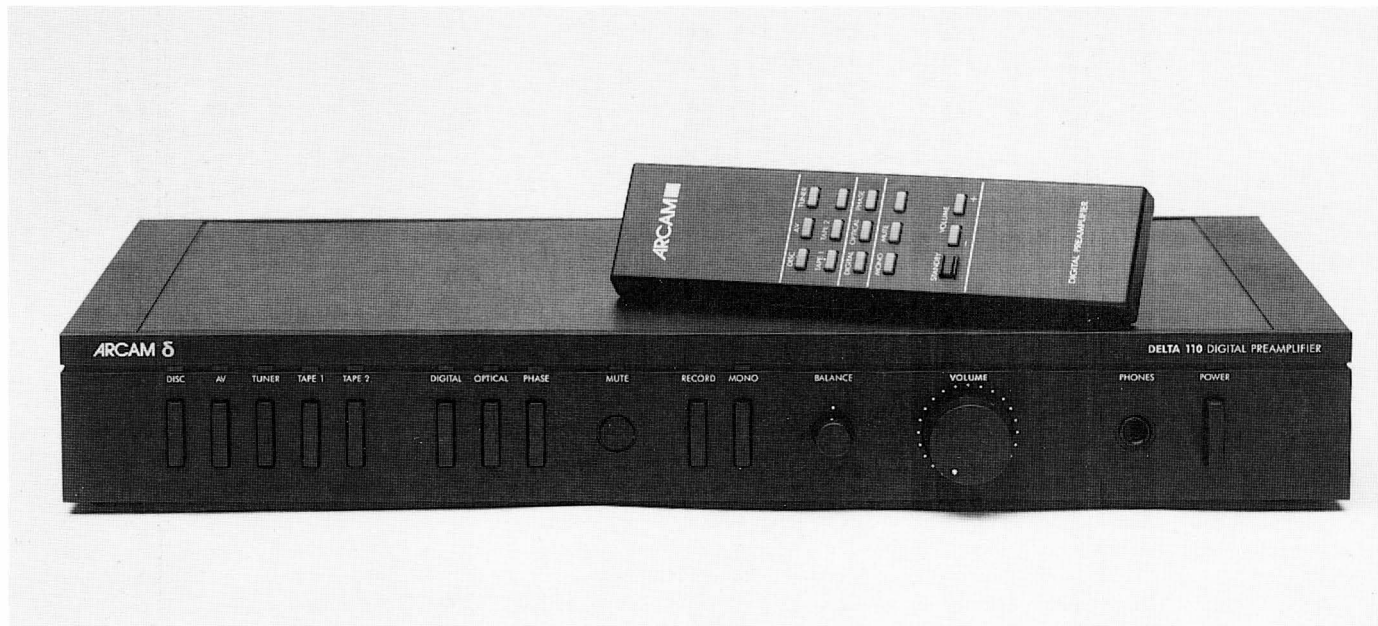
24 Pittville Street CHELTENHAM (0242) 241171
55 Preston Street BRIGHTON (0273) 733338

MAIL ORDER TO SEVENOAKS HI-FI 109/113 LONDON RD. SEVENOAKS, KENT. TEL: (0732) 458985.
State finish required

Please send me _____ I enclose a cheque/cash/card No. + Expiry Date _____
Name _____ Address _____ Daytime Tel No: _____

Arcam Delta 110/120

A&R CAMBRIDGE LTD, DENNY END IND CENTRE, WATERBEACH, CAMBRIDGE, CB5 9PB. TEL: (0223) 861 550



Having successfully revised its popular *Alpha* range of separates, the summer of 1990 saw Arcam concentrating on its upmarket *Delta* products. Together with the launch of a NICAM stereo TV tuner and improved *Delta 170* CD transport came this duo - the *Delta 110* preamp and *120* power amp. Neither product betrays any break with Arcam's tradition for sober, functional styling, but then you're being asked to pay for advanced under-the-skin engineering and not frilly aesthetics.

To this end, the *Delta 120* preamp is the more interesting of the duo. Not only is it equipped with five conventional inputs, but there are also two digital inputs dedicated to Arcam's on-board PDM D/A converter. Broadly speaking, this digital circuit, complete with the famous 'Black Chip' data acquisition IC and two SAA7321 PDM DACs, is comparable to that found in the *Black Box 3* decoder. Multiply regulated supplies and localised RF decoupling are features of this design.

Logic-controlled relays are employed in the selection of the line and disc inputs, enabling Arcam to extend the flexibility of the system with a hand-held IR remote control. It is also possible to hop between the coaxial and optical digital inputs via the handset in addition to operating the motorised volume control. There are no tone controls or filters to play with, but the slim black fascia still appears very busy with its multifarious input and rec-out selectors.

The *Delta 120* power amp, by contrast, is a relatively barren affair. It's solidly built, includes both AC and DC-coupled inputs together with enough 4mm terminals for two pairs of speakers. The

output stage is based around high-speed Semelab transistors which are shielded from abuse both by in-line fuses and non-invasive electronic protection.

Lab Report

Arcam's 'digital' preamp is of most interest, particularly the performance of its on-board PDM DACs. The S/N ratio extended to 100dB (A-wtd), good enough but still a few dB short of competing differential mode PDM systems. Linearity was much improved though, showing errors of just -0.12dB at -90dB and -0.4dB at -100dB, results that are comparable with the best PWM bitstream converters. Intermodulation distortion settled at a low 0.0004 per cent while, in common with all other PDM converters, harmonic distortion rose from 0.0018 per cent midband to 0.025 per cent at 20kHz. All in all, a characteristic set of measurements for Philips' SAA7321 chipset.

Neither were there any problems with the *D110's* line input, so long as you're prepared to excuse the 2dB error in channel balance. Distortion and noise were vanishingly low but the disc input was compromised by its restricted headroom. The RIAA response is sensibly tailored between 20Hz and 20kHz but distortion climbs (and headroom falls) with frequency.

So with just +22.5dB available via MM and +17.2dB available via MC at 20kHz, its CCIR IMD increases to 0.005 and 0.02 per cent respectively. Hardly earth-shattering, but sufficient to colour the 3D plot with basic 2nd-order distortions. To an extent, the power amp is 'sat-upon' by fuse and relay protection schemes, limiting

both the maximum power (that is, voltage) output at high frequencies, as well as restricting the peak current delivery to 16.7A. Still, the +2.4dB dynamic headroom is generous enough so long as you stick to 'easy' speaker loads. Distortion-wise there's not much going on, though quieter sounds are compromised by traces of crossover distortion (typically 0.025 per cent). Of potentially greater significance are the RF breaks at 290, 420 and 650MHz.

Sound Quality

First things first. The members of our panel listened to the combination in its conventional analogue guise, but were unaware of it being a pre/power rather than integrated model. In fact they did not consider it a 'big' sounding amplifier in any respect, just as they felt it lacked the exquisite resolution of either the Pioneer or Dual amplifiers when it came to reproducing massed strings.

On the other hand, it was applauded for its squeaky clean, tightly focused picture of events which conferred an excellent sense of pitch and timing. This is rather odd, for the amplifier was otherwise criticised for some loss of bass weight and impact, particularly via the CD input which sounded marginally lighter and brighter than the MM stage. Busy pop tracks are likely to sound slightly hard or edgy as a consequence, whereas the MM input will provide an altogether warmer, beguiling sound.

To a large extent, the panel's reaction mirrored my own impressions, gained after spending some considerable time with the product at home. Indeed, it appears that much of the blame can be

laid squarely on the shoulders of the power amp which, though a thoroughly competent piece of design work, has the unfortunate habit of muddying the sound of the *D110* preamp. It's only when the preamp is partnered with a more transparent power amplifier that its true qualities begin to emerge, qualities that are thoroughly disguised by the *D120*!

Specifically, the *D110* is a lighter, brisker and fresher sounding beast than might otherwise be suggested. Via the coaxial digital input and the on-board PDM DACs it can sound positively captivating, packed with crisp detail set in an inky black acoustic. Percussive transients are fast and sharp without sounding unnecessarily hard or cold, while simple vocals are recreated with a tangible presence.

The technical proficiency of its music is not in doubt, but the result is made all the more impressive by its adept handling of subtler emotive qualities. Instead of handing over a bland clinical assessment, there's a genuine devotion to the natural warmth and sentiment that went into the recording in the first place. To my ears at least, this is PDM at its best - effortless technical clarity combined with a smoothness that'll tug at the most apathetic of heartstrings!

Conclusion

What we are faced with here is a combination that's 'wonderful in parts'. Fortunately the most wonderful parts are located in the *Delta 110* preamp while the remainder have found their way into the *D120* power amp. More often we'll find the power amp shines all the brighter than its matching preamp, but in this case the convention is reversed.

On the basis of our tests, it is hard to

avoid the conclusion that the *D120* is dragging down the performance of the preamp. So, it's only by separating the duo that the true potential of the digital preamp may be realised - a prospect that's not going to be greeted with much enthusiasm by Arcam.

Still, I believe it is better to heartily endorse one of the pair rather than damn both products out of hand. Think of the *D110* as a state-of-the-art outboard DAC with a flexible preamp thrown in for good measure and you're unlikely to be disappointed.

TEST RESULTS

Preamplifier: Arcam Delta 110

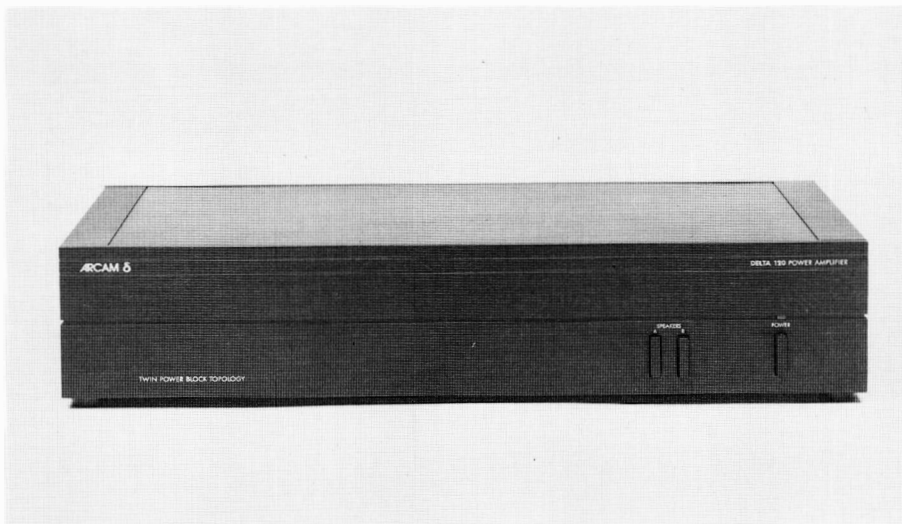
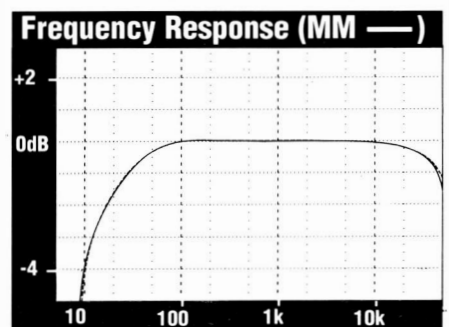
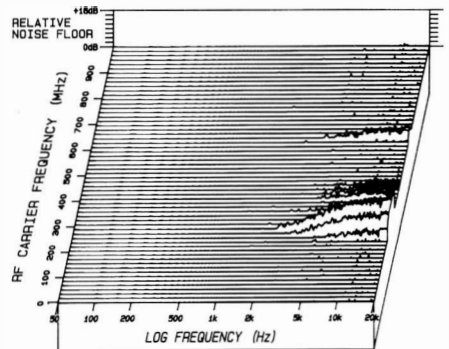
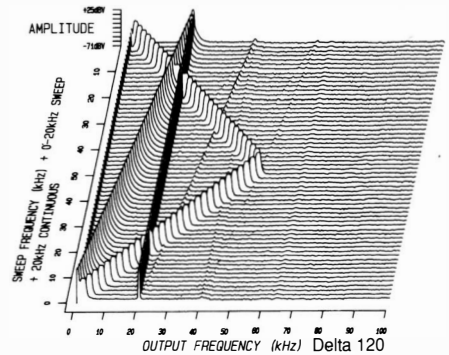
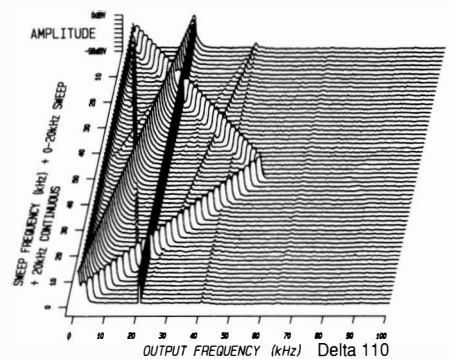
| | Aux/CD | MM | MC |
|---------------------------------------|-----------------|---------------|---------------|
| Stereo separation (20kHz) | 99.5dB | 65.1dB | 61.9dB |
| (1kHz) | 91.6dB | 74.3dB | 67.9dB |
| (20kHz) | 68.7dB | 64.8dB | 67.0dB |
| Channel Balance | | | |
| (1kHz, 0dBV) | 0.89dB | 0.89dB | 0.89dB |
| (-20dBV) | 0.08dB | 0.09dB | 0.11dB |
| (-60dBV) | 1.98dB | 1.75dB | 1.83dB |
| Total Harmonic Dist. | | | |
| (0dBV, 1kHz) | -103.3dB | -85.8dB | -88.2dB |
| (20kHz) | -100.4dB | -85.4dB | -80.9dB |
| CCIR Intermod. Dist. (1:1) | -88.1dB | -73.3dB | -53.5dB |
| Absolute Phase | | Non-inverting | |
| Noise (A wtd, 20Hz) | | | |
| - 20kHz) | -100.5dB | -85.4dB | -73.1dB |
| Residual noise (unwtd) | -100.1dBV | -100.1dBV | -100.7dBV |
| Input Sensitivity | | | |
| (for 0dBV) | 124.7mV | 1.391mV | 74.25uV |
| Disc overload (20Hz) | | 8.79mV | 479uV |
| (1kHz) | | 69.9mV | 3.73mV |
| (20kHz) | | 664.5mV | 36.3mV |
| (50kHz) | | 1521mV | 38.8mV |
| Input Loading | 47.5kohms/720pF | 47kohms/120pF | 218ohms/1.5nF |
| Preamp. Output (max)/Impedance | | 10.2V (line) | 26.5ohms |
| Retail Price | | | £700 |

Power amplifier: Arcam Delta 120

| | 20Hz | 1kHz | 20kHz |
|---|-----------|-----------|-----------|
| Maximum Continuous Power Output, 8ohms | 112.8W | 112.1W | 105.5W |
| 4ohms | 149.8W | 157.2W | 129.5W* |
| Dynamic Headroom (IHF) | | +2.4dB | (193.3W) |
| Peak Current (5msec, 1% THD) | | | 16.7A** |
| Output Impedance | 0.060ohms | 0.061ohms | 0.127ohms |

| | | | |
|--|---------|-----------------|----------|
| Damping Factor | 133.4 | 130.5 | 63.2 |
| Stereo Separation (0dBW) | 131.5dB | 102.1dB | 76.5dB |
| Total Harmonic Dist. | | | |
| (0dBW) | -72.1dB | -72.8dB | -69.3dB |
| (2/3 power) | -83.2dB | -85.8dB | -79.0dB |
| CCIR Intermodulation Distortion | | | |
| (0dBW) | | | -80.7dB |
| (2/3 power) | | | -98.3dB |
| Absolute Phase | | Non-inverting | |
| Noise (A wtd, 20Hz-20kHz) 0dBW | | | -100.1dB |
| (A wtd, 20Hz-20kHz) 2/3 power | | | -117.0dB |
| Residual noise (unwtd) | | | -87.9dBV |
| Input Sensitivity (for 0dBW) | | | 101.6mV |
| (for full output) | | | 1094mV |
| Input loading | | 34.5kohm/720pF | |
| DC offset, left/right | | +10.5mV/-15.8mV | |
| Retail Price | | | £500 |

* Fuse protection
** Relay protection



THE SOUND REVOLUTION AND ALL THAT JAZZ . . .

Art Audio
Camber
Concordant Audio
Conrad-Johnson
DCM
Empire Scientific
Kuzma
Revolver
Rock Reference
SD Acoustics
Seventh Veil
Sound Design Studios
Townshend Glastonbury

VINYL TUBE AUDIO

where music matters

43-45 Fortess Road, London NW5 1AD
071-485 4854

When CD was launched that was supposed to be it as far as sound reproduction was concerned. You could go no further, it was perfect, forever.

But forever and ever is a fairy-tale ending and we now know it hasn't come true.

In our opinion, analogue vinyl records played through tonally accurate systems get closest to the real sound of music.

Don't take our word for it. Why have Philips, the co-inventors of CD, just released their biggest current project, The Magic Flute, on vinyl? Why are the Japanese, the other inventors of CD, re-releasing classic Blue Note jazz recordings on vinyl?

Not because it's quaint, surely. Probably because they know that the emotion and the vitality of music cannot be conveyed by CD's.

We are specialists in analogue audio with a small, selected range of turntables which play properly. We are dedicated to valve amplifiers which are hand-built to produce a sweet and dynamic sound that will surprise you.

Bring along your favourite records and hear how they should sound. Phone us so that we can arrange a sensible demonstration. You'll find no hard sell, no fancy price policy.

Just sound advice.

R U A R K

...Worth the odd sacrifice

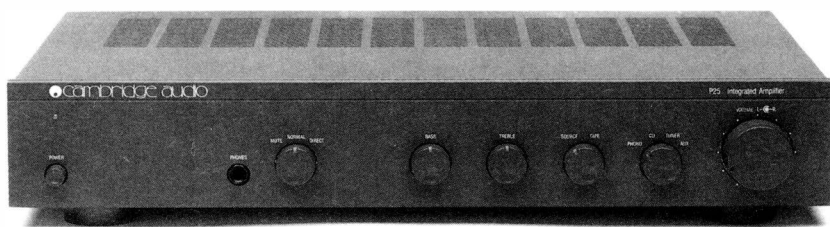


RUARK ACOUSTICS LTD

Unit 2 Annwood Lodge Industrial Estate, Arterial Rd., Rayleigh, Essex, SS6 7UA. Telephone (0268) 728890

Cambridge P25

CAMBRIDGE AUDIO SYSTEMS, SANDLEAS WAY, CROSSGATES,
LEEDS LS15 8AL. TEL: (0532) 601222



The Cambridge story seems to be one of constant change and uncertainty. However, with the collapse of Hi-Fi Markets and its subsequent acquisition by Wharfedale, perhaps Cambridge is entering a phase of consolidation and stability. Either way, the P25 is the cheapest of the three amplifiers that make up the Cambridge amplifier range. In direct contrast with Aiwa's XA-006, the P25 is actually a UK design manufactured in Taiwan. Remarkably, farming-out the construction in this way actually helps keep costs down.

So, what do you get for £180? Well, the matt grey livery and stubby controls are hardly inspiring, but the guts of the amp are solid enough. Interestingly, Cambridge has opted for a conventional complementary power amp in the P25 rather than the quasi-complementary design of its bigger products.

Bass and treble tone controls may be by-passed in source-direct mode while a dual-concentric volume control also facilitates adjustment of balance. There are sufficient inputs for four line sources and both MM and MC cartridges, though the latter must be distinguished via a switch on the rear of the amp.

A similar looking switch located near the 4mm terminals enables you to select one of two secondary windings on the mains transformer, thereby tailoring the maximum output into either 8 or 4ohms speaker loads. All the published measurements refer to the nominal 4ohms setting.

Lab Report

All the test results indicate that Cambridge has got its sums right, objectively at least. It's not a powerhouse, but the +1.8dB increase from 37W to 56W into 4ohms is respectable enough just as the very generous 12.7A current delivery should beat difficult speakers into submission.

Channel balance is fine right down to low levels while the input sensitivities and overload margins of the MM/MC disc stage are matched to within 20dB - textbook stuff.

Not surprisingly, the RIAA response is also accurately balanced between MM and MC, deep bass rolling-off to a standard -3dB point of 20Hz. A-wtd noise is also very low at -85dB via MM (rel. two-thirds output) but CCIR IMD creeps up from 0.009 to 0.024 per cent via MC. THD and IMD are otherwise consistent with level, the mild 2nd-order distortions highlighted on the 3D plot originating from the Sanyo-based power amp section.

Sound Quality

I won't labour the point, but the P25 pretty much bombed-out in the listening tests. Our panel thought it impressively consistent between MM and CD inputs but that the overall balance was thin, hazy and lacking in bass drive and impact. The consensus had it that tonal colours were oddly bleached from a recording, reducing each instrument to a grey, insipid shadow of its former self.

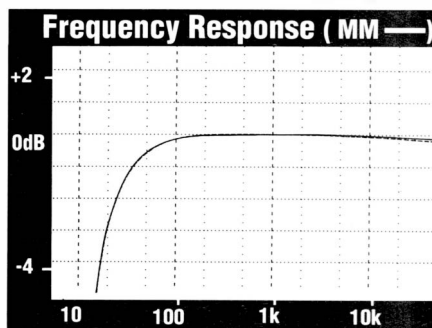
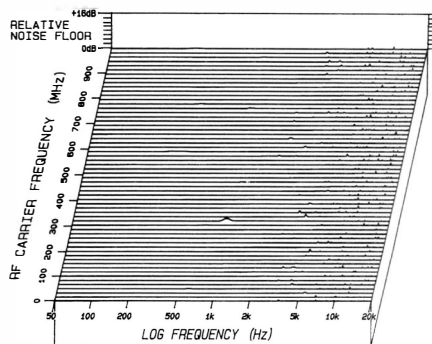
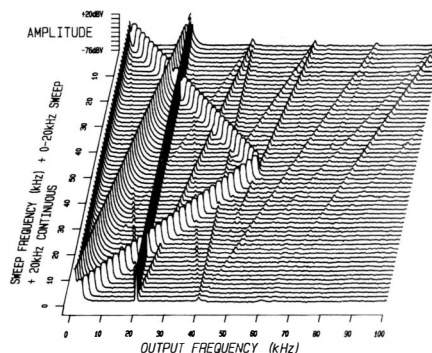
Its approach was both rudimentary and matter-of-fact but still seemed to lack conviction. I can only applaud its lack of obvious coloration but what remains is simply too bland for enjoyable listening.

Conclusion

It just goes to show that getting the basic technology under control won't necessarily guarantee a good sound. So it is with the P25 which, to all intents and purposes, is a straightforward and honest enough product. There's certainly no hint of aggressiveness in its music-making, but then neither is there the captivating bite and purpose of the best at this price. Perhaps if they paid greater attention to detail elsewhere in the design, Cambridge might be rewarded with a superior sound.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|-------------------------|-----------------|-----------------|
| Maximum Continuous Power Output, 8ohms | 34.1W | 36.5W | 33.2W |
| 4ohms | 48.4W | 55.7W | 50.6W |
| Dynamic Headroom (IHF) | +1.1dB (46.8W) | | |
| Peak Current (5msec, 1% THD) | 12.7A | | |
| Output Impedance | 0.113ohms | | |
| Damping Factor | 70.5 | | |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 69.5dB | 69.5dB | 69.5dB |
| (20kHz) | 47.5dB | 47.6dB | 47.6dB |
| Channel Balance | | | |
| (1kHz, -20dBV) | 0.07dB | 0.10dB | 0.13dB |
| (-60dBV) | 0.84dB | 0.98dB | 1.03dB |
| Total Harmonic Dist. | | | |
| (0dBW) | -77.9dB | -77.6dB | -77.7dB |
| (2/3 power) | -77.4dB | -78.2dB | -78.0dB |
| CCIR Intermod. Dist. | | | |
| (0dBW) | -77.2dB | -74.6dB | -66.5dB |
| (2/3 power) | -75.9dB | -74.8dB | -66.9dB |
| Noise (A wtd, 0dBW) | -78.2dB | -77.8dB | -69.2dB |
| (2/3 power) | -89.9dB | -85.0dB | -69.9dB |
| Residual noise (unwtd) | -66.8dBV | -66.9dBV | -66.8dBV |
| Input Sensitivity | | | |
| (for 0dBW) | 32.1mV | 404uV | 42.5uV |
| (for full output) | 196.1mV | 2.46mV | 261uV |
| Disc Overload | | | |
| (20Hz) | | 17.55mV | 1.78mV |
| (1kHz) | | 155.3mV | 15.87mV |
| (20kHz) | | 1436mV | 149.1mV |
| (50kHz) | | 1846mV | 185.7mV |
| Tape Output/Impedance | 11.01V (disc)/1.13kohms | | |
| Input loading | 9.5kohms/260pF | 46.7kohms/150pF | 43.2kohms/150pF |
| Absolute Phase | Positive | | |
| DC offset, left/right | +0.7mV / +13.8mV | | |
| Retail Price | £180 | | |



Uxbridge Audio

Dear Sir

Wembley Park,
Middlesex.

The EXCELLENT service, personal attention and professionalism I found with your staff, compels me to write this letter.

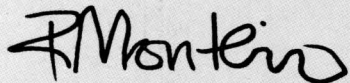
Having embarked on the daunting task of looking for the right music system I visited many Stores and purchased a lot of literature. I was attracted by your advertisement in What Hi-fi magazine. First class sound quality was my top priority and from another article in the same magazine I had made up my mind to purchase a system recommended therein.

A quick phone call to your Shop to find out whether you had them in stock and I was lectured on how a Music System should be purchased . . . "HAVE YOU LISTENED TO IT? HOW DO YOU KNOW YOU WILL LIKE IT'S SOUND? It isn't the same as buying a washing machine, when it has to be taken on faith that it will do the job as you want it. It is more like buying a musical instrument, where personal preference dictates. You do not need to be an expert, you only need to listen to it and decide for yourself . . ."

Not too keen on the lecture, I was, none the less, taken up by what he said, and decided to pay you a visit. This turned out to be quite an experience! After listening to a few systems I had already decided I would be buying my own combination and not the one recommended in the magazine. A MUSIC SYSTEM SHOULD, INDEED, BE LISTENED TO, BEFORE PURCHASING. In addition, the personal attention, friendly, untiring and "non pushy" attitude of your sales assistant, Jas, turned the daunting prospect of choosing the right hi-fi into A MOST PLEASANT EXPERIENCE.

When I first read the letter from a satisfied customer in your advert I didn't think it genuine. But after my experience I know just what he meant. I echo him in commanding you and your staff and I will not hesitate to recommend you. I, once again, thank you for the help in choosing my system and the excellent service and attention I have received at and since it's installation.

Wishing your Company every success



Mrs. F. Monteiro

Uxbridge Audio
278 High Street, Uxbridge
Middlesex. Tel: 0895-30404 multi-line
Open 10am till 6pm - 6 days a week

*Music from the best
equipment at all
price levels*

TWO DEMONSTRATION ROOMS • 7 DAY EQUIPMENT EXCHANGE
OR REFUND • UNBIASED ADVICE • MAIL ORDER ANYWHERE
2 YEARS GUARANTEE PARTS AND LABOUR • FULL INSTALLATION
SERVICE • 0% INTEREST FREE CREDIT • FULL SERVICE &
TURNTABLE SET UP FACILITIES

BRITISH AUDIO DEALERS ASSOCIATION

BADA

THE ULTIMATE IN
SOUND ADVICE

ACOUSTIC ENERGY • A&R CAMBRIDGE • AR • ARISTON • AUDIOLAB • AUDIOTECH • CAMBRIDGE AUDIO • CREEK • CYRUS • DENON • DUAL • EPOS • EXPOSURE • HEYBROOK

ION OBELISK • JPW • KEF • LINN PRODUCTS • MARANTZ • MERIDIAN • MICHELL • MISSION • MONITOR AUDIO • NAD • NAIM • NAKAMICHI • QED • QUAD

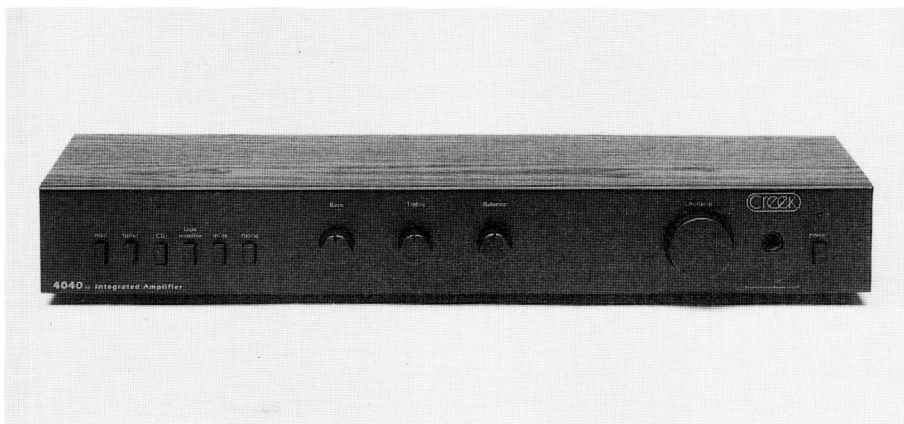
REVOLVER • RENOX • ROGERS • ROKSAN • ROTEL • ROYD • RUARK • STAX • TANNØY • THORENS • WHARFEDALE • YAMAHA



Creek CAS4040 S3

CREEK AUDIO SYSTEMS, UNIT A1, HAZELTON INDUSTRIAL PARK,
HORNDEAN, HANTS. PO8 9JU. TEL: (0705) 597722

Recommended



Creek's 4040 integrated amplifier has a family tree stretching way back to the days of the original budget wonders from NAD and Rotel. The amp, like the company, has witnessed numerous changes since its introduction, though the Series 3 version of today is less the 'economy' model it once was. Since its acquisition by Mordaunt Short, Creek has found the time to consolidate and improve existing products. So it is with the 4040 S3 which looks roughly the same as the S2 version but features plenty of internal revisions to improve performance.

It's now equipped with an IEC mains inlet instead of captive lead while the gain of its various amplifier stages has been rearranged to improve overload margins. Inadequate disc headroom has been a particular gripe of previous Choice reports, so it's good to see Creek getting to grips with the problem.

All the rotary controls, including volume, balance, bass and treble are milled from alloy to match the matt black fascia. Over to the right you've a selection of pushbuttons for input selection, tape monitor, mute and mono operation. Only MM cartridges are catered for, though the decision not to over-stretch the amp with a MC input is probably a wise one. Both direct and switched loudspeaker connections are provided, by the way, the latter operating in conjunction with the headphone socket.

Lab Report

All things considered, the S3 revisions may be considered a success even if one or two bugbears, like the 6.6dB low-level channel balance error, still persist! Creek's output protection puts a limit on the maximum available current, but with 41W into 8ohms and 63W into 4ohms it should be happy enough with most sensitive, budget speakers.

The MM disc response is tailored at

low frequencies, falling off a little sharply below 100Hz so that it's some 4dB down at 20Hz. By contrast, the CD input is nominally flat to 5Hz but begins to roll-off above 10kHz (-1.7dB at 20kHz). Hence the improved rejection of RF noise, leaving just a small break at 240MHz.

Creek has improved the power amp's constant-current sources in an effort to reduce distortion. Certainly the CD/MM THD of 0.008 per cent is more than acceptable though IMD is compromised via the disc input just after the actual RIAA section - even though MM headroom has risen to a fine +28.6dB.

Sound Quality

Following on the heels of some rather ragged performers, the 4040 acquitted itself with great decorum. All our listeners thought it a competent and tidy-sounding design, slightly dry perhaps but nicely controlled nonetheless. The sense of stereo depth can appear slightly shallow at times and there's also an increase in muddling when pushed too hard, but kept within its limits, it offers an otherwise very purposeful, gutsy sound.

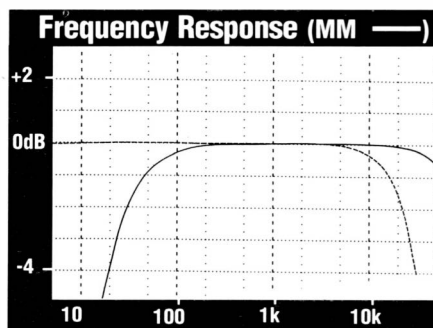
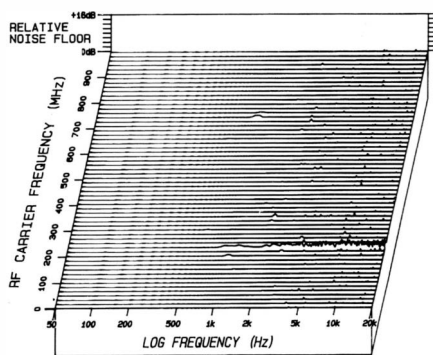
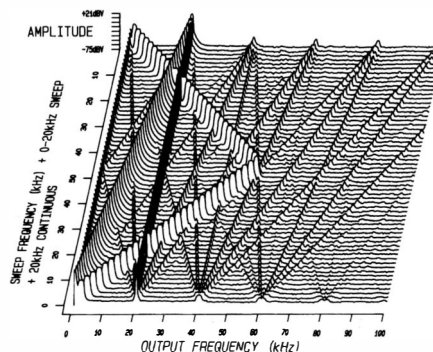
It seems marginally leaner and also better focused via the CD input, yet it still lacks the ability to resolve subtle musical detail in the fashion of the larger Creek amps. Clearly, finesse comes at a premium. This is not to imply that the 4040 is crude, in fact it's quite refined in a cautious sort of way. It doesn't hold back but then neither is it aggressive or forward.

Conclusion

This Series 3 is perhaps not as punchy nor as obviously lively as its predecessor, but then its revisions have prompted a more secure and mature sound that will ensure all-round compatibility. So, Creek is to be applauded for its development of the 4040 theme even if, at £200, it is beginning to err on the expensive side.

TEST RESULTS

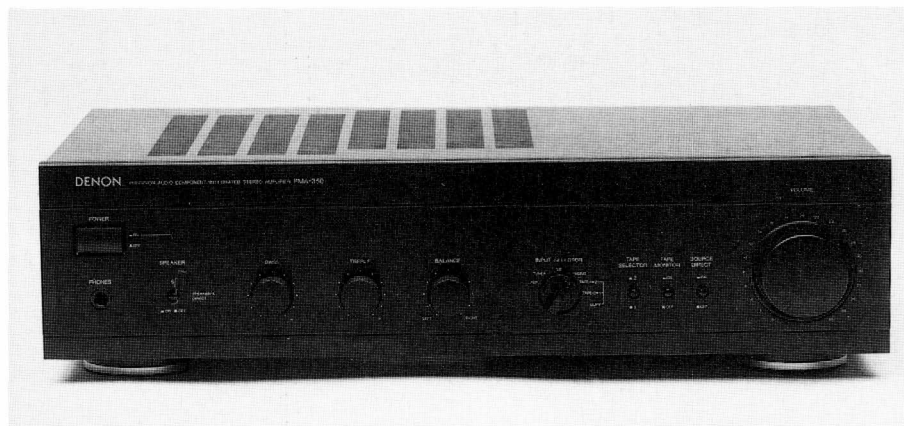
| | 20Hz | 1kHz | 20kHz |
|--|-------|-------------------------|-----------------|
| Maximum Continuous Power Output, 8ohms | 38.7W | 40.9W | 39.0W |
| 4ohms | 53.5W | 62.6W | 60.4W |
| Dynamic Headroom (IHF) | | +1.25dB | (54.5W) |
| Peak Current (5msec, 1% THD) | | | 7.0A |
| Output Impedance | | | 0.042ohm |
| Damping Factor | | | 190.1 |
| | | CD/Aux | MM |
| Stereo Separation(1kHz) | | 77.1dB | 77.8dB |
| (20kHz) | | 45.7dB | 54.7dB |
| Channel Balance(1kHz, -20dBV) | | 0.20dB | 0.03dB |
| (-60dBV) | | 6.58dB | 6.68dB |
| Total Harmonic Dist.(0dBW) | | -84.8dB | -82.8dB |
| (2/3 power) | | -80.4dB | -81.2dB |
| CCIR Intermod. Dist.(0dBW) | | -95.6dB | -74.5dB |
| (2/3 power) | | -94.6dB | -74.3dB |
| Noise (A wtd, 0dBW) | | -83.0dB | -79.4dB |
| (2/3 power) | | -91.3dB | -81.4dB |
| Residual noise (unwtd) | | -64.4dBV | -64.2dBV |
| Input Sensitivity(for 0dBW) | | 63.4mV | 422uV |
| (for full output) | | 408.3mV | 2.72mV |
| Disc Overload (20Hz) | | | 22.4mV |
| (1kHz) | | | 134.7mV |
| (20kHz) | | | 1213mV |
| (50kHz) | | | 2083mV |
| Tape Output/Impedance | | 9.622V (disc)/1.12kohms | |
| Input loading | | 44kohms/50pF | 46kohms/110pF |
| Absolute Phase | | | Inverting |
| DC offset, left/right | | | +7.9mV / +4.5mV |
| Retail Price | | | £200 |



Denon PMA-350

Recommended

HAYDEN LABS LTD, HAYDEN HOUSE, CHILTERN HILL, CHALFONT ST PETER, BUCKS. SL9 9EW. TEL: (0753) 888447



Ever the masters of overstatement, Denon's release of its new *PMA-350* integrated has been accompanied by a fanfare of bold and challenging claims. This amplifier has resulted from a collaboration between Denon's UK and Japanese staff in addition to a - and I quote - 'noted UK amplifier designer', whoever that might be. Anyway, Denon feels sufficiently confident to suggest its new baby will outperform industry lightweights like the Arcam *Alpha*, Mission *Cyrus Two* and Pioneer *A-400*. There's nothing like setting your sights high!

The layout of the fascia with its bass/treble tone controls, six-way input selector, balance and tape monitor facilities do not immediately suggest this is a specialist product. Inside, however, it's a different matter with the shielded toroidal mains transformer, chunky Cerafine electrolytics and hi-current Sanken output transistors scoring full marks.

The RIAA EQ section is based around a dual-channel op-amp but discrete, localised regulation and quality polystyrene capacitors are further points in its favour. The passive tone controls are sensibly designed too, plus there's the option of CD Direct to route high level signals straight into the power amp via the volume control.

Lab Report

On the bench this amp clocked up some 88W into 8ohms and 116W into 4ohms, yet there was evidence of slew-limiting restricting its power output at higher frequencies. The output impedance is also a touch high at 0.1ohms but stereo separation, hum and noise, input sensitivities and MM disc overload margins are all just fine.

Distortion is dictated by the power amp section and though its numerical value is pretty constant at 0.032 per cent, the nature of the distortion actually

changes with level. At low power levels the 2nd harmonic dominates just as the 3rd harmonic takes over through mid to high power outputs.

The Ultrasonic Distortion plot also reveals a number of very interesting and rare mechanisms (identified as 24, 25 and 26 in *Tech Talk*) in addition to the 2nd and 3rd order IM routes that track through the audio band. Add to this the fact that 2nd harmonics all suffer additional 2nd-order IMD while the 3rd harmonics are joined by 3rd-order IMD and you've got one weird amplifier! The strong susceptibility to RF noise in the densely-populated 80-140MHz region is also a little worrying.

Sound Quality

This is not the sort of amp to leap out and grab your attention, rather it'll soothe you with its laid-back and relaxed demeanour. Whether you choose the CD or MM input, this amplifier offers a sweet and unfatiguing view of events.

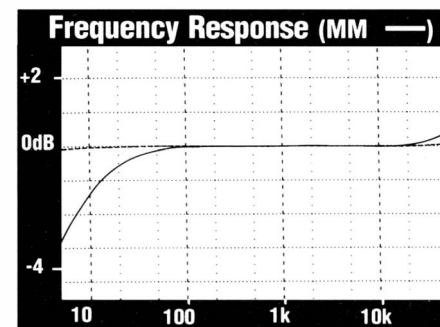
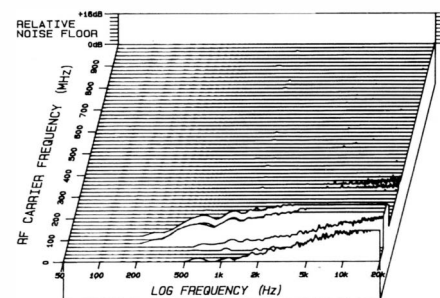
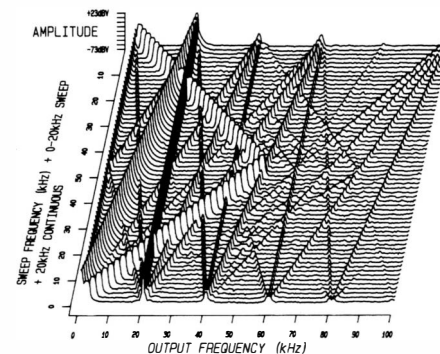
Perhaps as a result there was criticism of it rounding-off the sharpest of transients, the inoffensive sweetness of the amp reducing the natural urgency, sparkle and excitement of the recording. Yet there were other listeners, myself included, who viewed this same 'character' in a more positive light. The very unfatiguing lushness of the '350 enabling us to hear through into the music without having abrupt detail forced upon us. In all, it's just too syrupy for some, but suitably mellifluous for others!

Conclusion

By general consensus, the *PMA-350* is not on a par with either the *Cyrus Two* or Pioneer *A-400* amplifiers but then most rational individuals would consider this an unrealistic comparison anyway. Hype aside, the *PMA-350* is a fine amplifier, a solid performer that will suit a wide range of budget ancillaries.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|----------------------|-----------------|-----------|
| Maximum Continuous Power Output, 8ohms | 78.6W | 87.7W | 80.0W |
| 4ohms | 107.1W | 115.5W | 99.0W |
| Dynamic Headroom (IHF) | | +1.4dB (120.2W) | |
| Peak Current (5msec, 1% THD) | | | 11.0A |
| Output Impedance | | | 0.100ohms |
| Damping Factor | | | 79.9 |
| | CD/Aux | MM | |
| Stereo Separation(1kHz) | 81.1dB | 80.1dB | |
| (20kHz) | 58.9dB | 57.9dB | |
| Channel Balance(1kHz, -20dBV) | 0.01dB | 0.05dB | |
| (-60dBV) | 0.30dB | 0.35dB | |
| Total Harmonic Dist.(0dBW) | -69.6dB | -70.2dB | |
| (2/3 power) | -72.1dB | -71.4dB | |
| CCIR Intermod. Dist.(0dBW) | -72.0dB | -68.5dB | |
| (2/3 power) | -76.3dB | -77.3dB | |
| Noise (A wtd, 0dBW) | -80.3dB | -70.1dB | |
| (2/3 power) | -99.4dB | -82.8dB | |
| Residual noise (unwtd) | -74.9dBV | -74.7dBV | |
| Input Sensitivity (for 0dBW) | 19.7mV | 328uV | |
| (for full output) | 186.7mV | 3.08mV | |
| Disc Overload (20Hz) | | 17.9mV | |
| (1kHz) | | 161.3mV | |
| (20kHz) | | 1475mV | |
| (50kHz) | | 3075mV | |
| Tape Output/Impedance | 9.73V (disc)/121ohms | | |
| Input loading | 47kohms/120pF | 46kohms/220pF | |
| Absolute Phase | | Positive | |
| DC offset, left/right | | +3.8mV/-14.4mV | |
| Retail Price | | | £160 |



Dual CV5600

Best Buy

RAM PROJECTS, UNIT 27, STRETFORD MOTORWAY EST, BARTON DOCK RD, STRETFORD, MANCHESTER M32 02H. TEL: (061) 866 8101



Nothing out of the ordinary, or an amplifier with a skeleton in its cupboard? From the front panel you'd never guess anything was afoot - the bass, treble and balance controls look harmless enough as does the large volume knob. Dual has also provided connections for two tape decks, three line sources and a MM phono input while a separate CD Direct facility enables you to bypass all these twiddly bits. The music signal still has to be routed via a naff speaker selection switch, however.

So why all the fuss? Well, look at the rear of the amp and you will discover that the CV5600 is a dead-ringer for any Rotel amplifier - same phonos, same casework, same 4mm terminals. In fact the CV5600 is built by Rotel, apparently to Dual's specification. But if the results of our listening are any guide, Rotel would appear to have done rather too good a job! Oddly enough a cursory internal examination reveals a few Rotel trademarks but nothing that would suggest the CV5600 is a rip-off of the RA-820AX or 810A for instance.

There are none of the selected components you'd expect to find in a Rotel amp and no low-noise Signetics op-amps in the disc stage. NEC IC packages are used as drivers for the power amp and there's even a pucker Zobel network at the output. So why does the CV5600 sound every inch the Rotel amplifier? The only clue I've got concerns the power amplifier itself which uses the same Sanyo transistors preferred by Rotel.

Lab Report

Plenty of juice on tap here, the 57W/82W (8/4ohms) specification exceeding any of Rotel's sub-£200 amps. The hefty 14A current reserve also bodes well for driving difficult speakers, but don't forget to take into account the phase-inversion (brought about by the tone circuitry). Channel balance is great but THD reduces

markedly from 0.038 per cent at 1W to typically 0.0018 per cent at two-thirds output, suggesting a hint of low-level crossover distortion.

All line-level RF is blocked by a series of input RC filters while, back under closed-loop conditions, the 3D plot betrays the merest hint of 2nd-order distortions. This looks more like the RA-820AX's spectrum than the 820BX4, for instance. The MM disc response is all 'Dual' too, extending well into the subsonic bass with a mild +1dB lift at 50kHz. Disc input sensitivity is normal at 3.1mV, headroom satisfactory (+28.7dB) and noise suitably low (-83dB, A-wtd).

Sound Quality

The stylus had barely traversed its first circuit of Sting's *Fragile* before a smile of satisfaction spread across the faces of our listeners. The crisp, articulate quality of vocals and delightful string tone of the guitar were immediately apparent. There may not have been the weight of our bigger amps but the depth of detail was unmistakable.

Whether via CD or MM disc, the amplifier sounded very clean and nimble just as it enjoyed an excellent sense of stereo focus. Detail and control sum up this amp's capabilities as everything dovetailed together both in proportion and balance.

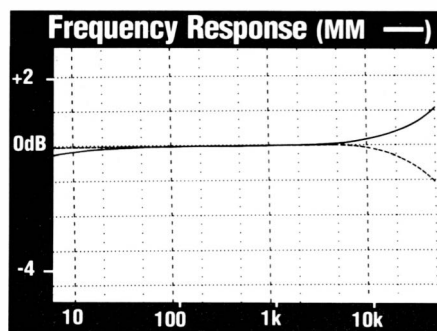
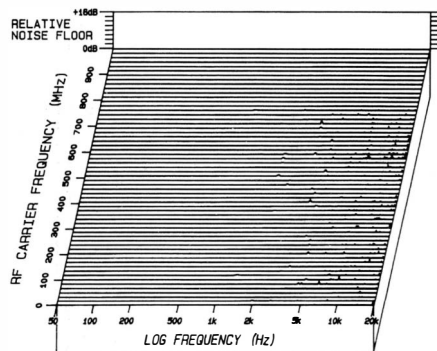
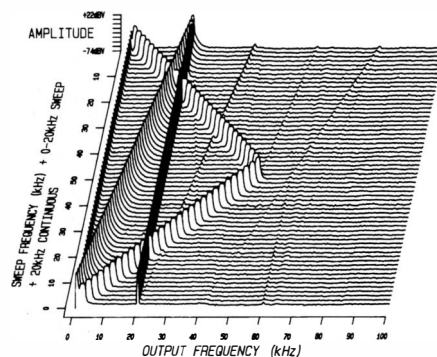
The CV5600 proved just as impressive via the CD input, revealing a string tone and quality of brass that was quite superb, rich, vibrant and communicative.

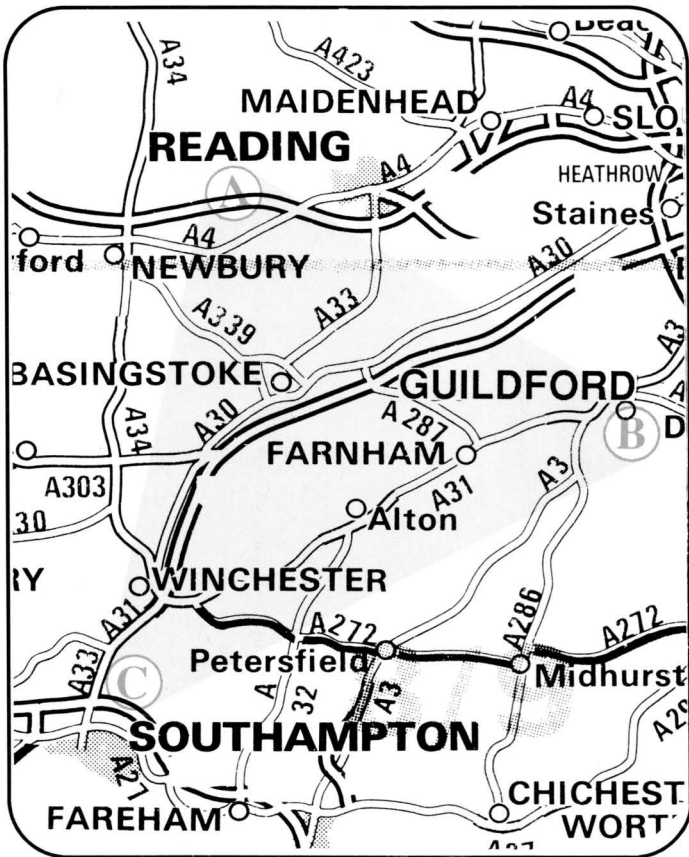
Conclusion

The Dual CV5600 is clearly the best sub-£200 amplifier in our test and more than good enough to put the shivers up the spine of our established hierarchy. However lucrative it considers such OEM commissions, Rotel may end up kicking itself.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|-------------------------|-------------------|-----------|
| Maximum Continuous Power Output, 8ohms | 54.4W | 57.0W | 51.3W |
| 4ohms | 77.5W | 82.4W | 75.8W |
| Dynamic Headroom (IHF) | | +1.1dB (73.5W) | |
| Peak Current (5msec, 1% THD) | | | 14.1A |
| Output Impedance | | | 0.127ohms |
| Damping Factor | | | 63.2 |
| | | CD/Aux | MM |
| Stereo Separation (1kHz) | 67.2dB | 67.1dB | |
| (20kHz) | 43.0dB | 42.5dB | |
| Channel Balance (1kHz, -20dBV) | 0.36dB | 0.38dB | |
| (-60dBV) | 0.31dB | 0.33dB | |
| Total Harmonic Dist. (0dBW) | -68.8dB | -68.5dB | |
| (2/3 power) | -96.2dB | -94.2dB | |
| CCIR Intermod. Dist. (0dBW) | -70.8dB | -68.5dB | |
| (2/3 power) | -96.8dB | -74.2dB | |
| Noise (A wtd, 0dBW) | -84.5dB | -80.5dB | |
| (2/3 power) | -96.9dB | -82.7dB | |
| Residual noise (unwtd) | -75.3dBV | -75.5dBV | |
| Input Sensitivity (for 0dBW) | 31.0mV | 412uV | |
| (for full output) | 236.6mV | 3.13mV | |
| Disc Overload (20Hz) | | 15.25mV | |
| (1kHz) | | 136.9mV | |
| (20kHz) | | 1225mV | |
| (50kHz) | | 2732mV | |
| Tape Output/Impedance | 9.920V (disc)/2.49kohms | | |
| Input loading | 47kohms/590pF | 45.5kohms/450pF | |
| Absolute Phase | | Inverting | |
| DC offset, left/right | | +0.08mV / +0.55mV | |
| Retail Price | | | £150 |





Your HiFi Choice?

3 IN THE SOUTH

A = Reading

**READING
HI FI
CENTRE**

4 Queens Walk, Broad Street Mall, Reading, Berks.
RG1 7QF Tel: 0734 585463
(Opening Hours – Tues.-Sat. 10am-6pm; Thurs.
10am-7pm (Closed for lunch 2pm-3pm except
Sat.); Open Mondays during December)

B = Guildford

The Hi Fi Shop

3 Bridge Street, Guildford, Surrey, GU1 4RY
Tel: 0483 504801
(Opening Hours : 9am-6pm Mon.-Sat.)

C = Southampton

**HAMPSHIRE
AUDIO**

8-12 Hursley Road, Chandlers Ford, Hants.
SO5 2FU Tel: 0703 252827 & 265232
(Opening Hours: Tues.-Sat. 10am-6pm; Thurs.
10am-8pm; Closed Mondays except in December)

Each store is a prominent independent BADA member, and offers a minimum of 2 single speaker demonstration studios and 17 years of specialised hi-fi sales and service. The stores are totally independent but share the same enthusiastic dedication and professionalism giving you guidance and unrivalled expertise.

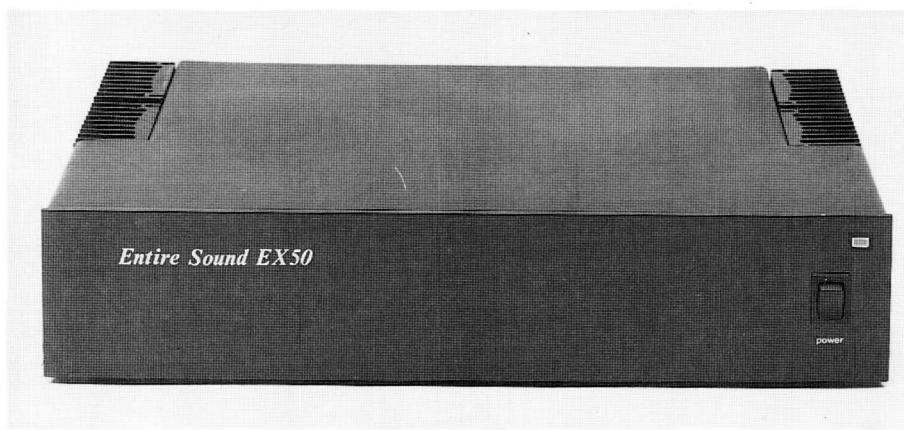
Each store has in common 10 significant quality manufacturers – ARCAM, AUDIOLAB, CELESTION, CREEK, LINN, MERIDIAN, NAKAMICHI, PROAC, QUAD and ROTEL.

Each store offers a selection from KEF, MICHELL, MARANTZ, MUSICAL FIDELITY, REVOLVER and ROGERS but also has its own chosen favourites such as DENON, MONITOR AUDIO, NAD, REGA, REVOX and SONY.



Entire Sound EX50

ENTIRE SOUND, 3 KIPPO FARM COTTAGES, KINGS BARN, ST ANDREWS, N E FIFE. TEL: (033) 488286



Hailing from Fife and what is, quite literally, a 'cottage' industry, the EX50 power amp is just one of a range of products available from Entire Sound. It is an enthusiast outfit and unashamedly so, with a variety of transmission-loaded speakers and guitar or PA electronics also on its books.

From the outside, the EX50 looks rather like a Linn power amp with its matt black finish and rear section flanked by flush-fitting heatsinks. On the rear you'll find unswitched 4mm speaker binding posts and a pair of phons for the input. Don't, whatever you do, connect any source to the DIN socket marked 'preamp', however, for this is not another input but a 22V AC supply destined to power-up ES's matching preamp.

It is a fairly heavy amp despite its modest dimensions, much of this coming down to its two huge mains toroids. The EX50 is a dual-mono design, hence the excellent stereo separation figures, and features two very robust power supplies that feed mono modules on either side. The DC condition of these modules is obviously a little 'wobbly' though, for the amp's DC offset is far too high and will tend to pre-bias the speaker's bass driver.

Each monoblok is based around a pair of Hitachi Mosfets with comprehensive fuse protection provided at various points in the circuit.

Lab Report

Over-heating shouldn't occur as this amp runs stone-cold for much of the time. Perhaps if the bias level were correctly set then it would warm-up and be rid of the crossover distortion that plagues all high frequency signals. THD always exceeded 1.4 per cent at 20kHz (8ohms) and so the quoted power output refers to hard clip rather than 1 per cent distortion. Even so, and despite a healthy current delivery, the recorded output levels are significantly

less than the 50W/100W (8ohm/4ohm) specification for the EX50. Tut, tut.

There's an initial burst of RF activity near the top of the amp's closed-loop at 1MHz, but thereafter it appears insensitive to spurious RF noise. Still, any residual demodulation would be thoroughly masked - subjectively speaking - by the plethora of conventional distortions. The 3D Ultrasonic Distortion plot is bustling with every sort of harmonic and intermodulation distortion (typically 2-5 per cent), much of which finds itself tracking back through the audio band.

The low 0.03ohms output impedance and 113dB A-wtd S/N ratio are the only cheery results I can find.

Sound Quality

In the event, this amp sounded rather better than might have been expected, though it wasn't a wholesale success. It fared well enough with simple vocal recordings but there was some loss of warmth or texture to the voice.

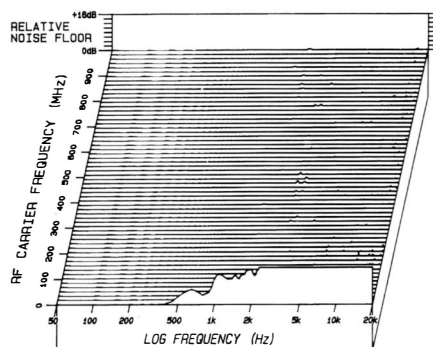
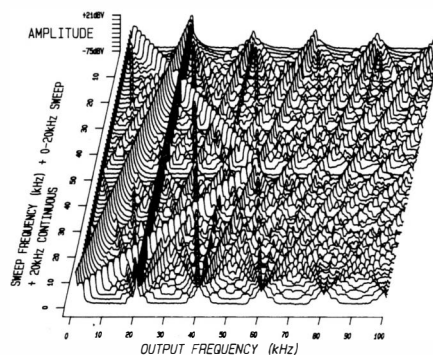
Similarly, though our sax CD enjoyed a fairly precise stereo focus, the brassy timbre of the instrument was lightly pinched and vaguely nasal in quality. Once again the background of piano and percussion was clearly differentiated as was the groundswell of applause at its conclusion. Indeed, there seemed little criticism of its resolution, only of the rather cold-hearted or clinical fashion in which it went about its task.

Conclusion

This is a valiant, if mildly over-priced, first attempt and, I suspect, something of a one-off from Entire Sound. As a consequence, they should redress the numerous technical inadequacies while also sweetening-up its rather clinical, heartless sound. Once this is accomplished we would be delighted to examine the MkII version in a later issue.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|-----------------|-------------------|----------|
| Maximum Continuous Power Output, 8ohms | 38.3W | 39.8W | 38.3W |
| 4ohms | 58.7W | 63.0W | 61.8W |
| Dynamic Headroom (IHF) | +0.79dB (47.8W) | | |
| Peak Current (5msec, 1% THD) | 14.0A | | |
| Output Impedance | 0.032ohms | | |
| Damping Factor | 252.5 | | |
| Stereo Separation | | | |
| (0dBW) | 134.2dB | 125.8dB | 129.5dB |
| Total Harmonic Dist. | | | |
| (0dBW) | -82.3dB | -64.6dB | -39.1dB |
| (2/3 power) | -80.0dB | -64.4dB | -38.4dB |
| CCIR Intermod. Dist. (0dBW) | | | |
| (2/3 power) | | | -80.7dB |
| | | | -62.9dB |
| Noise (A wtd, 20Hz-20kHz) 0dBW | | | -100.4dB |
| (A wtd, 20Hz-20kHz) 2/3 power | | | -113.2dB |
| Residual noise (unwtd) | | | -83.3dBV |
| Input Sensitivity (for 0dBW) | | | 133.8mV |
| (for full output) | | | 853.1mV |
| Absolute Phase | | | Positive |
| Input loading | | 49.4kohms/90pF | |
| DC offset, left/right | | -20.2mV / -99.5mV | |
| Retail Price | | | £500 |



GET ON DOWN

Until the end of March 1991, you can walk out of any Audio T store with all three of these leading hi-fi components for the silly sum of just £499.90.



ROTEL RCD 855

This CD player has been warmly welcomed by the hi-fi world, not only gaining rave reviews, but also winning a Hi-Fi Choice Best Buy Award.

£249.95



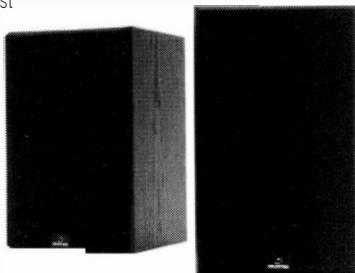
ROTEL RA 840BX4

Matching elegance with performance, this stylish amplifier perfectly complements the RCD 855 and has been regularly recommended by Hi-Fi Choice.

+£189.90

CELESTION 5

Versatile enough to handle the most demanding of musical tastes and following hot on the heels of the award winning Celestion 3's, the 5's are unbeatable speakers in their price range.



+£149.00

DOWN TO £499.90

Combined as a system, this offers unbelievable sound at an unbeatable price! (We'll even throw in 8m of speaker cable, free!)

audio◀T

Great Hi-Fi Stores

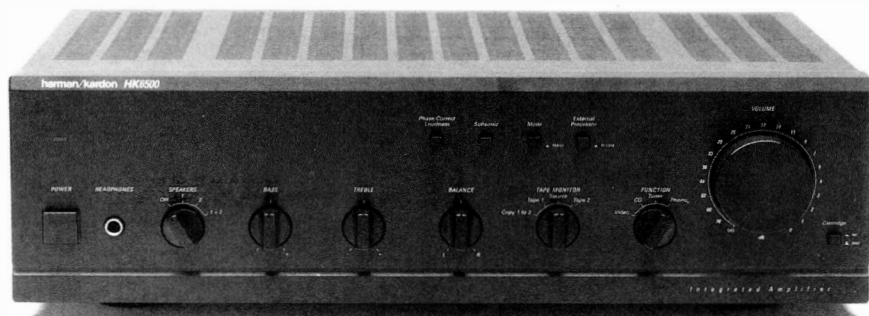


BASINGSTOKE, 4 FEATHERS LANE, 0256 24311
BRISTOL, 65 PARK STREET, 0272 264975
CHELTENHAM, 40-42 ALBION STREET, 0242 583960
EDGWARE, 173-175 STATION ROAD, 081-952 5535
ENFIELD, 159a CHASE SIDE, 081-367 3132
ILFORD, 442-444 CRANBROOK ROAD, GANTS HILL, 081-518 0915
LONDON NW6, 190 WEST END LANE, HAMPSTEAD, 071-794 7848
OXFORD, 19 OLD HIGH STREET, HEADINGTON, 0865 65961
SWINDON, 60 FLEET STREET, 0793 538222

Harman Kardon HK6500

HARMAN (AUDIO) UK LTD, MILL STREET, SLOUGH, BERKS
SL2 5DD. TEL: (0753) 76911

Recommended



First appearances can be deceptive. After all, a glance at Harman's *HK6500* fails to reveal anything particularly special, but listen to the amp and you'll realise it's far from humdrum. It's the mid-ranking model and, ostensibly, little different from either the *HK6300* or *HK6600* except for its power output. The matt black alloy fascia is dotted with gold lettering and a row of knobs specified for input and rec-cut selection, balance, bass and treble tone control. The company has also fitted a hard-wired A/B speaker selector - good as far as it goes but HK should resort to local relay switching.

Inputs are provided for two tape decks, three line sources and both MM and MC disc inputs. Four smaller buttons switch in the phase-correct loudness, subsonic filter, mono and an extra tape monitor loop to cater for a graphic (aargh) or surround-sound processor. Unusually, the *HK6500* is not equipped with either a tone-defeat or source-direct option.

Inside there is a clutch of PCBs linked by a wealth of ribbon cabling. It's highly unlikely that the guts of this amplifier have ever seen a CAD system, but HK's use of wholly discrete components (including the MC headamp and RIAA network) is to be commended. So too is its use of high-current Toshiba transistors.

Lab Report

This amp includes an eight and 4ohms selection switch, connecting one of two transformer secondaries to the amp's supply rails. All the measurements were taken in 4ohms mode - thereby optimising the 117W 4ohms output and very substantial 18.7A current delivery. Otherwise there should be little difference - the amp has an inherently good channel balance, low noise (-84dB A-wtd, MM)

and low-ish THD (typically 0.009 per cent MM/CD).

The MM disc response is extremely flat, though the MC stage rolls-off just a little quicker to reach a sensible -2dB at 10Hz. HK's MC inputs are invariably a little quirky and this is no exception. It'll suit the very lowest output MCs (0.1mV for full output!) but there's very little headroom to play with (typically +23.2dB) and so IM distortion climbs to 0.84 per cent. The Distortion plot clearly demonstrates the effect of the MC input's inadequate overload margins, precipitating a rash of 2nd, 3rd and 4th-order IM distortions.

Sound Quality

Powerfully emotive and provoking a very strong reaction from the panel, this amp certainly re-kindled their passion for music near the end of a long session of listening. It demonstrated a strong, authoritative grip over the busiest of pop recordings, its firm hand conjuring up a big and bold sound. So, even though the *6500* was not the very model of clarity, its grand acoustic and full resonant weight came to the fore when reproducing a deep bass drum or rich, grumbling double bass.

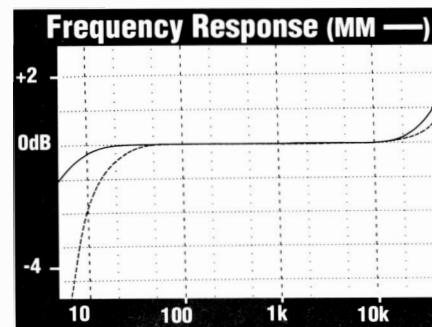
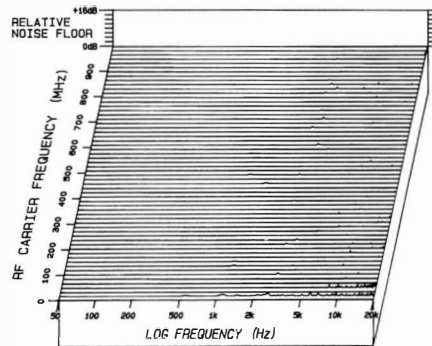
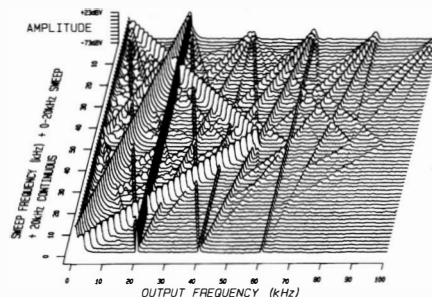
Via the CD input the amp was marvellously open and detailed. There was a slight roughness to strong brass, otherwise its unswerving confidence was a sheer delight.

Conclusion

Likened to the Pioneer *A-400* in many respects, the *HK6500* received very little criticism from the panel. Yet, technically at least, there are avenues for improvement open to HK. Too expensive for a Best Buy, it nevertheless deserves a hearty recommendation.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|--|-----------|-----------|
| Maximum Continuous Power Output, 8ohms | 73.2W | 74.0W | 72.1W |
| 4ohms | 114.4W | 116.6W | 112.3W |
| Dynamic Headroom (IHF) | +1.2dB (96.9W) | | |
| Peak Current (5msec, 1% THD) | 18.7A | | |
| Output Impedance | 0.129ohms | | |
| Damping Factor | 62.2 | | |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 77.5dB | 73.5dB | 57.2dB |
| (20kHz) | 54.0dB | 48.4dB | 48.6dB |
| Channel Balance (1kHz, -20dBV) | 0.53dB | 0.58dB | 0.59dB |
| (-60dBV) | 0.45dB | 0.49dB | 0.51dB |
| Total Harmonic Dist. (0dBW) | -79.9dB | -76.5dB | -65.6dB |
| (2/3 power) | -81.9dB | -80.2dB | -65.2dB |
| CCIR Intermod. Dist. (0dBW) | -79.5dB | -71.9dB | -35.5dB |
| (2/3 power) | -77.7dB | -69.9dB | -35.4dB |
| Noise (A wtd, 0dBW) | -78.1dB | -78.5dB | -75.2dB |
| (2/3 power) | -91.5dB | -83.7dB | -78.3dB |
| Residual noise (unwtd) | -71.4dBV | -71.3dBV | -71.2dBV |
| Input Sensitivity (for 0dBW) | 15.6mV | 251uV | 12.3uV |
| (for full output) | 135.2mV | 2.19mV | 106uV |
| Disc Overload (20Hz) | 16.3mV 845uV | | |
| (1kHz) | 152.2mV 7.26mV | | |
| (20kHz) | 1240mV 18.85mV | | |
| (50kHz) | 1720mV 15.25mV | | |
| Tape Output/Impedance | 9.53V (disc)/973ohms | | |
| Input loading | 29kohms/260pF 38kohms/100pF 47ohms/4nF | | |
| Absolute Phase | Positive | | |
| DC offset, left/right | -118.8mV/-43.5mV | | |
| Retail Price | £380 | | |



For the ultimate in Sound Advice, contact any of the following dealers:

NORTHERN ENGLAND

Alderley Edge (Cheshire)

Aston Audio Ltd. 4 West Street.
Tel: 0625 582704/583472.

Altrincham

Clearstone Hi-Fi. 15 Ashley Road. Tel: 061-928 1610.

Bolton

Clearstone Hi-Fi. 235 Blackburn Road.
Tel: 0204 31423.

Bradford

Hi-Fi Experience at Erricks. Fotosonic House.
Rawson Square. Tel: 0274 309266.

Gateshead

Lintone Audio. 7/11 Park Lane.
Tel: 091-477 4167.

Lintone Audio. 8 The Arcade, Metrocentre.
Tel: 091-460 0999.

Leeds

Audio Projects. 45 Headingley Lane.
Tel: 0532 304565.

Image Hi-Fi. 8 St Anne's Road. Tel: 0532 789374.

Liverpool

W A Brady & Son. 401 Smithdown Road.
Tel: 051-733 6859.

Manchester

Clearstone Hi-Fi. 54 Bridge Street.
Tel: 061-835 1156.

Preston

Norman Audio. 131 Friargate. Tel: 0772 53057.

Rochdale

Clearstone Hi-Fi. 52 Drake Street. Tel: 0706 524 652.

Rotherham

Moorgate Acoustics. 8 Westgate. Tel: 0709 370666.

Sheffield

Moorgate Acoustics. 184 Fitzwilliam Street.
Tel: 0742 756048.

Stockport

Chris Brooks Audio. 10/12 Oak Street.
Hazel Grove. Tel: 061-419 9050.

Warrington

Chris Brooks Audio. 29 Gaskell Street.
Stockton Heath. Tel: 0925 61212.

Doug Brady Hi-Fi. Kingsway Studios.
Kingsway North. Tel: 0925 828009.

Whitley Bay

Lintone Audio. 242 Park View. Tel: 091-252 4665.

Wilmslow

Swift Of Wilmslow. 4/8 St Anne's Parade.
Parsonage Green. Tel: 0625 526213.

York

Sound Organisation. 2b Gillygate. Tel: 0904 627108.

SCOTLAND

Aberdeen

Holburn Hi-Fi. 441/445 Holburn Street.
Tel: 0224 585713.

Edinburgh

Russ Andrews Hi-Fi. 34 Northumberland Street.
Tel: 031-557 1672.

Glasgow

Hi-Fi Experience. 145 Bath Street.
Tel: 041-226 4268.

Stereo Stereo. 278 St. Vincent Street.
Tel: 041-248 4079.

WALES

Cardiff

Audio Excellence. 134 Crwys Road.
Tel: 0222 228565.

Newport

Audio Excellence. 37 High Street.
Tel: 0633 220012.

Swansea

Audio Excellence. 9 High Street.
Tel: 0792 474608.

NORTHERN IRELAND

Belfast

Hi-Fi Experience. 47/49 Fountain Street.
Tel: 0232 249117.

Lyric Hi-Fi. 163 Stranmills Road.
Tel: 0232 381296.

Portadown

Lyric Hi-Fi. 84 Bridge Street. Tel: 0762 358059.

CENTRAL ENGLAND

Birmingham

Griffin Audio. 94 Bristol Street.
Tel: 021-692 1359.

Hi-Fi Experience-Superfi. 67 Smallbrook.
Tel: 021-631 2675.

Cambridge

Steve Boxshall Audio. 41 Victoria Road.
Tel: 0223 68305.

Coventry

Frank Harvey. 163 Spon Street. Tel: 0203 525200.

Derby

Active Audio. 12/16 Osmaston Road. The Spot.
Tel: 0332 380385.

Kings Lynn

Martins Hi-Fi. 5 High Street. Tel: 0553 761683.

Leicester

Leicester Hi-Fi. 6 Silver Walk. St. Martins Square.
Tel: 0533 539753.

Milton Keynes

Technosound Ltd. 7 Granville Square.
Willen Local Centre. Tel: 0908 604949.

Norwich

Martins Hi-Fi. 85/91 Ber Street. Tel: 0603 627010.

Nottingham

Nottingham Hi-Fi Centre. 120/122 Alfreton Road.
Tel: 0602 786919.

Royal Leamington Spa

Hi-Fi Experience. 44 Park Street.
Tel: 0926 881500.

St. Ives

The Audio File. 2 Foundry Walk. Tel: 0480 66123.

Stoke-on-Trent

Active Audio. 95 Stafford Street. Hanley.
Tel: 0782 214994.

Tamworth

Active Audio. 29 Market Street.
Tel: 0827 53355.

Wolverhampton

Clearstone Hi-Fi. 39 Victoria Street.
Tel: 0902 772901.

SOUTHERN ENGLAND

Ashford (Kent)

Photocraft Hi-Fi. 40 High Street. Tel: 0233 624441.

Bishops Stortford

The Audio File. 27A Hockerill Street.
Tel: 0279 506576.

Brighton

Jeffries Hi-Fi. 69 London Road. Tel: 0273 609431.

Chicester

Chicester Hi-Fi. 7 St. Pancras. Tel: 0243 776402.

Croydon

Spaldings. 352/4 Lower Addiscombe Road.
Tel: 081-654 1231.

Eastbourne

Jeffries Hi-Fi. 4 Albert Parade. Green Street.
Tel: 0323 31336.

Enfield

Audio T. 159 Chase Side. Tel: 081-366 8820.

Gillingham (Kent)

Tonbridge Hi-Fi. 96 Woodlands Road.
Tel: 0634 52858.

Guildford

P J Hi-Fi. 3 Bridge Street. Tel: 0483 504801.

Harpenden

Studio 99. 82 High Street. Tel: 058-276 4246.

Harrow

Harrow Audio. 27 Springfield Road.
Tel: 081-863 0938.

Ipswich

Eastern Audio. 41 Bramford Road. Tel: 0473 217217.

London NI

Grahams Hi-Fi. Canonbury Yard. 190A New North Rd.
Tel: 071-226 5500.

London NW1

Hi-Fi Experience. 2/4 Camden High Street.
Tel: 071-388 1300.

London NW6

Studio 99. 79/81 Fairfax Road. Tel: 071-624 8855.

London SE13

Billy Vee. 248 Lee High Road. Tel: 081-318 5755.

London W1

Hi-Fi Experience. Lion House. 227 Tott. Ct. Road.
Tel: 071-580 3535.

London WC2

Doug Brady Hi-Fi. 18 Monmouth Street.
Tel: 071-379 4010.

Portsmouth

Jeffries Hi-Fi. 29 London Road. Tel: 0705 663604.

Reading

Reading Hi-Fi. 4 Queens Walk. Tel: 0734 585463.

Tunbridge Wells

Tonbridge Hi-Fi. 31 High Street. Tel: 0892 24677.

Uxbridge

Uxbridge Audio. 278 High Street. Tel: 0895 30404.

Watford

Acoustic Arts. 101 St. Albans Road. Tel: 0923 245250.

Windsor

Radford Hi-Fi. 43 King Edward Court.
Tel: 0753 856931.

Woking

Aerco. 11 The Broadway. Tel: 0483 714667.

SOUTHWEST ENGLAND

Bath

Radford Hi-Fi. 12 James Street West.
Tel: 0225 446245.

Bournemouth

Suttons Hi-Fi. 18A Westover Road.
Tel: 0202 25512.

Movement Audio. 926 Wimbourne Road, Moordown.
Tel: 0202 529988.

Bristol

Radford Hi-Fi. 52/54 Gloucester Road.
Tel: 0272 428247.

Radford Hi-Fi. 4 Merchant Street.
Tel: 0272 294183.

Exeter

Radford Hi-Fi. 28 Cowick Street. St. Thomas.
Tel: 0392 218895.

Gloucester

Audio Excellence. 58 Bristol Road. Tel: 0452 300046.

Plymouth

Radford Hi-Fi. 107 Cornwall Street. Tel: 0752 226011.

Poole

Movement Audio. 588 Ashley Road, Parkstone.
Tel: 0202 730865.

Salisbury

Suttons Hi-Fi. 3 Endless Street. Tel: 0722 27171.
Salisbury Hi-Fi. 15 Catherine Street. Tel: 0722 322169.

Southampton

Hampshire Audio. 8 & 12 Hursley Road.
Chandlers Ford. Tel: 0703 252827.

Weymouth

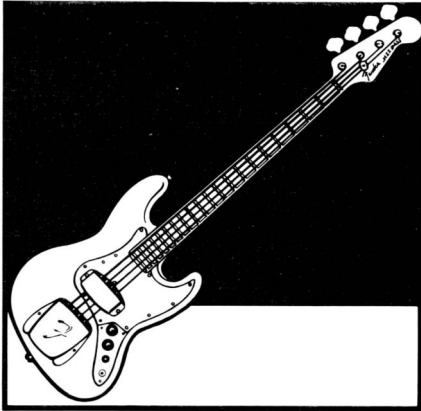
Weymouth Hi-Fi. 28 Walpole Street.
Tel: 0305 785729.

BRITISH AUDIO DEALERS ASSOCIATION

BADA

THE ULTIMATE IN
SOUND ADVICE

IF YOU KNOW WHAT THESE INSTRUMENTS REALLY SOUND LIKE . . .



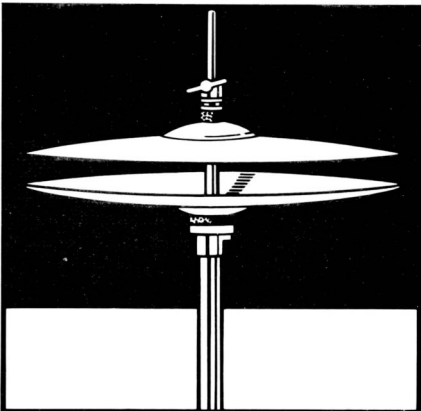
FENDER JAZZ BASS GUITAR



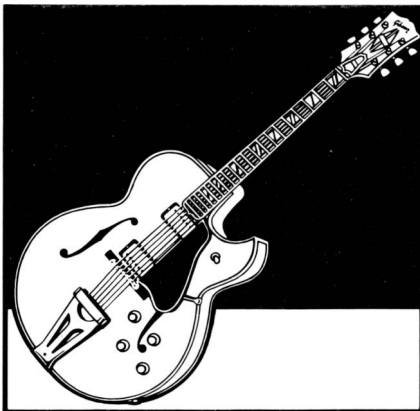
SELMER TENOR SAXOPHONE



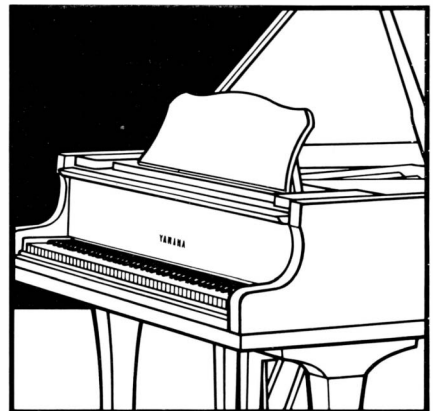
STRADIVARIUS VIOLIN



PAISTE HI HAT CYMBALS



GIBSON SUPER 400 ELECTRIC GUITAR



YAMAHA GRAND PIANO

**. . . YOU EITHER LISTEN
TO LIVE MUSIC OR YOU BUY
YOUR HI-FI FROM A
BADA DEALER**

BRITISH AUDIO DEALERS ASSOCIATION

BADA

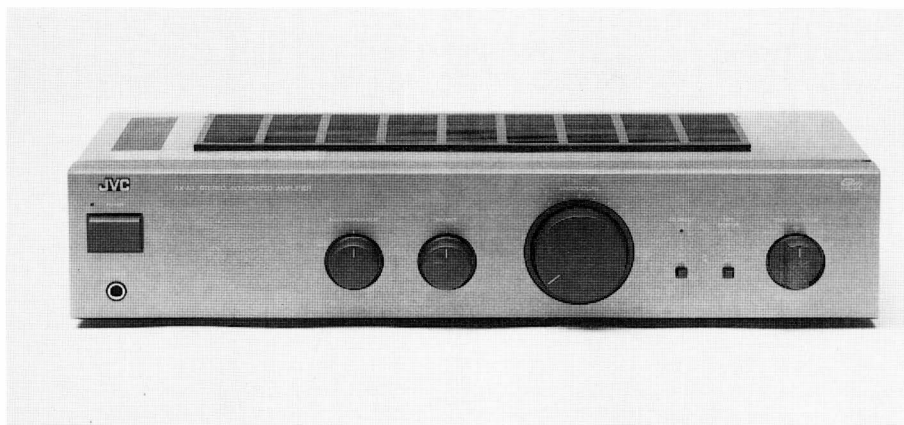
**THE ULTIMATE IN
SOUND ADVICE**

- THE COUNTRY'S LEADING GROUP OF SPECIALIST HI-FI DEALERS •
For a list of BADA Members, see opposite page.

JVC AX-A3TN

Recommended

JVC (UK) LTD, ELDONWALL TRADING ESTATE, 12 PRIESTLEY WAY, STAPLES CORNER, LONDON NW2. TEL: (081) 450 3282



No-frills amplifiers are appearing thick and fast these days. What was once the preserve of specialist UK manufacturers has now generated world-wide interest, just look at what Pioneer has done! So, in order to swell the ranks still further, JVC has joined the fray with two basic amplifier models, the AX-A2 and AX-A3. Both are available in JVC's attractive titanium finish, hence the 'TN' subscript.

We've reviewed the costlier AX-A3 but there's little to distinguish the models save for the extra power and CD Direct facility of the latter. Both amps are dominated by a large rotary volume control together with balance and 'bass compensator' facilities. This extra widget boosts signals around 100Hz to counteract the ear's insensitivity to bass sounds when listening at low levels.

Otherwise, it's a very straightforward and honest package, the single MM disc input is not particularly fancy but the main power supply is chunky enough and good quality Sanken transistors are employed in the power amp. JVC has even fitted decent, unswitched 4mm binding posts.

Lab Report

An all-round good egg, this one. It comfortably exceeds its 35W rating with a constant 49-50W across the 20Hz-20kHz audioband and even manages to sustain 77-79W across the same bandwidth into 4ohms. Few 35W amplifiers offer this uniformity and fewer still will kick out 11A or more of clean current.

Distortion is vanishingly low too, hovering around 0.001 per cent through both CD and MM inputs. The closed-loop linearity of JVC's circuit is revealed by the Distortion plot which, save for a trace of 2nd-order IMD, is free of coloration. The lack of RF IMD is linked to JVC's input filtering rather than being an indication of the amp's open-loop linearity. An

impressive result, nonetheless.

Equally impressive is the amp's flat and extended disc response, in fact the -3dB point finally clocked-in beyond the published RIAA plot at 2.25Hz! Complaints? Well, perhaps the +27.6dB disc input headroom could be improved and source selection changed to widen the 45dB stereo separation (20kHz).

Sound Quality

This amp does not provide oodles of sharp, tactile detail but neither is there any unnatural spikiness about the sound. As a result the panel found its tidy presentation very comfortable and easy on the ear, regardless of whether a CD or vinyl disc was in play. Yet there was some dissension amongst the ranks. One listener felt there was a loss of ambience, while others were content with its mellow character.

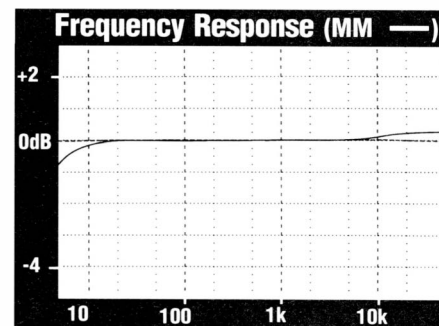
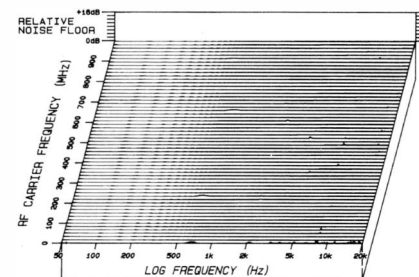
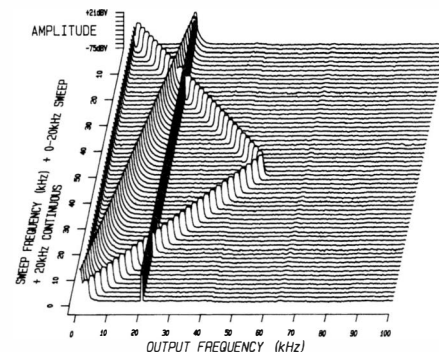
Personally, I considered that all our listeners were describing the same sort of 'sound' and that both opinions related to some subtle restriction in deep bass as well as high treble. Both MM and CD inputs are, subjectively at least, mildly band-limited and this allows the amp to perform confidently yet without overstretching itself. Consequently it succeeds in providing a very pleasant and homely sort of sound that'll suit a wide variety of budget systems.

Conclusion

JVC has adopted a proven formula in the AX-A3 and, I suspect, in the AX-A2 also. Technically, it's more than competent and should have no difficulty coping with any budget speaker that might happen across its path. Musically it's all there too, though don't go thinking this is a mould-breaker at £140. It is, however, a fairly radical product for a huge manufacturer like JVC and so its efforts should not go unrewarded. Step forward JVC and receive a Recommended flash!

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|-------------------------------------|-----------|-------|
| Maximum Continuous Power Output, 8ohms | 49.8W | 49.7W | 48.5W |
| 4ohms | 78.5W | 78.4W | 76.7W |
| Dynamic Headroom (IHF) | +1.4dB (68.2W) | | |
| Peak Current (5msec, 1% THD) | 11.3A | | |
| Output Impedance | 0.085ohms | | |
| Damping Factor | 93.6 | | |
| Stereo Separation (1kHz) | CD/Aux | MM | |
| (20kHz) | 70.1dB | 70.6dB | |
| Channel Balance (1kHz, -20dBV) | 45.9dB | 44.9dB | |
| (-60dBV) | 0.77dB | 0.70dB | |
| Total Harmonic Dist. (0dBW) | 1.32dB | 1.55dB | |
| (2/3 power) | -99.5dB | -99.3dB | |
| CCIR Intermod. Dist. (0dBW) | -102.6dB | -100.8dB | |
| (2/3 power) | -93.1dB | -83.7dB | |
| Noise (A wtd, 0dBW) | -93.5dB | -84.8dB | |
| (2/3 power) | -79.1dB | -77.8dB | |
| Residual noise (unwtd) | -92.3dB | -80.9dB | |
| Input Sensitivity (for 0dBW) | -82.0dBV | -81.8dBV | |
| (for full output) | 32.0mV | 418uV | |
| Disc Overload (20Hz) | 227.8mV | 2.95mV | |
| (1kHz) | | 12.75mV | |
| (20kHz) | | 1068mV | |
| (50kHz) | | 2261mV | |
| Tape Output Impedance | 9.21V (disc) / 816ohms | | |
| Input loading | 51.7kohms / 170pF 48.1kohms / 185pF | | |
| Absolute Phase | Positive | | |
| DC offset, left/right | -8.7mV / -14.7mV | | |
| Retail Price | £140 | | |



Kelvin Integrated

KELVIN LABORATORIES LTD, 6 SHANKLIN CRESCENT, UPPER SHIRLEY, SOUTHAMPTON SO1 2RB. TEL: (0703) 785123



For what seems like the umpteenth time, we've been supplied with yet another version of the popular *Integrated* amp from Kelvin. It's visually indistinguishable from the *Digital PDM Integrated* we reviewed in our last issue, though the CD input here refers to one of four standard line inputs as opposed to a pucker digital input. There's a choice of both MM and MC disc inputs too, based around Kelvin's sophisticated cascode circuitry rather than the Hitachi op-amp found in its *PDM Integrated*.

The sensitive disc circuitry is tucked away behind a steel plate on the back panel as is the input selector, controlled via a long rod that extends to the knob on the front of the amp. As a consequence stereo separation is tightly maintained across the all-important midband.

The amp is solidly built using slabs of grey-painted alloy and is flanked by two heavyweight heatsinks while, inside, a single transformer feeds separately regulated supplies for both the L and R channels. This version runs off lower voltage rails than the PDM amp so its output is proportionally lower. On the other hand the integral power amp enjoys a higher bias level so you should be able to squeeze out 10-12W of class A juice before it lapses into class AB.

Lab Report

But not all is rosy. Recent modifications to the bias and output transistors as well as the value of the emitter resistors have been implemented, increasing the 8ohms power to 21W and 4ohms output to 33W. It's no powerhouse but the 9.9A peak current and +0.6dB dynamic headroom are marginally higher than before.

Unfortunately, these mods have also introduced a parasitic RF instability, detected on the negative half of all voltage waveforms above two-thirds output and hence escaping the net of the RF IMD test.

On the other hand this RF resonance shatters the linearity of the power amp, increasing THD from a superb 0.0006 per cent (original *Integrated*) to 0.12 per cent in this model. Distortion also increases quickly with increasing frequency and decreasing load impedance. Distortion is higher still via the MC input - just take a peek at the 3D plot! Yet this is related to the inadequate +19.7dB overload margin and subsequent slew-limiting rather than the RF resonance.

Sound Quality

Our listeners were at pains to stress the 'niceness' of this amplifier's sound, commenting on the pleasant, even tonal balance and richly detailed presentation. But they were forced to temper these thoughts with criticism over its stereo depth and dynamic shading. It was deliciously detailed via MM disc, each note perfectly dove-tailed with the next, yet the lack of dynamic contrast and stereo expression had the listeners visibly irritated. The *Integrated* is, it seems, simply too smooth for its own good.

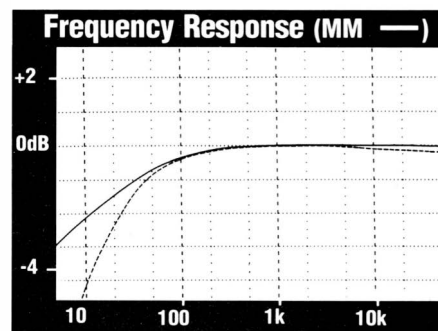
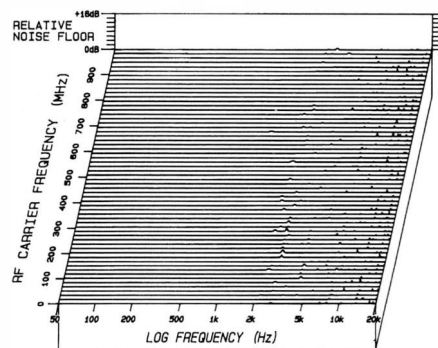
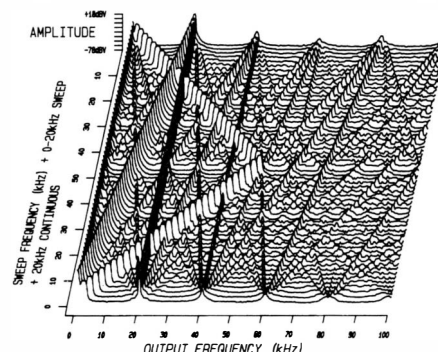
Switching to CD resulted in an equally easy-going and mellifluous sound but one that was restricted by a vagueness at both low and high power levels. Indeed the lack of bite and vivacity meant that low-level listening was particularly unimpressive, never really getting to grips with the music.

Conclusion

This has always been a successful contender in previous reviews so our latest findings came as both a surprise and disappointment. Clearly, the amp retains the charm and 'rightness' of the original 'class A' Kelvin but without its clarity and guts. I would urge Kelvin to return to the tried-and-tested *Integrated* of old. After all, once you've hit on a good thing, why muck it up with unnecessary changes?

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|---------------|---------------------|---------------|
| Maximum Continuous Power Output, 8ohms | 20.1W | 20.6W | 19.7W |
| 4ohms | 31.6W | 33.3W | 31.6W |
| Dynamic Headroom (IHF) | | +0.64dB | (23.9W) |
| Peak Current (5msec, 1% THD) | | | 9.9A |
| Output Impedance | | | 0.012ohms |
| Damping Factor | | | 671.1 |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 89.3dB | 83.8dB | 80.7dB |
| (20kHz) | 63.9dB | 61.4dB | 51.6dB |
| Channel Balance (1kHz, -20dBV) | 0.79dB | 0.84dB | 0.88dB |
| (-60dBV) | 7.31dB | 7.35dB | 7.30dB |
| Total Harmonic Dist. (0dBV) | -97.8dB | -65.5dB | -47.7dB |
| (2/3 power) | -58.5dB | -54.7dB | -45.5dB |
| CCIR Intermod. Dist. (0dBV) | -96.1dB | -77.4dB | -68.2dB |
| (2/3 power) | -69.2dB | -64.3dB | -63.4dB |
| Noise (A wtd, 0dBV) | -77.8dB | -77.3dB | -64.9dB |
| (2/3 power) | -86.4dB | -83.3dB | -65.1dB |
| Residual noise (unwtd) | -64.2dBV | -63.7dBV | -63.5dBV |
| Input Sensitivity (for 0dBV) | 44.3mV | 425uV | 27.6uV |
| (for full output) | 204.6mV | 1.82mV | 123uV |
| Disc Overload (20Hz) | 8.59mV | 689uV | |
| (1kHz) | 70.31mV | 4.81mV | |
| (20kHz) | 415.9mV | 28.5mV | |
| (50kHz) | 345.0mV | 25.5mV | |
| Tape Output Impedance | | 7.1V (disc)/264ohms | |
| Input loading | | 9.5kohms/200pF | 47kohms/20pF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | -0.9mV/-1.4mV |
| Retail Price | | | £449 |



The best reasons for visiting us...

Our Amplifiers ~ Naim ~ Linn ~ Exposure ~ Audio Innovations ~ Rotel
~ A & R Arcam ~ Nad ~ Denon.

Our Turntables ~ Linn ~ Roksan ~ Rega ~ Pink Triangle.

Our CD Players ~ Rotel ~ Denon ~ MicroMega ~ Radford ~ Marantz
~ Mission.

Our Speakers ~ Linn ~ Naim ~ Ruark ~ Acoustic Energy ~ Snell ~ Royd
~ JPW ~ Mission ~ and many more.

The best reasons for buying from us

...our experience...our service and of course ...your satisfaction.



110 Middle Street, Yeovil, Somerset Telephone (0935) 79361 (closed on Mondays)



One of the few specialist hi-fi dealers in the South West



If you live in S. Kensington, Chelsea, Fulham, we are your local Hi-Fi specialist. However, if you live in Surrey, Kent, Berks., Herts. etc . . . we could be your "local" dealer, since we supply and install systems all over Greater London and Home Counties and even Abroad. **The Listening Rooms** is one of London's leading specialist Hi-Fi shops, with the principal staff having over **thirty years'** experience between them.

We cater for a wide range of budgets and whether you are thinking of buying a new cartridge or a top end system, our aim is to always provide the best possible sound.

We have **two comfortable Listening Rooms** where you can audition Hi-Fi in a relaxed and friendly atmosphere. We offer a full **installation service** and all equipment comes with a **two year warranty**.

The Listening Rooms is also London's leading **multi-room Hi-Fi specialist** and provides a full planning and installation service.

LINN ♦ EPOS ♦ QUAD
ARCAM ♦ CELESTION
MUSICAL FIDELITY ♦
SME ♦ MISSION ♦
MERIDIAN ♦ MARTIN
LOGAN ♦ AUDIO
RESEARCH ♦ DUAL
MARANTZ ♦ YAMAHA
DENON ♦ NAKAMICHI
ACOUSTIC ENERGY ♦ SD
SONUS FABER ♦ KOETSU
APOGEE ♦ GOLDMUND
♦ KISEKI ♦ REVOX
ROGERS ♦ MAGNEPAN
MICHELL ♦ DELTEC ♦
STAX ♦ KRELL ♦
TANNOY ♦ MICROMEGA
♦ AUDIOLAB ♦ PINK ▲
♦ SYSTEMDEK ♦ WADIA
♦ BB AUDIO ♦ AUDIO
PLAN ♦ KEF ♦ ETC



T H E listening
rooms

THE LISTENING ROOMS LTD.,
161 OLD BROMPTON RD, LONDON, SW5 0LJ.
TEL:071-244 7750/59. FAX: 071-370 0192
VISA ACCESS AMERICANEXPRESS
EXPORT AND CREDIT FACILITIES
Monday - Saturday — 10am - 6pm
Nearest Tube: Sth Kensington or Gloucester Rd

Kenwood KA-5020

Recommended

TRIO KENWOOD UK LTD., KENWOOD HOUSE, DWIGHT RD,
WATFORD, HERTS WD1 8EB. TEL: (0923) 816444



Over the last few years Kenwood has established a reputation for excellent build quality and, superficially at least, superb value for money. Well, there's nothing superficial about the KA-5020, because at a mite over £200, it's something of a powerhouse on the cheap! Neither is it the largest or heaviest of the company's amplifiers but, in terms of features, it is comprehensively kitted-out.

The centre of the luxurious satin-black alloy fascia is dominated by a huge six-gang volume control, while over to the right there's access to independent source select and rec-out controls. Inputs for up to three tape decks, three other line sources and both MM and MC disc are provided, though the extra gain and loading for the latter must be switched separately.

Add to this A/B speaker selection, balance, bass and treble tone controls, subsonic, mute and loudness facilities and you've a fun-packed evening ahead. Of course, should you wish to by-pass much of this frivolity then Kenwood has provided a 'source direct' switch!

There's equal attention to detail inside where Kenwood has shortened the signal path by employing localised switches for input selection and logic-controlled relays for the A/B speaker outlets.

Lab Report

All the 5020's inputs are strictly filtered against RF. Consequently the 'perfect' RF IMD plot simply reflects the fact that no RF gets past the input phonos and is not a true indication of the circuit's genuine immunity to RF IMD.

Most other results are quite beyond reproach. The amplifier enjoys a healthy 68-70dB stereo separation through the midband, superbly low noise via MM disc (-92dB, A-wtd) while suffering a mere 0.8dB low-level channel balance error. All the input sensitivities are spot-on target though there's slightly less

headroom available via MC (+28.0dB) and the tape output impedance is a trifle high.

Distortion is vanishingly low via all inputs and at all power levels (typ. 0.0011 per cent), though the 3D plot indicates some increase in 2nd-order distortions (harmonic and IM) when driving lower impedance loads. Talking of which, the 5020 has plenty of juice tucked under its bonnet, being able to deliver just under 200W into 4ohms.

Sound Quality

Judging by the punchy, pacy sound of this amp, our panel was left in no doubt of its ability to handle punishing dynamics, particularly via CD. The amp was always very positive and communicative in its delivery, but there was also a tendency for it to gloss over fine musical detail, especially subtle vocal inflections. The diction was clear enough but some of the tonal warmth and stereo presence were thought to be missing.

Via the CD input sax remained as clear and crisp as ever, the instrument appearing both vibrant and alive without compromising its sense of stereo focus and control.

By contrast, the MM disc input sounded slightly fuller, offering some extra weight in the bass but perhaps not quite as crisp a top end. A nicely detailed, expressive sound, nonetheless.

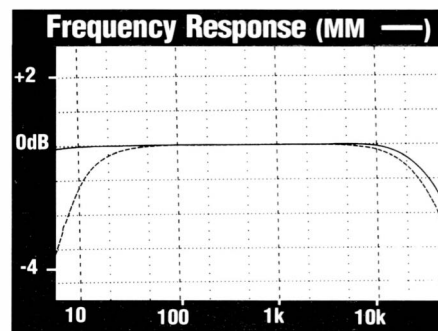
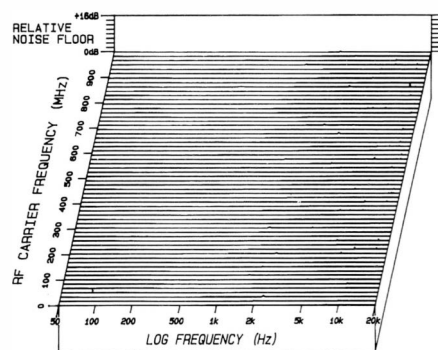
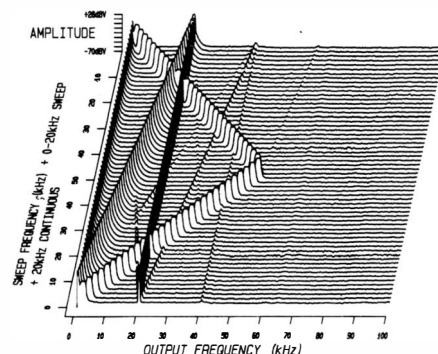
Conclusion

While this is not the most startlingly musical or engrossing of amplifiers, its solid and un-muddled performance was thought to represent something of an 'average' standard for this month's group. Add to this a prodigious power output, magnificent standard of construction and finish and the £210 price tag begins to look positively reasonable.

Recommended where the need for muscle is at a premium.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|------------------------------|-----------|-----------|
| Maximum Continuous Power Output, 8ohms | 113.3W | 114.7W | 109.9W |
| 4ohms | 184.5W | 197.5W | 187.2W |
| Dynamic Headroom (IHF) | +0.94dB (142.4W) | | |
| Peak Current (5msec, 1% THD) | 10.7A | | |
| Output Impedance | 0.033ohms | | |
| Damping Factor | 241.5 | | |
| | CD/Aux | MM | MC |
| Stereo Separation(1kHz) | 70.6dB | 67.4dB | 68.5dB |
| (20kHz) | 46.3dB | 42.9dB | 43.3dB |
| Channel Balance | | | |
| (1kHz, -20dBV) | 0.12dB | 0.15dB | 0.20dB |
| (-60dBV) | 0.70dB | 0.79dB | 0.84dB |
| Total Harmonic Dist. | | | |
| (0dBW) | -99.5dB | -100.6dB | -98.8dB |
| (2/3 power) | -98.0dB | -99.4dB | -97.0dB |
| CCIR Intermod. Dist. | | | |
| (0dBW) | -92.8dB | -80.2dB | -79.7dB |
| (2/3 power) | -91.7dB | -80.1dB | -78.5dB |
| Noise (A wtd, 0dBW) | -81.7dB | -80.9dB | -75.0dB |
| (2/3 power) | -97.9dB | -91.5dB | -75.7dB |
| Residual noise (unwtd) | -75.7dBV | -75.4dBV | -75.4dBV |
| Input Sensitivity | | | |
| (for 0dBW) | 23.8mV | 296uV | 23.5uV |
| (for full output) | 257.5mV | 3.20mV | 251uV |
| Disc Overload (20Hz) | | 17.0mV | 1.38mV |
| (1kHz) | | 159.3mV | 12.6mV |
| (20kHz) | | 1430mV | 115.3mV |
| (50kHz) | | 2150mV | 212.5mV |
| Tape Output/Impedance | 12.75V (disc)/2.62kohms | | |
| Input loading | 150kohms/900pF 44kohms/350pF | | |
| | | 102ohms | |
| Absolute Phase | Positive | | |
| DC offset, left/right | -22.7mV/+13.6mV | | |
| Retail Price | £210 | | |



SONY
HI-FI
NEWS
&
RECORD REVIEW

DEALER AWARDS
1990

REGIONAL WINNER



J *hi-fi*
Jeffries

69 London Road
Brighton
0273 609431

4 Albert Parade
Green Street
Eastbourne
0323 31336

29 London Road
Portsmouth
0705 663604

Excellent Listening Facilities



LATE NIGHT - WEDNESDAY - 8 PM.

CLOSED MONDAYS

the sound gallery

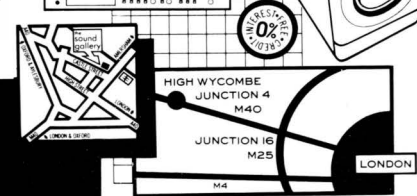


ALL CONSULTANTS ARE THE SAME. AREN'T THEY?

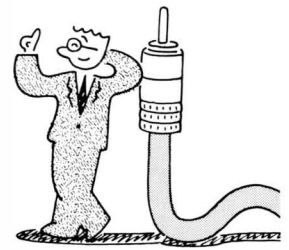
THE SOUND GALLERY HAS ESTABLISHED AN ENVIABLE REPUTATION FOR ITS PROFESSIONALISM IN THE RECOMMENDATION AND DEMONSTRATION OF DOMESTIC HI-FI. WHATEVER YOUR BUDGET WE CAN PROVIDE YOU WITH THE HIGHEST LEVEL OF MUSICALITY.

SO WHY COME TO US? FOR SERVICE ITS FRIENDLY YET INFORMATIVE. PROFESSIONAL YET COST-EFFECTIVE. TRY IT!

THE SOUND GALLERY
65, CASTLE STREET
HIGH WYCOMBE
BUCKS HP13 6RN
Tel (0494) 31682
Fax (0494) 464670



THE FURUKAWA ELECTRIC CO. LTD.
Improve Listening Pleasure



| | |
|--|--------------|
| DEDICATED UNBALANCED INTERCONNECT CD OR DAT TO DAC | |
| Furukawa FV11 All PCOCC RCA-RCA..... | 42.50 EA 1M |
| DEDICATED UNBALANCED INTERCONNECTS CD OR DAT TO PRE AMP | |
| Furukawa FD11 All PCOCC RCA-RCA..... | 75.00 PR 1M |
| DEDICATED BALANCED INTERCONNECTS ANALOGUE PRE TO POWER AMP ETC | |
| Furukawa FA21 Twisted Pair All PCOCC RCA-RCA..... | 80.00 PR 1M |
| Furukawa FA11S Twisted Pair As Cast Super All PCOCC RCA-RCA..... | 200.00 PR 1M |
| FIBRE OPTIC INTERCONNECTS | |
| Furukawa FO 1110 POF Single Strand Fibre Optic with Toslink Connectors..... | 30.00 EA 1M |
| Furukawa FO 1210 PCS Single Strand Fibre Optic with Toslink Connectors..... | 82.50 EA 1M |
| Furukawa FO 1310 PCS Multi Strand Fibre Optic with Toslink Connectors..... | 97.50 EA 1M |
| SPEAKER CABLES | |
| Furukawa FS2T14 PCOCC Concentric Stranded 1.4 Sq.MM with Polypropylene Insulation..... | 4.50 Per M |
| Furukawa FS2F09 PCOCC Bunch Stranded .09 Sq.MM with Soft P.V.C. Insulation..... | 6.00 Per M |
| Furukawa FS2T20P PCOCC Concentric Stranded 2 Sq.MM with Polypropylene Insulation..... | 7.00 Per M |
| Furukawa FS2T35P PCOCC Rope Lay Stranded 3.5 Sq. MM with Polypropylene Insulation..... | 13.00 Per M |
| Furukawa FS2T15S PCOCC Super As Cast 1.5 Sq. MM with Polypropylene Insulation..... | 50.00 Per M |

Appropriate cables, properly selected, dedicated to their respective purposes and interfaces within the Hi Fi system, will transmit without deletion, all the excitement contained in the original Hi Fi source and will make a significant and often cost effective contribution to the quality of listening pleasure.

Before any upgrade in the Hi Fi system is contemplated, a simple check on the improvements available through the existing components via good cables and interconnects is sincerely recommended

Furukawa appointed dealer's will be pleased to assist with an obligation free, home demonstration of the very considerable sonic improvements which are possible

IF YOU CAN FIND A BETTER CABLE... WE'LL REFUND YOUR MONEY

| | | |
|--------------------|-----------------------------|----------------|
| Avon | Paul Green Hi-Fi | (0225) 316197 |
| East Sussex | Sevenoaks Hi-Fi (Brighton) | (0273) 733338 |
| Essex | Brentwood Music Centre | (0277) 221210 |
| Essex | Sevenoaks Hi-Fi (Witham) | (0376) 501733 |
| Berks | Reading Hi-Fi | (0734) 585463 |
| Cambs | University Audio | (0223) 354237 |
| Bucks | Audio Insight | (0908) 561551 |
| Cumbria | Lakeland Home Music | (0768) 486235 |
| Grampian | Hi-Fi Excellence | (0224) 624408 |
| Greater Manchester | The Music Room | (061) 8351366 |
| London | Bartlett's Hi-Fi | (071) 6072296 |
| London | Doug Brady Hi-Fi | (071) 379 4010 |
| London | Hi-Fi Confidential | (071) 233 0774 |
| London | Kamla Electronics | (071) 3232747 |
| London | Sevenoaks Hi-Fi (Woolwich) | (081) 8558016 |
| London | Sound Sense | (071) 4022100 |
| Herts | Radlett Audio | (0923) 856497 |
| Kent | Sevenoaks Hi-Fi (Sevenoaks) | (0732) 459555 |

MAIL ORDER
BUY WITH CONFIDENCE
FROM YOUR NEAREST
FURUKAWA APPOINTED
RETAILER. PHONE
TODAY
ACCESS & BARCLAYCARD
WELCOME.



| | | |
|------------------|-----------------------------------|----------------|
| Kent | Sevenoaks Hi-Fi (Beckenham) | (081) 6583450 |
| Kent | Sevenoaks Hi-Fi (Tunbridge Wells) | (0892) 541968 |
| Kent | Standens | (0732) 353540 |
| Middlesex | Musical Images | (081) 5695802 |
| Middlesex | Northwood Audio | (09274) 20877 |
| Norfolk | Sound Approach | (0603) 6228233 |
| Northern Ireland | Zeus Audio (Belfast) | (0232) 332522 |
| Northern Ireland | Zeus Audio (Coleraine) | (0265) 56634 |
| Oxford | Sevenoaks Hi-Fi | (0865) 241773 |
| Somerset | Mike Manning Audio | (0935) 79361 |
| South Yorks | Moorgate Acoustics (Rotherham) | (0709) 370666 |
| South Yorks | Moorgate Acoustics (Sheffield) | (0742) 756048 |
| Strathclyde | Lasef Audio | (0563) 40292 |
| Surrey | Audio Inc | (081) 941 4234 |
| Surrey | Spaldings Hi-Fi | (081) 6541231 |
| Surrey | Sevenoaks Hi-Fi (Guildford) | (0483) 36666 |
| Tyne & Wear | Linton Audio | (091) 474167 |

Quantum Audio, 22-26 Nelson Street, Kilmarnock, KA1 1BA Tel: (0563) 71122

Within 14 days of purchase, you're unhappy with these interconnects or cables, the above participating sales outlets will refund the purchase price in full.

Lecson Quattra

ADVANCED ASSEMBLY SERVICES LTD, B1/2 EDISON RD, INDUSTRIAL ESTATE, ST IVES, HUNTINGDON, CAMBS, PE17 4LF. TEL: (0480) 65552

Recommended



Our last amplifier issue should have featured Inca Tech's *Quattra* amplifier, but it expired in spectacular fashion and was quietly laid to rest. Much the same could be said of Inca Tech itself, as its newly named Lecson *Quattra* is now manufactured and distributed by AAS (Advanced Assembly Services Ltd).

As its name suggests, the *Quattra* is equipped with no less than four independent power amps, facilitating either bi-amplified or bridged-mode operation. Other than this the operation of the *Quattra* is perfectly straightforward, AAS having provided separate input select and rec-out controls for the five line and MM/MC disc inputs. Separate volume and balance controls plus a mono switch complete the line-up of facilities. There are no tone controls nor does the amp need adjusting for bridged operation.

Nevertheless, you are required to fumble with a four-pin DIP switch when choosing between MM and MC cartridges, the all-active RIAA network being based around a low noise OP37 op-amp. In fact the technical design of the *Quattra* has apparently remained unchanged, save for some improvement in the rating of the mains transformer. But ears and spectrum analyser would have us believe otherwise.

Lab Report

As expected there has been the mildest increase in power output to 19W into 8ohms, while dynamic headroom is now +1.1dB (or 25W) and maximum current 8.7A. In bridged mode you can squeeze out some 50W into 8ohms and 57W into 4ohms while THD increases from typically 0.007 per cent to 0.025 per cent across the bulk of the power bandwidth.

So what else is new? Well, the poor 20kHz separation and atrocious low-level channel balance error are still with us but THD and IMD are about ten times lower than before! The most obvious change has

been in the disc network, for not only are the RIAA responses askew between MM and MC but so is the sensitivity and headroom. Some 1.35mV is required for full output via MM which makes it proportionally more sensitive than the MC input which requires 0.39mV.

Similarly the MC stage enjoys a healthy +39.3dB overload margin which contrasts with the +29.8dB available for MM. THD is also much higher (typically 0.24 per cent) via MM as is CCIR IMD (typically 0.5 per cent).

Sound Quality

The panel was really quite engrossed in the warm, deep and rich sound of this amplifier, nodding contentedly until they were rudely awakened by a cackling DJ from a rogue radio station. This mild RF breakthrough was confined to the phono input (the RF IMD test is performed via the CD input) but was also a feature of the original amplifier. Sort it out, AAS!

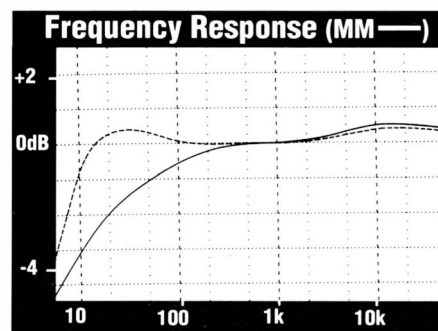
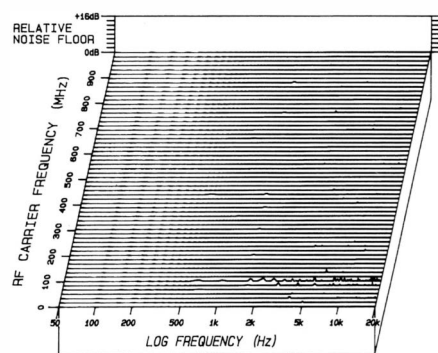
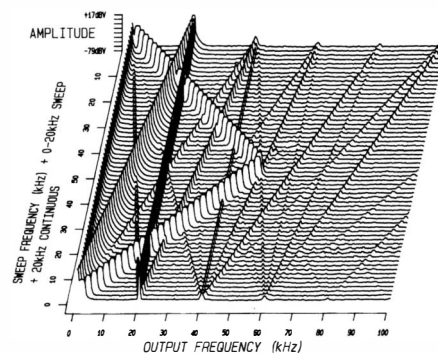
This aside, we were all struck by the wonderfully open and deep soundstage that seemed large and tactile enough for us to walk into, particularly via MM disc! The MC input was cleaner sounding but was similarly lively and thoroughly engrossing. In fact all the inputs rewarded us with a truly three-dimensional picture. A thoroughly enjoyable sound.

Conclusion

The *Quattra's* black perspex fascia lacks the feeling of solidity expected of a product in this price category while the limited power output may also serve as further dissuasion. Ranged against this is the undeniable flexibility of its four-channel operation and, when partnered with suitably sensitive speakers, its inherently musical and communicative sound quality. It is still something of an odd-ball amp but the Lecson *Quattra* deserves Recommendation.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|---------------|------------------------|---------------|
| Maximum Continuous Power Output, 8ohms | 19.1W | 19.1W | 18.9W |
| 4ohms | 28.8W | 30.0W | 28.9W |
| Dynamic Headroom (IHF) | | +1.1dB (24.6W) | |
| Peak Current (5msec, 1% THD) | | 8.7A | |
| Output Impedance | | | 0.081ohms |
| Damping Factor | | | 99.3 |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 62.1dB | 62.5dB | 62.9dB |
| (20kHz) | 36.6dB | 36.8dB | 37.9dB |
| Channel Balance (1kHz, -20dBV) | 0.50dB | 0.45dB | 0.44dB |
| (-60dBV) | 15.9dB | 15.8dB | 15.7dB |
| Total Harmonic Dist. (0dBW) | -83.8dB | -52.0dB | -85.1dB |
| (2/3 power) | -84.6dB | -53.8dB | -83.9dB |
| CCIR Intermod. Dist. (0dBW) | -85.8dB | -42.9dB | -75.2dB |
| (2/3 power) | -86.1dB | -39.8dB | -73.4dB |
| Noise (A wtd, 0dBW) | -74.7dB | -73.6dB | -66.8dB |
| (2/3 power) | -84.1dB | -79.4dB | -67.7dB |
| Residual noise (unwtd) | -61.9dBV | -61.8dBV | -61.5dBV |
| Input Sensitivity (for 0dBW) | 30.40mV | 313uV | 89.6uV |
| (for full output) | 134.6mV | 1.35mV | 389uV |
| Disc Overload (20Hz) | | 15.35mV | 4.67mV |
| (1kHz) | | 154.8mV | 46.3mV |
| (20kHz) | | 1298mV | 396.0mV |
| (50kHz) | | 1821mV | 571.0mV |
| Tape Output/Impedance | | 14.86V (disc)/14.7ohms | |
| Input loading | 45kohms/110pF | 13kohms/100pF | 100ohms |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | +0.5mV/-0.4mV |
| Retail Price | | | £350 |



Marantz PM-30SE

Recommended

MARANTZ HI-FI LTD, KINGSBRIDGE HOUSE, PADBURY OAKS,
575/ 583 BATH ROAD, LONGFORD, MIDDX, TEL: (0753) 680868



Take one good quality amplifier, rip out the tone controls and beef up the power supply and - hey presto - you've got yourself a Special Edition product. Oh yes, and don't forget to slap an extra £30 onto the retail price.

The transformation of Marantz's *PM-30* to *PM-30SE* is not quite such a cynical affair. Indeed, the myriad detail improvements involved have, by all accounts, wrought significant gains in sound quality.

For a start Marantz has uprated the power supply electrolytics and moved from a two-stage to a three-stage Darlington power amp using higher current transistors from Toshiba. So, though the amp's continuous power rating hasn't budged, it is better placed to handle difficult speakers.

The power amp is connected directly to both A and B speaker outlets, a further revision on the '30SE which facilitates quick and easy bi-wiring.

Otherwise the internal design follows the established Marantz practice of symmetrical PCB layouts, centralised earthing and remote source selection (to improve stereo separation). At least it's gotten rid of the hybrid line/driver IC that was included in its last few generations of amplifiers!

Lab Report

Never having tested the basic *PM-30*, comparisons with the SE version are difficult, to say the least. As an amplifier in its own right, however, the *PM-30SE* stood its ground with a very generous 13A current capability and satisfactory +1.3dB dynamic headroom. The output impedance is pleasingly low just as channel balance, input sensitivities and disc input headroom (+30.6dB) are all spot-on target.

I was especially impressed with the low-76dBV hum and 87dB S/N ratio (A-

wtd) of the MM disc input which, by the way, adopts the most recent IEC subsonic tailoring (-3dB down at 20Hz). Distortion is low, too, even though it increases to around 0.008 per cent at higher power levels. Intermodulation is less consistent between inputs because the MM disc stage is less linear at 19/20kHz.

The amp's initial low-MHz RF sensitivity is due to its wide closed-loop bandwidth, though the small blip at 240-250MHz appears linked to a genuine demodulation. Other than this its RF spectrum is fairly clean.

Sound Quality

No sooner had the stylus dropped into the groove than the very fluid and engaging musical quality of the *PM-30SE* became apparent.

Bustling with detail, its attractive but demanding carriage was made all the more impressive by the marvellous sense of space surrounding individual instruments and performers. This is a very expressive amp, busy, energetic and genuinely dynamic without sounding aggressive or grainy.

Yet our panel were less enthusiastic about the difference in overall tonality between the CD and MM inputs - a difference they observed to be very marked.

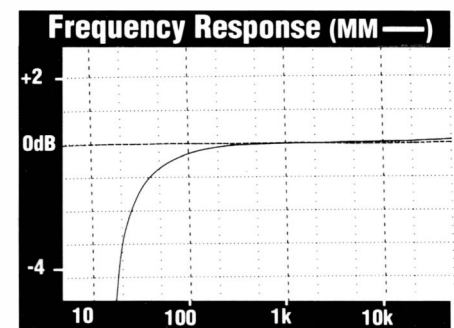
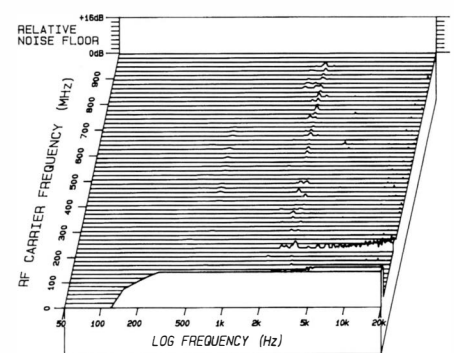
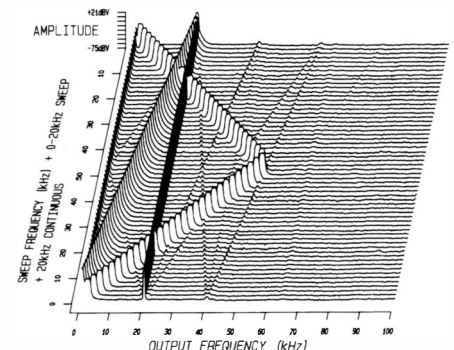
The warmer sound of the disc input lent it a 'quiet' quality, music could be played loud but the big effortless soundstage was free of sharp and fatiguing edges. CD, by contrast, sounded that bit brighter, however it was also better focused with tactile stereo images extending way back into layer upon layer of detail.

Conclusion

The *PM-30* represents good value for money, and is firmly recommended, but the Best Buy ticket just eludes its grasp.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|-------|----------------------|------------------|
| Maximum Continuous Power Output, 8ohms | 47.9W | 49.6W | 46.9W |
| 4ohms | 66.6W | 74.5W | 69.9W |
| Dynamic Headroom (IHF) | | +1.3dB | (66.3W) |
| Peak Current (5msec, 1% THD) | | | 13.1A |
| Output Impedance | | | 0.047ohms |
| Damping Factor | | | 170.4 |
| | | CD/Aux | MM |
| Stereo Separation(1kHz) | | 94.0dB | 90.3dB |
| (20kHz) | | 68.6dB | 63.6dB |
| Channel Balance(1kHz, -20dBV) | | 0.22dB | 0.25dB |
| (-60dBV) | | 0.38dB | 0.35dB |
| Total Harmonic Dist. (0dBW) | | -96.1dB | -94.1dB |
| (2/3 power) | | -83.6dB | -80.6dB |
| CCIR Intermod. Dist. (0dBW) | | -98.5dB | -82.4dB |
| (2/3 power) | | -96.6dB | -83.1dB |
| Noise (A wtd, 0dBW) | | -90.1dB | -84.4dB |
| (2/3 power) | | -99.2dB | -86.7dB |
| Residual noise (unwtd) | | -76.1dBV | -76.3dBV |
| Input Sensitivity (for 0dBW) | | 28.5mV | 493uV |
| (for full output) | | 202.5mV | 3.49mV |
| Disc Overload (20Hz) | | | 27.89mV |
| (1kHz) | | | 170.1mV |
| (20kHz) | | | 1433mV |
| (50kHz) | | | 1698mV |
| Tape Output/Impedance | | 9.925V (disc)/229ohm | |
| Input loading | | 30.8kohms/220pF | 49.3kohms/200pF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | -9.6mV / -10.7mV |
| Retail Price | | | £180 |



Mission Cyrus Two

Recommended

MISSION ELECTRONICS, STONEHILL, HUNTINGDON,
CAMBS PE18 6ED. TEL: (0480) 52777



It's always a good idea to keep tabs on old favourites and, indeed, since *Choice* last examined Mission's *Cyrus Two* there have been a number of improvements. Despite its compact dimensions the 'Two' is a surprisingly heavy amplifier due, in no small part, to the diecast chassis, integral heatsink and the solid alloy casework that holds the thing together. Gone are the illuminated *Cyrus* logo and miniature headphone socket, leaving the modest range of controls intact.

Two adjacent rotary controls enable independent selection or recording from any of four line sources together with either MM or MC disc. A mute position is also provided. To the left, you'll find the dual-concentric volume and balance control but there are no tone, loudness or other twiddly bits to speak of.

The basic design of the *Cyrus Two* follows that established for the *Cyrus One* though the former does benefit from a much improved MC disc stage. Whereas the 'One' uses a single op-amp with a variable gain to cope with either MM or MC cartridges, the 'Two' features an entirely independent MC head amp based around a low-noise two-transistor package (LM394) and NE5534AN op-amp from Signetics.

Lab Report

The technical performance of the *Cyrus 2* bears a close resemblance to that of the *Cyrus 1* (see issue 85). Obvious departures include the higher 60W per channel rating and generous 15.2A current capability but the low-ish 0.079ohms output impedance and 55dB midband separation are almost identical. So too is the 0.0016-0.0035 per cent spread of THD from 0dBW to two-thirds output, though improvements to the disc circuitry have brought THD in line with that of the CD input.

The RIAA responses show a comparable -3dB IEC tailoring at 20Hz,

though the uprated MC input enjoys a higher sensitivity (180uV), much lower noise (-78dB A-wtd) and lower THD than the MC stage on Mission's *Cyrus 1*. The only drawback is its reduced headroom which has fallen to +21.3dB - too low for comfort in my opinion.

Sound Quality

From the outset, our panel recognised the classy and richly detailed sound as that belonging to an 'expensive amplifier'. There was a faintly clanky or mechanical feel to strong treble sounds via MM disc, but the amplifier was otherwise universally praised for its extremely confident and solid performance. There's certainly a purposefulness and tactility about the sound of this amp that escapes the attention of much of its competition.

You are never left in any doubt that the 'Two' is firmly in control of its music-making, for it enjoys a boldness and conviction that's absolutely riveting to hear. Bass is exceptionally solid without suffering a hint of excess, for instance.

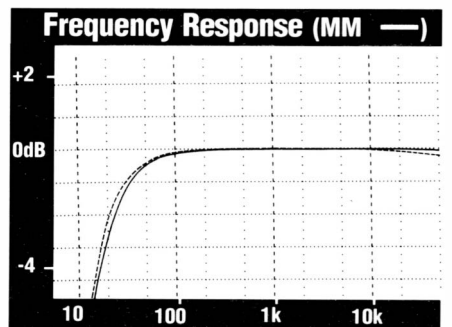
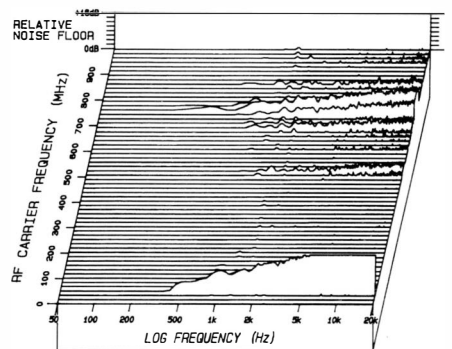
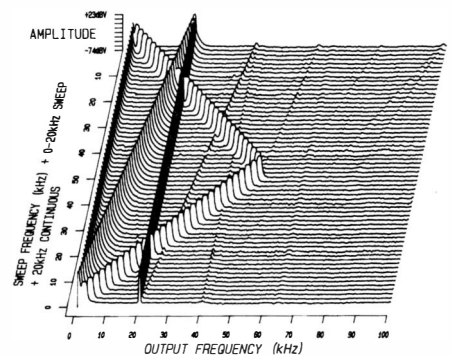
Do take the trouble to check out its reaction to your chosen CD player, however. There is no fundamental incompatibility at work but the 'Two' is susceptible to a broad spectrum of RF noise and can offer some undue emphasis of strident treble sounds as a result. Powerful, detailed and beefy: these are qualities you can rely on. But hook it up to a mildly bright or forward-sounding CD player and its heroic soundstaging will be tempered by a splash of acid sibilance.

Conclusion

A firm and very self-possessed sound from an equally firm and well-built package. The *Cyrus Two* continues to hold its own then, even if its performance is not quite as impressive as that of the cheaper *Cyrus One* in the £200 sector. Recommended.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|---------------|----------------------|----------------|
| Maximum Continuous Power Output, 8ohms | 56.3W | 59.1W | 59.1W |
| 4ohms | 87.5W | 93.2W | 93.2W |
| Dynamic Headroom (IHF) | | +1.2dB (78.4W) | |
| Peak Current (5msec, 1% THD) | | | 15.2A |
| Output Impedance | | | 0.079ohms |
| Damping Factor | | | 100.1 |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 56.7dB | 56.3dB | 55.7dB |
| (20kHz) | 51.5dB | 48.7dB | 48.5dB |
| Channel Balance (1kHz, -20dBV) | 1.41dB | 1.41dB | 1.42dB |
| (-60dBV) | 3.63dB | 3.95dB | 3.98dB |
| Total Harmonic Dist. (0dBW) | -95.9dB | -96.4dB | -95.9dB |
| (2/3 power) | -89.1dB | -92.6dB | -92.9dB |
| CCIR Intermod. Dist. (0dBW) | -95.8dB | -87.5dB | -86.5dB |
| (2/3 power) | -95.6dB | -85.8dB | -84.6dB |
| Noise (A wtd, 0dBW) | 85.4dB | -80.5dB | -76.8dB |
| (2/3 power) | -100.3dB | -84.7dB | -78.0dB |
| Residual noise (unwtd) | -72.9dBV | -72.9dBV | -72.8dBV |
| Input Sensitivity (for 0dBW) | 47.5mV | 331uV | 23.3uV |
| (for full output) | 369.4mV | 2.59mV | 180uV |
| Disc Overload (20Hz) | | 11.95mV | 785uV |
| (1kHz) | | 83.55mV | 5.82mV |
| (20kHz) | | 783.5mV | 54.75mV |
| (50kHz) | | 1091mV | 125.5mV |
| Tape Output/Impedance | | 12.1V (disc)/157ohms | |
| Input loading | | 13kohms/100pF | 47kohms/100pF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | -11.5mV -3.9mV |
| Retail Price | | | £330 |



THE NAD 5440 COMPACT DISC PLAYER

TRADITIONAL HIGH VALUE ENGINEERING WITH MASH BITSTREAM

"...functional but elegant...NAD has squeezed a textbook performance from this DAC, maintaining a superb 120 dB channel separation and 0.0011% THD (ref 0 dB) throughout the midband...Attention to detail is the key to the success of this player...engrossing sound quality..."

HI-FI NEWS JANUARY 1991



NAD'S new generation Classic Series Model 5440 Compact Disc Player is a traditional NAD design; a no-frills unit finished in sleek gun-metal grey with cool soft-orange glowing fluorescent displays. Beneath the neat minimalist fascia lies an impressive array of high-tech electronics which ensure that the 5440 has a sonic performance that equals or exceeds that of far more costly players. The 5440 is equipped with a highly accurate MASH D/A converter, separately regulated power supplies and is assembled using only high-grade audiophile components. The result is a player with a superior sound quality which is a joy to operate, either from the infra-red remote control unit or by using the straight-forward, simply laid-out rocker switches on the front panel. NAD is a company dedicated to reproducing music. If you want to hear music from your Compact Disc Player audition the 5440 at your NAD stockist today.



5440 – £289.95 FROM NAD SPECIALIST DEALERS

- * Precise MASH D/A converter
- * Phase-linear digital filtering
- * Separately regulated and filtered power supplies
- * Fast, low inertia three-beam laser pick-up
- * Digital-code output

BRITISH – BY DESIGN

NAD Marketing Ltd.
Adastra House, 401–405 Nether Street, London N3 1QG
Telephone: 081 349 4034

RICHER Sounds

THE UK'S BUSIEST HI-FI STORES...and we still put the customer first!

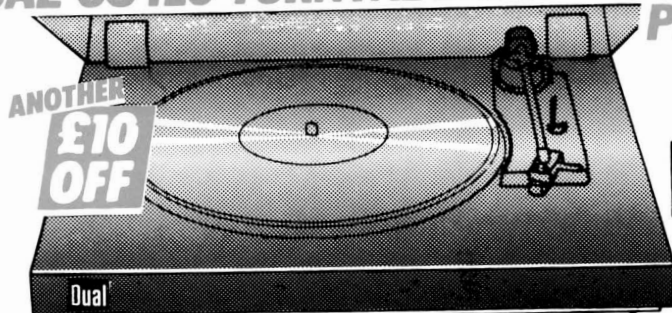
SALE!

0% INTEREST FREE CREDIT ON ALL SYSTEMS (Subject only to simple clearance)

NOW ON

Our Sale is probably as important to hi-fi buffs as Harrods' sale is to collectors of Wedgewood seconds. Brave the scrum and you too can emerge with amazing savings off lots of our crazy prices! Here's just a few of the goodies...

DUAL CS410 TURNTABLES AT THE UK'S LOWEST PRICE



DUAL CS410 A pound-stretching version of Dual's acclaimed '503' bringing characteristic high performance and a startlingly low price tag together. Quality cartridge £10 extra.

Dual
WERE £69.95

SALE!
£59⁹⁵

DOZENS MORE TURNTABLE BARGAINS IN-STORE TOO!

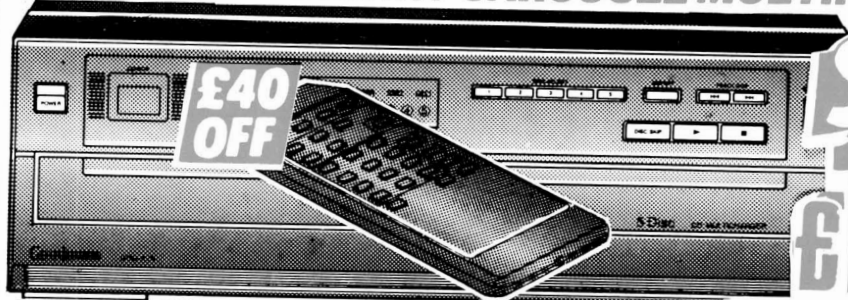
DIGITAL DYNAMITE TUNERS UNDER £50



ATAI ATM670 Here's a tuner that'll have you die-hard enthusiasts reaching for your cheque books... an impeccably finished unit from Akai with 3 super-sensitive wavebands and 16 touch presets.

SALE!
£49⁹⁵
WERE £69.95

£££s OFF BRILLIANT CAROUSEL MULTIPLAY CDS



GOODMANS GCD470 Here's a winning carousel-loading multiplay CD. Boasting super-fast access to any six discs, plus a well-laden remote handset and spot-on performance. Unbeatable value at our crazy price.

Goodmans
WERE £159.95

SALE!
£119⁹⁵

DOZENS MORE COMPACT DISC BARGAINS IN-STORE TOO!

AMAZING HX-PRO CASSETTE DECKS



SHERWOOD DS1135 An incredible deal on a very special cassette deck... packing in HX pro "headroom extension" circuitry with Dolby B&C. Feather touch controls and hard heads - all for less than £70!

SALE!
£69⁹⁵
WERE £99.95



PLUS HUNDREDS MORE BARGAINS IN STORE...

POP IN AND COLLECT YOUR **FREE MUG**

NO PURCHASE NECESSARY
One gift per customer with coupon.
Offer valid until 31.3.91

BRANCHES NATIONWIDE:

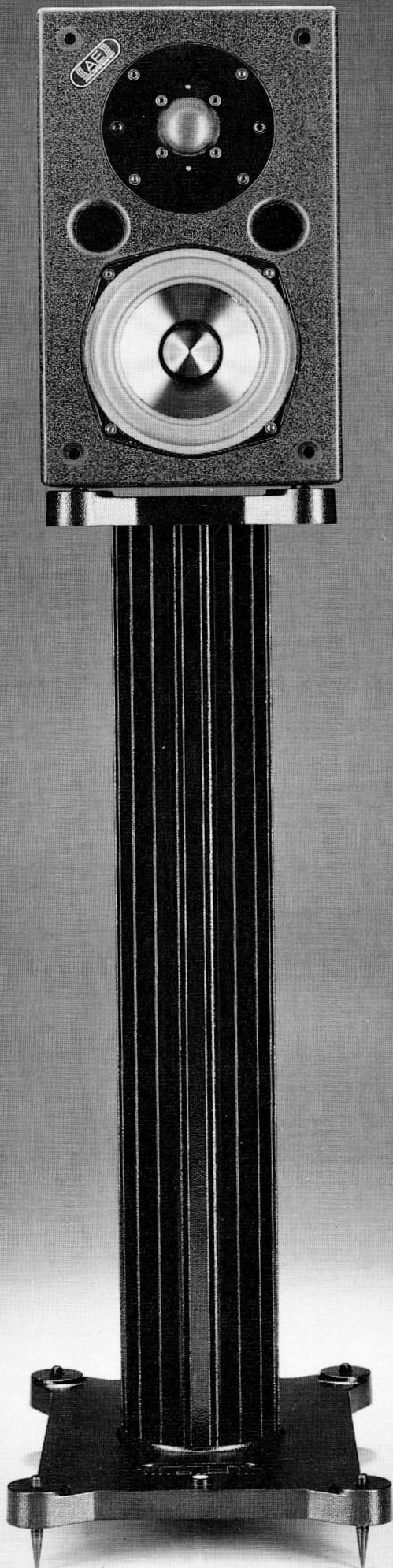
- **BIRMINGHAM** 10-12 Smallbrook Queensway, B5. ☎ 021 643 1516
- **BRISTOL** 20 Cotham Hill, BS6. ☎ 0272 734397
- **CARDIFF** 5 Central Square, CF1. ☎ 0222 383311
- **EDINBURGH** 1B Chambers Street, EH1. ☎ 031 226 3544
- **LEEDS** 55 The Headrow, LS1. ☎ 0532 455717
- **LIVERPOOL** 99 Renshaw Street, L1. ☎ 051 708 7484
- **LONDON CITY** 2 London Bridge Walk, SE1. ☎ 071 403 1201
- **LONDON NORTH** 25 Northways Parade, College Cres. NW3. ☎ 071 722 3359
- **LONDON WEST** 258A Fulham Road, SW10. ☎ 071 352 8496
- **NEWCASTLE** 22 Newgate Street, NE1. ☎ 091 230 1392
- **STOCKPORT** 4 Wellington Street, SK1. ☎ 061 480 1700

WE'RE OPEN: 10-6pm Mon-Fri; 10-5pm Sats (except B'ham, Leeds & L'pool 9-5pm Sats) London City also open late 'til 7pm Thurs & Fri. Open all Bank Holidays 12-4pm.

WE ACCEPT: Access, Visa, Part Exchange, Cheques (up to £1000 subject to simple clearance) and even Cash!



FREEPHONE
0800 591 366
FOR YOUR FREE COPY OF OUR BARGAIN-PACKED FUN CATALOGUE/PRICE LIST.



ACOUSTIC ENERGY SPEAKS FOR ITSELF.

"As far as I'm concerned, the AE1 re-defines the art of miniature speaker design"
John Atkinson, Stereophile, September 1988

"To the author's knowledge, the most awesomely dynamic and articulate miniature ever made"
Alvin Gold, Hi-Fi Choice, June 1988

"...the best looking, most immaculately turned out stands I've ever clapped eyes on"
Jonathan Kettle, New Hi-Fi Sound, July 1989

"The AE1 leapfrogs existing references and sets new standards of technical and musical excellence..."
David G Präkel, Hi-Fi Answers, March 1988

HEARING IS BELIEVING

To audition Acoustic Energy loudspeakers — contact any of the dealers listed below.

- | | | | |
|--|---|--|---|
| Doug Brady Hi-Fi London WC2 Tel: 071-379 4010 (also at Warrington & Liverpool) | Cleartone Bolton, Lancs Tel (0204) 31423 (also at Manchester & Wolverhampton) | In Hi-Fi Edinburgh, Scotland Tel 031-225 8854 | Basically Sound of Norfolk Nr Norwich, Norfolk Tel (0508) 70829 |
| Grahams Hi-Fi London N1 Tel 071-226 5500 | Brentwood Music Centre Brentwood, Essex Tel (0277) 221210 | Farnborough Hi-Fi Farnborough, Hants Tel (0252) 520146 | Sound Approach Norwich, Norfolk Tel (0603) 622833 |
| KJ Leisure Sound London W1 Tel 071-486 8262/3 | The Powerplant Brighton, E Sussex Tel (0273) 775978 | Lintone Audio Gateshead, Tyne & Wear Tel 091-477 4167 (also at Whitley Bay & Durham) | Audio Counsel Oldham, Lancs Tel 061-633 2602 |
| Thomas Heinitz Ltd London W2 Tel 071-229 2077 | Steve Boxshall Audio Cambridge, Cambs Tel (0223) 68305 | Stereo Stereo Glasgow, Scotland Tel 041-248 4079 | Oxford Audio Consultants Oxford, Oxon Tel (0865) 790879 |
| The Cornflake Shop London W1 Tel 071-631 0472 | Audio Excellence Cardiff, Wales Tel (0222) 228565 (also at Gloucester, Swansea & Newport) | Manders Hi-Fi Grimsby, S Humberside Tel (0472) 351391/2 | The Audio Gallery Nr Petersfield, Hants Tel (0472) 351391/2 |
| Peter Jones London SW1 Tel 071-730 3434 | Peter Tyson Ltd Carlisle, Cumbria Tel (0228) 46756 | PJ Audio Guildford, Surrey Tel (0483) 504801 | Rayleigh Hi-Fi Rayleigh, Essex Tel (0268) 779762 (also at Chelmsford & Southend-on-Sea) |
| The Listening Rooms London SW5 Tel 071-244 7759 | Gilson Audio Middlesbrough, Cleveland Tel (0642) 248793 | Harrow Audio Harrow, Middx Tel 081-863 0938 | Audio Centre Sheffield, S Yorks Tel (0742) 737893 |
| Studio 99 London NW6 Tel 071-624 8855 | Robert Taussig Co London W9 Tel 071-286 1728 | Compact Music Havant, Hants Tel (0705) 473952 | Alternative Audio Solihull, W Midlands Tel 021-742 3884 |
| Overture Hi-Fi Banbury, Oxon Tel (0295) 272158 | Soundstage Crewe, Cheshire Tel (0270) 255488 | The Sound Gallery High Wycombe, Bucks Tel (0494) 31682 | Chelston Hi-Fi Torquay, Devon Tel (0803) 606863 |
| The Hi-Fi Centre Barrow-in-Furness, Cumbria Tel (0229) 838757 | Sound With Style Doncaster, S Yorks Tel (0302) 321421 | Audio Projects Leeds, Yorks Tel (0532) 304565 | Tonbridge Hi-Fi Tunbridge Wells, Kent Tel (0892) 24677 |
| Paul Green Hi-Fi Bath, Avon Tel (0225) 316197 | Data Sound Dorking Surrey Tel (0306) 882897 | Image Hi-Fi Ltd Leeds, Yorks Tel (0532) 789374 | Uxbridge Audio Uxbridge, Middx Tel (0895) 30404 |
| Pure Sound Birkenhead, Merseyside Tel 051-645 6690 | Wentworth Audio Dunstable, Beds Tel (0582) 663383 | The Leicester Hi-Fi Co Leicester, Leics Tel (0533) 539753 | Acoustic Arts Watford, Herts Tel 0923 245250 |
| The Audio File Bishops Stortford, Herts Tel (0279) 506576 (also at St Ives, Cambs) | Audio Inc East Molesey, Surrey Tel 081-941 4234 | Better Hi-Fi Liverpool, Merseyside Tel 051-227 5007 | West Midlands Audio Worcester, Worcs Tel (0905) 58046 |
| | Hi-Fi Corner Edinburgh, Scotland Tel 031-220 1535 (also at Falkirk & Glasgow) | Audio Insight Milton Keynes, Bucks Tel (0908) 561551 | Mike Manning Audio Yeovil, Somerset Tel (0935) 79361 |

Acoustic Energy has distributors in the following countries:

| | | | | | |
|-----------|-----------|-------------|-----------|-------------|--------|
| Australia | Germany | Italy | Norway | Sweden | Taiwan |
| Belgium | Hong Kong | Japan | Portugal | Switzerland | U.S.A |
| Eire | Indonesia | Netherlands | Singapore | Thailand | |
| France | Israel | New Zealand | Spain | | |

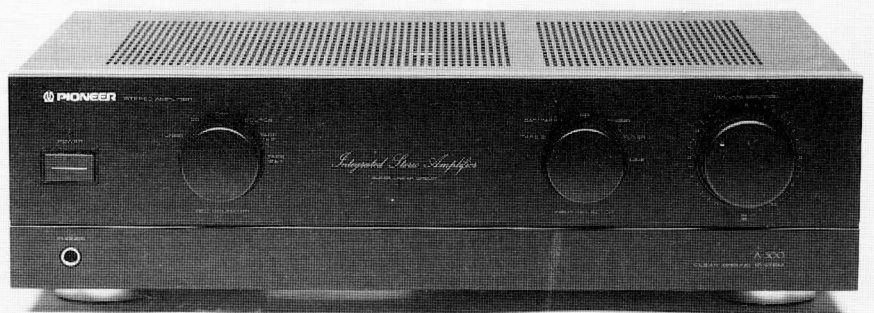
(((AE)))
LOUDSPEAKERS

Acoustic Energy Limited
3A Alexandria Road, London W13 0NP
Tel 081-840 6305 Fax 081-579 1761

Pioneer A-300

PIONEER HIGH FIDELITY (GB) LTD, FIELD WAY, GREENFORD, MIDDLESEX UB6 8UZ. TEL: (081) 575 5757

Recommended



Pioneer UK has been badgering its masters to design and build a no-frills integrated amplifier to compete with the likes of Arcam, Mission, etc. Typically, this proves an uphill struggle and the UK ends up with pretty fascias dotted with party lights and unwanted facilities. That is until now. For the launch of Pioneer's two new integrated amps, the A-300 and the A-400, has created a hubbub no enthusiast could have failed to pick up on.

You see the A-300 and A-400 have genuinely been designed for UK-consumption so there are no tone controls, loudness, mono or speaker-switching facilities. Even the volume control is a dual-concentric affair to do away with the need for a separate balance control. The two remaining knobs simply cater for input and rec-out selection of the phono (MM only on the A-300), three line and two tape inputs. These selectors are wholly independent of one another and use remote switches mounted up near the input terminals - reducing unnecessary track runs and improving stereo separation to boot.

The effects of vibration are reduced by Pioneer's honeycomb chassis and heatsink construction, while the main PCB is actually suspended midway in the box. The layout of the line and power amp circuit is totally symmetrical between L and R channels, while conventional feedback has been reduced in favour of Pioneer's own compensation scheme.

Lab Report

This is one beefy 30-watter! In fact, it's closer to 55W in specification with a decently low output impedance of 0.064ohms (20Hz). Stereo separation holds up well through the midband (typically 75-78dB), but this sample had a dodgy volume pot so the error in channel balance increased to a poor 7.4dB at -60dB. Distortion increases to a consistent 0.015

per cent or so at moderate levels.

The equally impressive MM disc response is not actually a carbon-copy of the A-400's, by the way, for it peaks to +1.5dB (1.4Hz) before falling off to -3dB at 0.8Hz. The RF IMD spectrum is also peculiar to the A-300, highlighting an abrupt break near the top of its extended closed-loop bandwidth (1MHz) in addition to a mild resonance at 310MHz.

Sound Quality

First impressions were not of spontaneous delight because the panel was initially exposed to the A-300's MM disc input, a refined and polite-sounding design but one that's neither as crisp, immediate or dynamic as either the Dual or the Mission. There was no denying the tidiness and subtlety of the overall sound but the resolution of brass instruments, for instance, was compromised by a lack of tonal richness or freshness. Good, certainly, but the MM input nonetheless failed to shine in the view of our panel.

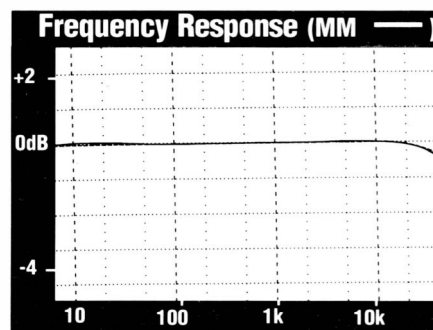
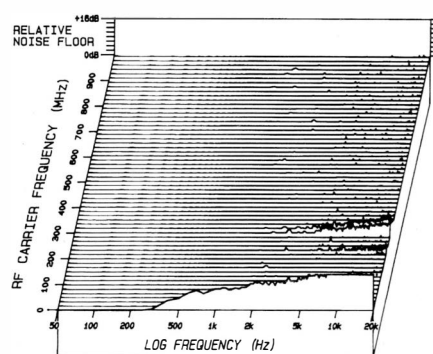
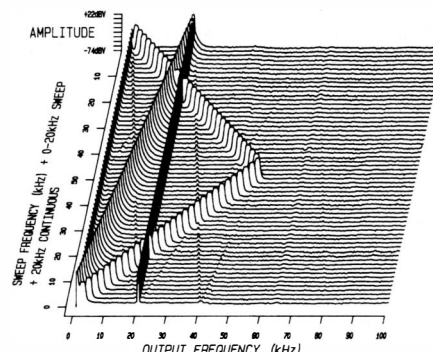
However, switching to CD brought about an instant change of opinion as the amplifier began to breathe musical detail in a most natural and revealing way. There was certainly some 'editorialising' going on as one panellist referred to it, but this did little to dampen the panel's new-found enthusiasm! It was certainly very successful with busy pop tracks that might otherwise have sounded confused or aggressive, trading the nth degree of crisp, transient detail for a very agreeable overall balance.

Conclusion

Not the wholesale success we might have been led to expect then, if only because of the contrast in subjective performance between the MM and CD inputs. If your listening is CD-oriented, however, you'll not fail to be delighted by the ingratiating, if slightly mellow sound of the A-300.

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|-------|------------------------|----------------|
| Maximum Continuous Power Output, 8ohms | 51.3W | 54.6W | 51.8W |
| 4ohms | 76.7W | 80.2W | 80.2W |
| Dynamic Headroom (IHF) | | +1.1dB (70.1W) | |
| Peak Current (5msec, 1% THD) | | | 9.1A |
| Output Impedance | | | 0.064ohms |
| Damping Factor | | | 125.4 |
| | | CD/Aux | MM |
| Stereo Separation (1kHz) | | 75.3dB | 78.0dB |
| (20kHz) | | 49.3dB | 51.7dB |
| Channel Balance (1kHz, -20dBV) | | 0.29dB | 0.30dB |
| (-60dBV) | | 7.35dB | 7.37dB |
| Total Harmonic Dist. (0dBW) | | -94.1dB | -89.5dB |
| (2/3 power) | | -76.6dB | -76.0dB |
| CCIR Intermod. Dist. (0dBW) | | -91.6dB | -84.3dB |
| (2/3 power) | | -72.0dB | -73.1dB |
| Noise (A wtd, 0dBW) | | -83.4dB | -81.9dB |
| (2/3 power) | | -95.6dB | -86.9dB |
| Residual noise (unwtd) | | -78.6dBV | -78.6dBV |
| Input Sensitivity (for 0dBW) | | 24.2mV | 393uV |
| (for full output) | | 180.0mV | 2.85mV |
| Disc Overload (20Hz) | | | 17.1mV |
| (1kHz) | | | 158.3mV |
| (20kHz) | | | 1114mV |
| (50kHz) | | | 1048mV |
| Tape Output/Impedance | | 9.73V (disc)/2.73kohms | |
| Input loading | | 69kohms/100pF | 47kohms/120pF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | | +24.6mV/+6.8mV |
| Retail Price | | | £180 |



| | |
|---------------------------------------|-------|
| Audio Research SP11 Amplifier | £3995 |
| Audio Research D125 Amplifier | £3650 |
| Goldmund Mimesis 3 Amplifier | £3795 |
| Krell KSA80 Amplifier | £2950 |
| Sonus Faber Amplifier | £1495 |
| Krell SA040 Amplifier | £199 |
| Cambridge C50/A50 Amplifiers | £249 |
| Orange Pre-amplifier | £495 |
| PS Audio PS IV Pre-amp (a rare find!) | £495 |
| Sumo Andromeda Amplifier | £995 |
| Incatech FMT Tuner | £245 |
| Incatech ID50 Class A Amp | £725 |
| Meridian 205 Mono-blocks | £695 |
| Meridian 207 CD Player | £895 |
| Meridian 204 Tuner/Timer | £395 |
| Meridian M30 Speakers | £695 |
| Meridian M20 Speakers | £995 |
| Revox B150 Integrated Amplifier | £645 |
| Revos B250 Integrated Amplifier | £945 |
| Revox B160 Tuner | £545 |
| Revox B260 Tuner | £695 |
| Revox B126 CD Player | £549 |
| The Source/Odyssey Turntable/Arm | £845 |
| Acoustic Energy AE2 (slightly marked) | £549 |
| Ensemble Pa-1 Speakers | £995 |
| Celestion 300 Speakers | £595 |
| Celestion SL600 Speakers | £595 |
| JBL L120 TI Speakers | £895 |
| JBL 4410 Speakers | £695 |
| Helios Chameleon | £275 |
| Magnaplanar 2.5 | £1395 |
| Magnaplanar SMGa | £495 |

Secondhand recommendations:

| | |
|------------------------------|-------|
| Musical Fidelity MVT Pre-Amp | £895 |
| Musical Fidelity MVX Pre-Amp | £1295 |
| Musical Fidelity A37011 Amp | £1295 |

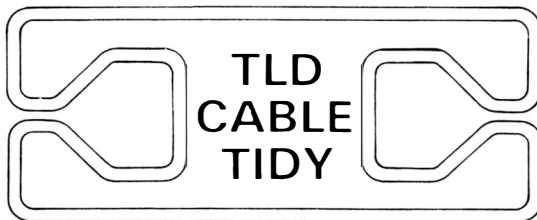
We love 'em... so we play em!

**Selected demonstration items,
out of the boxes and on display
— priced to go before they get
marked. So be quick!**

*Steve
Boxshall*
AUDIO

41 VICTORIA ROAD CAMBRIDGE (0223) 68305

**CABLES HERE! CABLES THERE.
CABLES CABLES EVERYWHERE.
NOT ANY MORE.**



The T.L.D. CABLE TIDY is the answer to unsafe, untidy cables. It is the only CABLE TIDY made for small cables. Just wind the cable on the TIDY clip to store. When ready for use unwind the amount of cable you require, the remainder of the cable stays on the TIDY clip. The clip does not get lost and is so easy to use.

Untidy cables are unsafe cables, damaged cables are expensive to replace, make them SAFE, keep them TIDY.

SIZE 1. Will store Tidy, Video cables, DC out-put cables, Super Video cables, Hi-Fi cables, Telephone cables, T.V. Coax cables, Head-phones cables, Speaker cables etc.

SIZE 2. Will store Tidy, T.V. out-put cords, Mains Adaptor cables, 12v Adaptor cables, Microphone cables, Hair-dryer and Curler cables, etc.

SIZE 3. Will store Tidy, Power Tool cables, Kitchen Appliances cables, Office Equipment cables.

THE LIST IS ENDLESS

Size 1 45p Size 2 70p Size 3 105p

White Black

Add 40p Post and Packing

Orders over £10 Post and Packing Free

Large Quantities Price on Application

Every 3 You Buy — Get 1 Free With This Issue.

I enclose cheque/P.O. £.....

Name.....

Address.....

Signature.....

Send to: TLD CABLE TIDY, Temple Laugharne House,
Lower Broadheath, Worcester WR2 6RS. Tel: 0905 641122.

Introducing....

Entire Sound

We are a new company
with new ideas in audio design.

The *Entire Sound* range of quality transmission
line loudspeakers and amplifiers will not leave you
behind in your search for better audio appreciation.

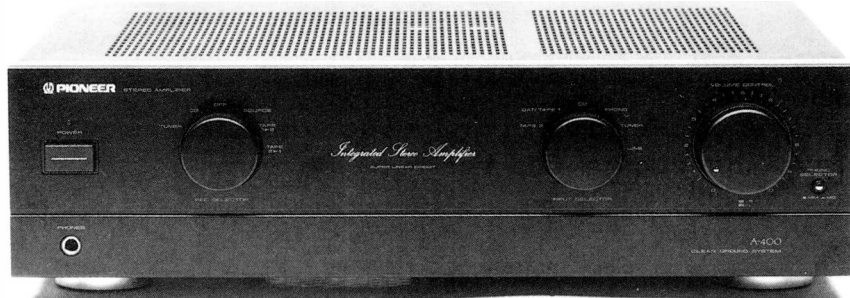
For further details, prices, and availability,
please contact:

Entire Sound
Kippo Farm Cottages,
Kingsbarns,
St. Andrews,
Fife, Scotland.
KY16 8QD.
Tel: 033 488 286

Pioneer A-400

Best Buy

PIONEER HIGH FIDELITY (GB) LTD, FIELD WAY, GREENFORD, MIDDLESEX UB6 8UZ. TEL: (081) 575 5757



And now for something very slightly different - the Pioneer A-400. Yep, it looks just like the A-300 and it even uses the same switches, circuit board, star-earthing pattern, three-core mains lead and casework as the A-300. But closer inspection unveils a succession of detailed revisions, subtle differences which propel the A-400 into a league of its own!

From the outside, only its extra MC input selector hints at any change - another, remotely-controlled switch that engages a discrete, very-low noise headamp. After this comes the active MC/MM RIAA network, very similar to that found in the A-300 but equipped with a superior two-channel op-amp and near-imperceptible differences in the selection of passive components.

Step a little further back and the larger mains transformer pops into view as do the 10,000uF audio-grade reservoir caps, replacing the 6,800uF electrolytics found in the A-300. Of course, the A-300 is rated at a nominal 30W whereas the heavyweight A-400 offers 50W.

Once again, Pioneer's proprietary 'SuperLinear Circuit' topology is used, pitching the non-linearities of one transistor against the opposite but equal non-linearities of the other. Meanwhile, in order to satisfy the demands of a higher output, Pioneer has substituted higher-current Toshiba transistors into the A-400.

Lab Report

Close parallels exist between the A-300 and its bigger brother in terms of THD, IMD, stereo separation, output impedance and, as far as the MM network is concerned, noise, input sensitivity and disc overload (+30.1dB). Of course, there's an MC input added here and this features a fine sensitivity (0.25mV), low noise (-78dB, A-wtd) and extended response even if the headroom's a mite low at +28.7dB.

Power output is up to 71W (8ohms)

and 110W (4ohms), while available current clocks in at an impressive 16A. Channel balance is much improved, by the way, as is the RF susceptibility which shows a mild leak around 60MHz.

Sound Quality

Once again we began by listening via the MM input but now the difference between the '300 and '400 seemed quite vast, this latter model stripping through the murk that fogged-up the '300. This unearthed an explicitly detailed treble, not bright or aggressive but very light, free and bubbling with detail. There was an excellent sense of stereo space, the freedom from compression having everyone tapping their feet within seconds!

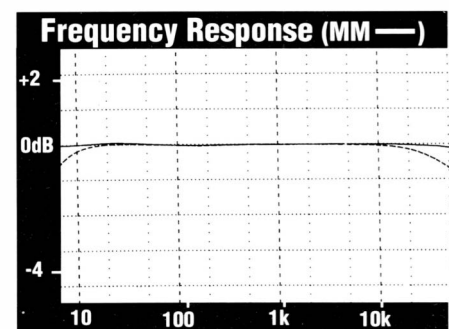
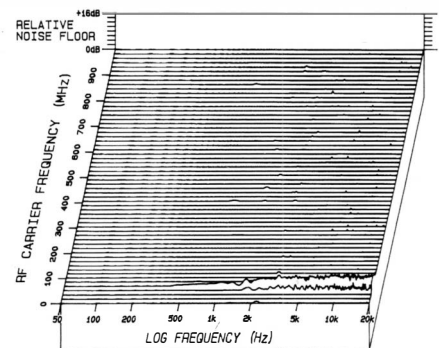
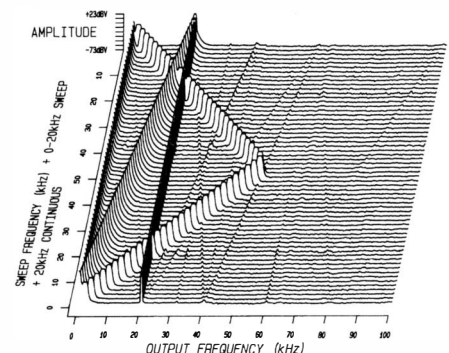
Furthermore, this amplifier showed a real command of music and so deep bass growled without clouding midband detail. It was very weighty and enjoyed excellent separation, just as brass had a naturally tangy quality that was raw but not cold or ascerbic. There was certainly not the 'editorialising' heard with the '300, instead the '400 sounded sharp and detailed, honest but captivating. Duff recordings are going to sound, well, duff, just as a good recording will surely shine. After all, accuracy is rarely sympathetic.

Conclusion

Some perspective is definitely required here. Throughout the blind listening tests the A-400 emerged as a highly polished performer, though not necessarily as a blatantly obvious 'winner'. Unaware of its manufacturer or price, it was considered to match the weight and punch of Mission's *Cyrus Two*, the exquisite string tone of the Dual and flighty transparency of the HK, all the while enjoying a tangible 'rightness' that was all its own. Once informed of its price, the members of the panel voted the A-400 a unanimous Best Buy. So who am I to argue?

TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|------------------------|-----------------|--------------|
| Maximum Continuous Power Output, 8ohms | 66.9W | 70.9W | 70.7W |
| 4ohms | 101.7W | 110.2W | 112.3W |
| Dynamic Headroom (IHF) | | +0.92dB (87.6W) | |
| Peak Current (5msec, 1% THD) | | 16.1A | |
| Output Impedance | | 0.059ohms | |
| Damping Factor | | 135.4 | |
| | CD/Aux | MM | MC |
| Stereo Separation(1kHz) | 75.4dB | 76.1dB | 75.8dB |
| (20kHz) | 49.4dB | 49.9dB | 49.5dB |
| Channel Balance | | | |
| (1kHz, -20dBV) | 0.21dB | 0.20dB | 0.21dB |
| (-60dBV) | 0.69dB | 0.72dB | 0.73dB |
| Total Harmonic Dist. | | | |
| (0dBV) | -85.5dB | -86.2dB | -87.0dB |
| (2/3 power) | -73.9dB | -74.2dB | -75.0dB |
| CCIR Intermod. Dist. | | | |
| (0dBV) | -87.7dB | -85.3dB | -81.3dB |
| (2/3 power) | -71.3dB | -73.6dB | -73.6dB |
| Noise (A wtd, 0dBV) | -81.8dB | -81.4dB | -76.5dB |
| (2/3 power) | -95.4dB | -91.8dB | -78.0dB |
| Residual noise (unwtd) | -75.8dBV | -75.8dBV | -75.8dBV |
| Input Sensitivity | | | |
| (for 0dBV) | 20.16mV | 352uV | 29.7uV |
| (for full output) | 171.3mV | 2.97mV | 248uV |
| Disc Overload (20Hz) | | 17.85mV | 1.45mV |
| (1kHz) | | 160.2mV | 13.6mV |
| (20kHz) | | 1211mV | 103.3mV |
| (50kHz) | | 1141mV | 96.5mV |
| Tape Output/Impedance | 9.18V (disc)/2.61kohms | | |
| Input loading | 70kohms/100pF | 52kohms/350pF | 100ohms/12nF |
| Absolute Phase | | | Positive |
| DC offset, left/right | | +21.7mV / | +15.3mV |
| Retail Price | | | £230 |



Concordant Premier Tube

(0455) 843752

**EXULTANT EXEMPLAR EXCELSIOR EXHILARANT
EXQUISITE**

DEVON
(0626) 64060

SCOTLAND
(0475) 31066

SCOTLAND
(0506) 884045

LEEDS
(0532) 528850

MILTON KEYNES
(0908) 562377

SUFFOLK
(0502) 731002

NORFOLK
(0379) 740227

NORTHANTS
(0933) 460745

BATH
(0225) 424334

NUNEATON
(0203) 373309

LANCS
(0457) 835802

CHESTERFIELD
(0246) 200096

MANCHESTER
(061) 835 1366

RUGBY
(0788) 572983

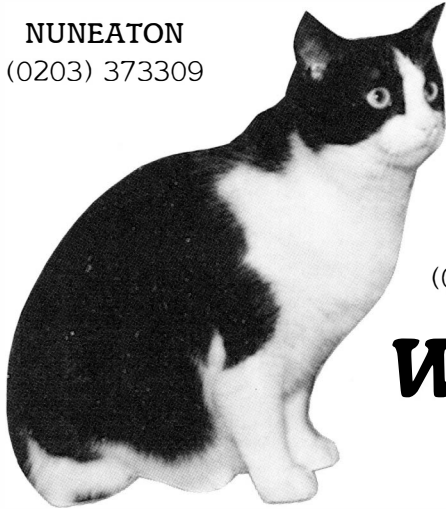
BANBURY
(0295) 267383

LEICESTER
(0455) 846977

LONDON
(081) 997 6189

LONDON
(071) 485 4854

LONDON
(0883) 730210



What's new Pussy Cat?

CONCORDANT MUSIC CLUB

If you're looking for a high quality hi-fi dealer,
look no further.....

RADFORD
Hi-Fi

NEW



PHILIPS CD850

PHILIPS 'BITSTREAM' CD PLAYER ▷ Bitstream conversion with 256 times oversampling ▷ Full width (420mm) ▷ 'Active Info' text display ▷ Double FTS memory ▷ Remote control.
PRICE... £399

After 16 years of selling and servicing hi-fi equipment from all over the world including the complete range of Philips C.D. players, 'Radford Hi-Fi' is established as one of the country's leading 'High End' hi-fi dealers. Visit any one of our six branches and experience for yourself the real pleasure of listening to music.

BRISTOL

4 Merchant Street, Bristol. Tel: (0272) 294183

BATH

12 James Street West, Bath. Tel: (0225) 446245

EXETER

28 Cowick Street, St. Thomas. Tel: (0392) 218895

BRISTOL

52/54 Gloucester Road, Bristol. Tel: (0272) 428247

WINDSOR

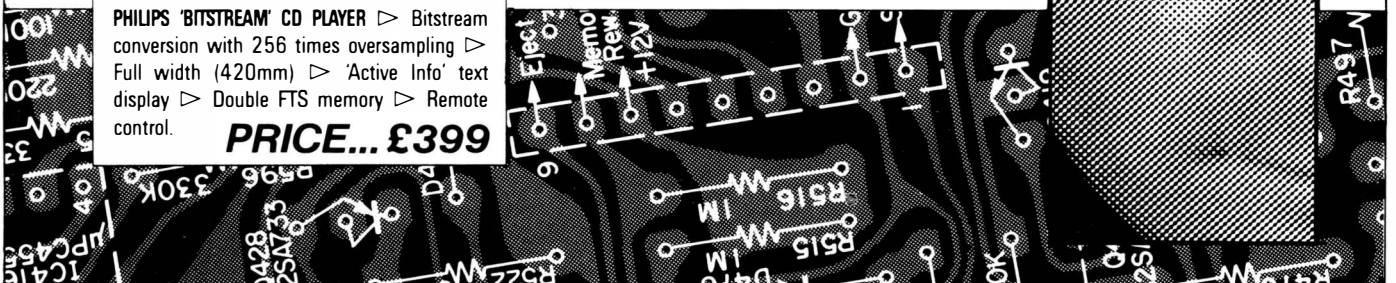
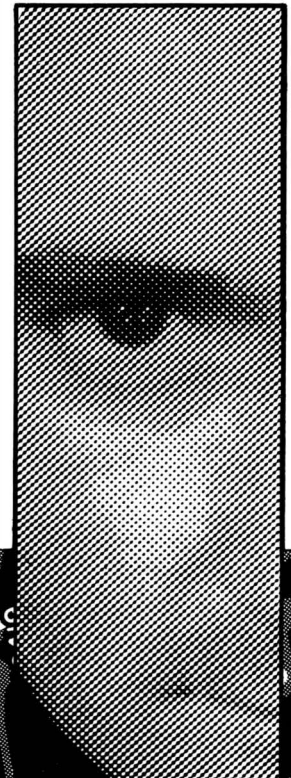
43 King Edward Court, Windsor. Tel: (0753) 856931

PLYMOUTH

107 Cornwall Street, Plymouth. Tel: (0752) 226011

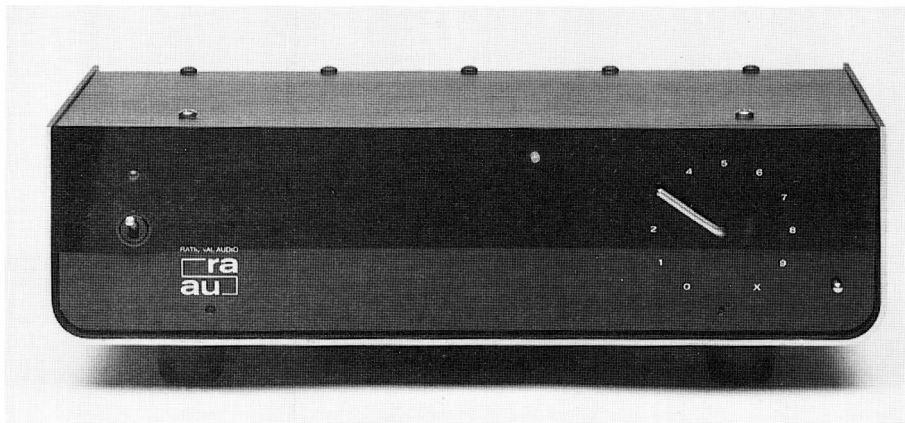
TORQUAY

6 Fore Street, St. Marychurch. Tel: (0803) 326723



Rational Audio Model 1

AUDIOTECH, 18 GLENCAIRN DRIVE, POLLOKSHIELDS, GLASGOW
G41 4QN. TEL: (041) 423 4705



Now the Iron Curtain has well and truly rusted, we're able to savour the ingenuity of our fellow enthusiasts in the Eastern Bloc. Rational Audio's *Model 1* amplifier is just one example, manufactured in deepest Czechoslovakia and imported into the UK by Audiotech of Scotland. It's hardly expensive, but then it is the epitome of the 'minimalist' amplifier. For instance, you can play vinyl records (MM only) or CDs through the *Model 1* so long as neither source is turned on at the same time - this amp has no input selector!

There's no conventional volume knob as such either, just a thin metal arm protruding from a clockface on the perspex front panel. Dial-up the level you require and a mechanical link controls two potentiometers at the back of the amp. However, this volume circuit also includes a loudness contour that boosts bass and treble signals according to the position of the control. It is impossible to bypass this compensation network.

The active portion of the *Model 1* is attached to the back panel while a large single-rail power supply fills the void in-between. The power amp uses a Class A driver to determine output linearity at low levels, while Class C dumpers take over above 1W. As a result they maintain high efficiency without suffering lots of crossover distortion.

Lab Report

This thing clocked up a set of weird and wonderful measurements. For a start, it's got a negative output impedance together with a negative dynamic headroom.

Noise is a low and consistent -81 to -83dB through all inputs, while THD hovers around 0.09 per cent via CD. The MM input is another matter though. Firstly there's only +15dB of headroom so the THD measurements had to be taken below my standard 50mV input level. This also prevented me taking the 3D plot.

Furthermore, Rational Audio has omitted any conventional HF equalisation and relies instead on the inductance of the MM cartridge to provide the necessary treble cut. Specifically, its 4.8kohms input load in series with a cartridge's 1kohms source resistance would require an inductance of 435mH to generate the correct cut-off frequency of 2123Hz. As most cartridge's deviate from this value, so too will the disc response vary in 'tone'. With no source inductance, the HF response flies heavenward.

Sound Quality

Our first amplifier went 'pop' before we had a chance to hear it out, while its replacement emitted a faint but constant high-pitched whine. This aside, strings and percussion seemed sharply resolved via MM disc, even though a treble lift was never in doubt. Oddly enough this had the effect of introducing a fresh and airy quality to many records. Vocals, by contrast, were less precise in delivery.

The panel returned an altogether more positive verdict on the line input(s) which offered a distinctly more neutral overall balance.

There was still the pleasantly airy quality first heard via MM disc but this was joined by a smoother vocal presence and warmer 'feel' to bass notes. But if you hanker for bone-moving bass then you may well end up coming away disappointed.

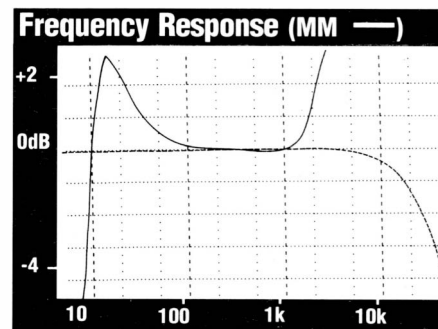
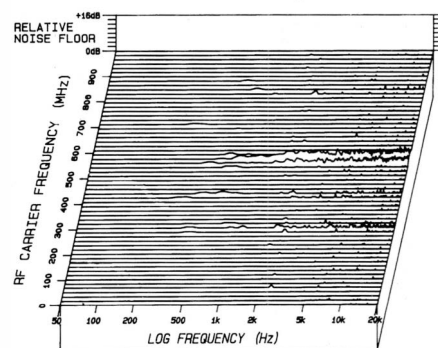
Conclusion

An altogether wacky amplifier then, but one that offers a very open, expressive and - dare I say it - musical sound, via CD at least. Yet its operational quirks render the Rational amp a curiosity rather than strict competition for the best at this price level.

Certainly worth considering if you've a taste for near-Eastern hi-fi!

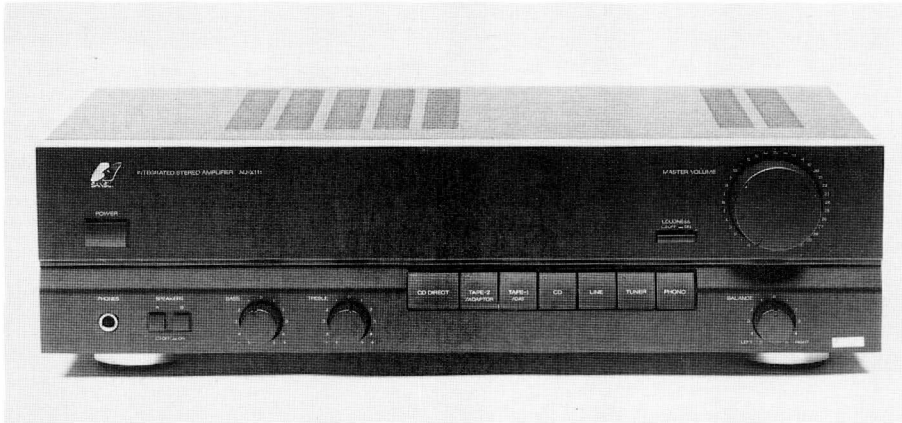
TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|---|-------|------------------------------|-------------------|
| Maximum Continuous Power Output, 8ohms | 26.4W | 29.0W | 24.9W |
| 4ohms | 37.4W | 54.9W | 49.2W |
| Dynamic Headroom (IHF) | | -0.78dB (24.2W) | |
| Peak Current (5msec, 1% THD) | | | 3A |
| Output Impedance | | | -0.085ohms |
| Damping Factor | | | see text |
| | | CD/Aux | MM |
| Stereo Separation(1kHz) | | 65.7dB | 67.3dB |
| (20kHz) | | 39.1dB | 45.2dB |
| Channel Balance(1kHz, -20dBV) | | 0.08dB | 0.91dB |
| (-60dBV) | | 5.37dB | 6.66dB |
| Total Harmonic Dist.(0dBW) | | -61.2dB | -59.3dB |
| (2/3 power) | | -62.2dB | -58.8dB |
| CCIR Intermod. Dist.(0dBW) | | -69.2dB | -28.8dB |
| (2/3 power) | | -72.0dB | -28.8dB |
| Noise (A wtd, 0dBW) | | -82.5dB | -81.8dB |
| (2/3 power) | | -82.9dB | -82.8dB |
| Residual noise (unwtd) | | -71.2dBV | -70.2dBV |
| Input Sensitivity(for 0dBW) | | 84.6mV | 620uV |
| (for full output) | | 461.8mV | 3.30mV |
| Disc Overload (20Hz) | | | 2.465mV |
| (1kHz) | | | 28.09mV |
| (20kHz) | | | 38.55mV |
| (50kHz) | | | 6.55mV |
| Tape Output/Impedance | | 5.95V (disc)/22.37kohms | |
| Input loading | | 22.1kohms/55pF 4.8kohms/90pF | |
| Absolute Phase | | | Inverting |
| DC offset, left/right | | | +127.5mV/+130.7mV |
| Retail Price | | | £175 |



Sansui AU-X111

SANSUI MISSION LTD, STONEHILL, HUNTINGDON,
CAMBS PE18 6ED. TEL: (0480) 52777



Sansui has weathered a storm of uncertainty in the last few months, though a tie-up with Mission has always been on the cards, particularly as both companies have financial links with Polly Peck. Now with a firmer footing in the UK, Sansui's range has been expanded to allow through new budget products like the AU-X111 amplifier. The light alloy fascia has been moulded to duplicate the sleek style of the company's costlier amps, but without the luxurious piano black finish, the '111 looks and feels every bit the poor relation.

Still, it's an unpretentious product, equipped with rotary controls for volume, balance, bass and treble, while a row of rather clanky keys selects any one of six inputs. There's room for MM only on the phono side but an additional CD Direct option enables this high-level input to bypass the remaining input selection, balance, loudness and tone circuitry.

Both the A and B speaker outlets must be switched from the front panel, an unfortunate concession that demands an excess of ribbon cabling within the amp. Adding further insult to injury, the '111 was the only amplifier in this test still equipped with cheap-and-nasty spring clip speaker terminals. Everyone else, it would seem, has finally learnt the lesson.

Lab Report

Cost-cutting is inevitable in a bargain-priced amp like this, yet Sansui's decision to use an integrated power amp (STK4151) instead of discrete devices has had no major consequence - technically at least. The 65-71W delivery into 40ohms is solid enough and the 8A of current quite generous, but the final output impedance of 0.2ohms is too high and confers an inadequate damping factor of 38.

Sansui's disc equalisation, based around the ubiquitous JRC op-amp, is a little irregular though the small +0.25dB bump around 40Hz is unlikely to be

audible. Channel balance is superb, by the way, while both noise (-87dB) and headroom (+29.6dB) are particularly impressive for this basic MM input.

Distortion is pretty low too, typically 0.004 per cent via CD and MM, though CCIR IMD increases very slightly through the disc stage.

Sound Quality

Though this amplifier possessed a fairly refined and detailed sound, it nonetheless failed to spark a particularly enthusiastic response from the panel. The CD input was certainly thinner and less substantial in approach than the accompanying MM stage. As a consequence the Swing Out Sister track appeared to lose an entire bottom octave of bass.

Odd this, for the disc input was altogether warmer, richer and fuller in balance. Its presentation of stereo detail was also all the more convincing, though it was still no match for the genuinely transparent and three-dimensional acoustic available from models costing but £10 more.

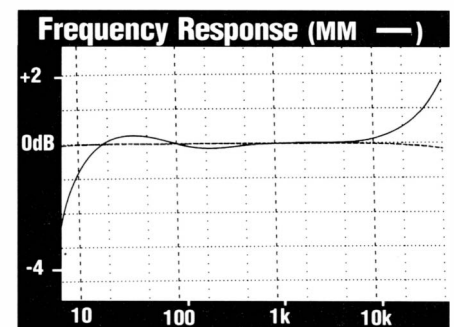
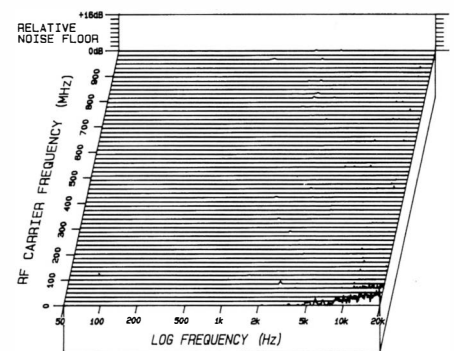
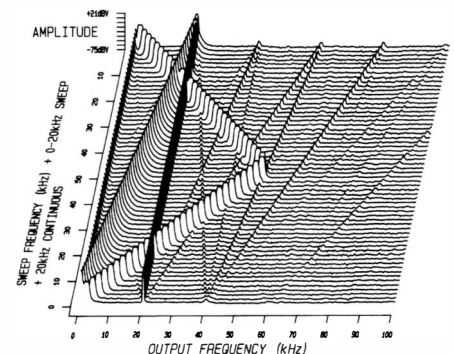
Yet its most damning trait concerned a certain superficiality or blandness, regardless of the input selected. In a purely technical sense, all the detail seemed to be there, but its inert, matter-of-fact delivery seemed bereft of any natural vitality. So, while the amplifier did not offend our listeners, neither did it succeed in stirring their stoney emotions!

Conclusion

Sansui has known success with budget amplifiers in the past and I see no reason why it should not return to its old form. Currently, and even at this knock-down price, the AU-X111 is not quite the stuff of which recommendations are born. Super value but, for the price of a CD or two, so much more is available from competing JVC, Pioneer and Rotel amplifiers.

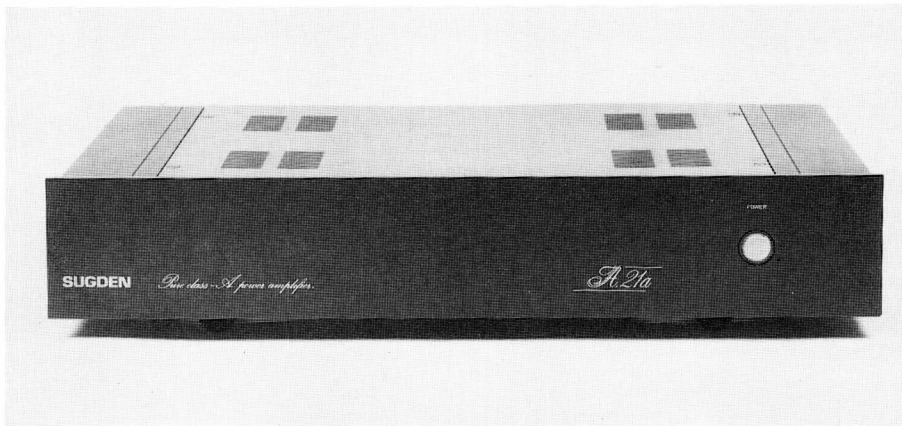
TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|-----------------------------|---------|-------|
| Maximum Continuous Power Output, 8ohms | 51.8W | 52.3W | 50.8W |
| 4ohms | 65.0W | 70.7W | 67.8W |
| Dynamic Headroom (1HF) | +1.3dB (71.2W) | | |
| Peak Current (5msec, 1% THD) | 8.1A | | |
| Output Impedance | 0.211ohms | | |
| Damping Factor | 37.9 | | |
| | CD/Aux | MM | |
| Stereo Separation (1kHz) | 62.7dB | 62.3dB | |
| (20kHz) | 37.9dB | 36.2dB | |
| Channel Balance (1kHz, -20dBV) | 0.14dB | 0.22dB | |
| (-60dBV) | 0.70dB | 0.85dB | |
| Total Harmonic Dist. (0dBW) | -87.9dB | -87.6dB | |
| (2/3 power) | -89.4dB | -90.2dB | |
| CCIR Intermod. Dist. (0dBW) | -95.9dB | -89.7dB | |
| (2/3 power) | -96.1dB | -91.1dB | |
| Noise (A wtd, 0dBW) | -80.9dB | -79.4dB | |
| (2/3 power) | -95.1dB | -87.2dB | |
| Residual noise (unwtd) | -80.5dB | -80.4dB | |
| Input Sensitivity (for 0dBW) | 27.1mV | 455uV | |
| (for full output) | 197.8mV | 3.30mV | |
| Disc Overload (20Hz) | | 16.2mV | |
| (1kHz) | | 150.6mV | |
| (20kHz) | | 1304mV | |
| (50kHz) | | 1695mV | |
| Tape Output Impedance | 9.03V (disc)/675ohms | | |
| Input loading | 53kohms/260pF 46kohms/200pF | | |
| Absolute Phase | Positive | | |
| DC offset, left/right | +4.8mV/+15.4mV | | |
| Retail Price | £99 | | |



Sugden A21a

J E SUGDEN & CO LTD, VALLEY WORKS, STATION LANE,
HECKMONDWIKE, WEST YORKS WF16 ONF. TEL: (0924) 404088



Hi-fi manufacturers come and go but J E Sugden & Co has been beaver away for donkey's years, seemingly unaffected by the trials of economic life. In fact, it produced its first class A amplifier wayback in 1964, an ancient relative of the A21a power amplifier reviewed here.

This is the smallest of its three power amps but the only model to be specified as 'Pure Class A' in operation. Its fluted heatsinks, mounted either side of the slim black case, certainly get very warm once the amp has been left to cook for an hour or two. The A21a will never get so hot as to scald but adequate ventilation is a must.

Sugden actually rates the A21a at 25W and indeed this figure is met on measurement, however, only the first 16W are truly 'Pure' class A with the remaining 2dB being squeezed out, presumably, in class AB. In common with other class A designs, the output of the A21a actually falls into lower impedances, consequently it's best suited to sensitive easy-to-drive speakers. The Snell Type III's used for our listening proved an ideal, if costly, partner.

Otherwise, there's not much to tell, the gold-plated phonos and luxurious 4mm binding posts reflecting the high overall standard of workmanship.

Lab Report

Wildly fluctuating levels of distortion are a feature of this design, interesting not only by virtue of its class A operation but also because the Sanken output stage is quasi-complementary! Yet it's the transition out of class A that heralds a huge switch from 0.0028 per cent to 0.036 per cent THD (at 1kHz) and from an IMD of 0.0025 per cent to 0.023 per cent - increases of ten times that must occur on a dynamic basis when handling signals.

All too often it's not the absolute per cent of distortion that matters but just how consistent this distortion is with signal level, so fluctuations of the order

witnessed here are likely to have some subjective influence. Sugden also indicates that THD is primarily 2nd order, though the 3D plot shows high levels of both 2nd and 3rd-order IMD within the audio band together with 2nd-6th orders in the ultrasonic region.

But there are high points too. The superb 121dB midband separation pays testament to the dual-mono construction while the wide 110dB A-wtd S/N ratio should ensure inky-black silences.

Sound Quality

Traditionally at least, the archetypal class A amplifier is a very sweet-sounding and mellifluous beast. Yet our panel thought the A21a not quite as rosy or lush as its class A specification might imply, even though we had not pushed its limited resources too hard. Certainly at moderate levels it does offer a gentle, easy-going balance that's still peppered with incisive detail should the occasion demand. But the dynamics of a full-bloodied orchestra are not sustained with equal ease.

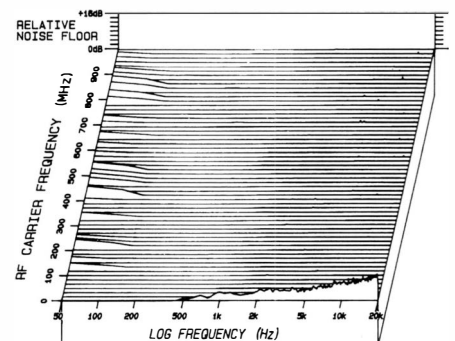
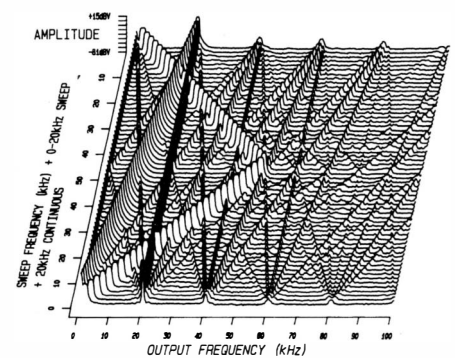
Our sax CD still sounded a little rough for instance, but there was no added glassiness or sharpness to the brassy timbre of the horn. Vocals were treated similarly, detailed but a little flat and unemotional. Used at sensible levels, it proved a difficult amp to fluster however, preserving complex mixes of strings, vocals and brass with impressive calm.

Conclusion

The A21a is certainly more 'class A' than many competing class A designs, but this is a luxury tempered by inefficiency, low power output and a marked increase in distortion near the limits of its range. Nevertheless, a sub-£400 price tag remains acceptable for a niche-amplifier of this type, a true thoroughbred that will undoubtedly attract newcomers to Sugden's dedicated band of followers.

TEST RESULTS

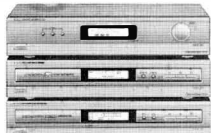
| | 20Hz | 1kHz | 20kHz |
|---|-----------------|---------|---------|
| Maximum Continuous Power Output, 8ohms | 19.7W | 24.6W | 22.9W |
| 4ohms | 12.8W | 16.2W | 15.4W |
| Dynamic Headroom (IHF) | +0.30dB (26.3W) | | |
| Peak Current (5msec, 1% THD) | 3.9A | | |
| Output Impedance | 0.252ohms | | |
| Damping Factor | 31.8 | | |
| Stereo Separation (0dBW) | 109.4dB | 121.3dB | 81.6dB |
| Total Harmonic Dist. (0dBW) | -77.8dB | -91.2dB | -81.0dB |
| (2/3 power) | -53.1dB | -69.0dB | -64.0dB |
| CCIR Intermod. Dist. (0dBW) (2/3 power) | -86.1dB | | |
| | -66.7dB | | |
| Noise (A wtd, 20Hz-20kHz) 0dBW | -100.1dB | | |
| (A wtd, 20Hz-20kHz) 2/3 power | -110.4dB | | |
| Residual noise (unwtd) | -74.2dBV | | |
| Input Sensitivity (for 0dBW) (for full output) | 131mV | | |
| | 651.3mV | | |
| Absolute Phase | Positive | | |
| Input loading | 27kohms | | |
| DC offset, left/right | unsteady | | |
| Retail Price | £395 | | |



BILLY VEE SOUND SYSTEMS

THE S.E. LONDON DENON CENTRE

THE NEW NS1 DENON LIFESTYLE SYSTEM OFFERS THE CONVENIENCE YOU WANT WITH SOUND QUALITY ASSOCIATED WITH DENON 50WPC AMPLIFIER, 30 PRES5C1 TUNER AND PROGRAMMABLE CD PLAYER WORK AS ONE WITH A TOTAL COMMAND REMOTE CONTROL. BOOK YOUR AUDITION NOW OR RING OUR SALES NUMBERS FOR A FULL COLOUR BROCHURE.



THE THREE FULLY REMOTE SLIMLINE UNITS OF THE NS1 FIT SNUGLY INTO THE SOUND ORGANISATION STAK TABLE WHICH HAS THE ADVANTAGE OF ADDITIONAL UNITS THAT CAN BE ADDED LATER. THIS UNIT IS:

**ONLY
£799.00**
(INC. FREE RACK OR INTEREST FREE CREDIT).

FREE (WORTH £94) OR INTEREST FREE CREDIT (£79.90 DEPOSIT PLUS 9 x £79.80 BALANCE)

THE NEW DENON DTR 3000 D.A.T. PLAYER

D.A.T. OFFERS THE CONVENIENCE OF C.D. WITH THE FLEXIBILITY OF CASSETTE. AT BILLY VEE WE HAVE THE NEW FIRST AVAILABLE D.A.T. PLAYERS ON DEM FEATURING:



DIRECT RECORDING FROM C.D. VIA DIGITAL OR OPTICAL OUTPUTS, STANDARD ANALOGUE RECORDING. FAST REWIND F/FORWARD, FAST TRACK ACCESS, REPEAT, I.D. INPUT, 20 BIT CONVERTER AND HISS FREE MUSIC.

**ONLY
£799.00**
(INC. 5 FREE D120 TAPES WORTH £45 OR INTEREST FREE CREDIT).

INC. 5 FREE D120 TAPES OR INTEREST FREE (£79.90 DEPOSIT PLUS 9 x £79.90 BALANCE.)

★ INTEREST FREE CREDIT IS AVAILABLE TO PERSONAL SHOP CALLERS ONLY ★
ALL PRICES CORRECT AT PRESS. E&OE.

**10% DEPOSIT 0% A.P.R. 6 or 9 MONTHS
£1000 INTEREST FREE CREDIT AVAILABLE
TO PERSONAL CALLERS TO OUR SHOP WITH I.D.
RING OR WRITE FOR DETAILS**

THE NEW AIWA HDS-1 PORTABLE D.A.T. PLAYER

OFFERING THE PERFORMANCE OF A FULL SIZE UNIT FROM A CONVENIENT PORTABLE.



THIS AMAZING HDS UNIT OFFERS DIRECT C.D. RECORDING, DETACHABLE D/A CONVERTER, I.D. INPUT FAST TRACK ACCESS. CAR HOME PORTABLE USE, MAINS BATTERY SUPPLY, REMOTE CONTROL, AND HISS FREE MUSIC. AVAILABLE — ON DEM NOW!

**ONLY
£599.00**
(INC. 4 FREE DAR D120 TAPES OR INTEREST FREE CREDIT).

INC. 4 FREE DAR 120 TAPES OR INTEREST FREE. (£59.90 DEPOSIT PLUS 9 x £59.90 BALANCE)

EX DEM/DISPLAY CLEARANCE BARGAINS

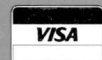
SOME BOXED AS NEW WITH FULL GUARANTEE. INTEREST FREE CANNOT BE OFFERED ON THESE PRODUCTS BUT MAIL ORDER NEXT DAY IS AVAILABLE AT £5.00 PER ITEM

| | WAS | NOW | | WAS | NOW |
|----------------------------------|----------|---------|----------------------------|----------|---------|
| AIWA ADF400 C/DECK..... | £129.00 | £99.00 | LINN LK2 POWER AMP..... | £695.00 | £350.00 |
| AIWA ADF500 C/DECK..... | £149.00 | £115.00 | MARANTZ CD50..... | £309.00 | £199.00 |
| AIWA ADF700 C/DECK..... | £199.00 | £145.00 | MARANTZ S D60 C/DECK..... | £349.00 | £245.00 |
| AIWA ADWX999 DOUBLE..... | £299.00 | £199.00 | MARANTZ C.D. 94/2 C.D..... | £899.00 | £659.00 |
| DENON DCD860 C.D..... | £249.00 | £189.00 | NAIM 72 PRE-AMP..... | £572.00 | £425.00 |
| DENON DCD960 C.D..... | £299.00 | £225.00 | NAIM HI-CAP..... | £529.00 | £395.00 |
| DENON DCD660 C.D..... | £199.00 | £149.00 | NAIM SBL SPKRS..... | £1445.00 | £795.00 |
| | | | (INC. PASSIVE CROSSOVER) | | |
| DENON TU660L TUNER..... | £179.00 | £135.00 | NAIM IBL SPKRS..... | £799.00 | £595.00 |
| EXPOSURE II PRE-AMP..... | £599.00 | £445.00 | REGA ELA SPEAKERS..... | £405.00 | £299.00 |
| EXPOSURE 85 POWER AMP..... | £549.00 | £399.00 | RADFORD W22 C.D..... | £1098.00 | £799.00 |
| EXPOSURE 9 PRO POWER SUPPLY..... | £1190.00 | £890.00 | RADFORD D/A CONVERTER..... | £895.00 | £625.00 |
| CREEK 4040/2 AMP..... | £179.00 | £135.00 | TANNOY DC2000 SPKR..... | £299.00 | £219.00 |
| CREEK T40 TUNER..... | £199.00 | £145.00 | KEF C15(W) SPKRS..... | £119.00 | £85.00 |



WE ARE AT:

248 LEE HIGH ROAD, LEWISHAM, LONDON SE13



PHONE: 081-318 5755 OR 081-852 1321. Mon-Sat. 10.00am - 6.30pm (Closed Thursday)

Technics SU-V900

PANASONIC UK LTD, PANASONIC HOUSE, WILLOUGHBY ROAD, BRACKNELL, BERKS. TEL: (0344) 862444



We always like to include at least one monster amp in our *Choice* tests and on this occasion it was Technics which came up trumps. The *SU-V900* is big. Very big. In many respects it's a comprehensive analogue version of the company's *SU-MA10* 'digital' amplifier, featuring high quality MM and MC phono circuits instead of D/A converter. Five alternative line inputs may either be selected or re-routed via the independent rec-out control, while the bass and treble tone controls may be defeated at will.

In fact the entire range of facilities, including balance, loudness and mode selectors can be bypassed by opting for 'Power Amp Direct', a straight-line connection that feeds directly from the volume control to the independent L/R power amps. Two sets of speaker outlets may be used independently or in unison, the latter providing an easy route for bi-wiring. The binding posts are particularly chunky, in keeping with the stature of this bronze behemoth! Needless to say, the quality and execution of all its controls in addition to the general standard of build are all first class.

Lab Report

Considering the vast bulk of this amplifier, it is no real powerhouse. Sure, the 125W into 8ohms and 187W into 4ohms seem beefy enough, but at lower impedances still the amp's current output is restricted to just 9A by over-zealous protection circuitry. This aside, the technical performance of the *SU-V900* is beyond reproach. There's no RF IMD to worry about, channel balance is superb and noise a vanishingly low -102dB via CD and -92dB via MM disc.

So, too, are the MM and MC disc responses utterly flat between 20Hz and 20kHz just as the overload margins reach +31.7dB and +31.3dB respectively. There is some loss of headroom at 20kHz but not

sufficient to compromise either the THD (typically 0.001 per cent) or CCIR IMD (typically 0.0013 per cent). The 3D plot betrays a hint of innocuous 2nd-order distortion.

Sound Quality

Unaware of the hulking presence that lay behind them, our panel were universally impressed by this amp's very neutral and even-handed demeanour which was free of band-limiting or emphasis. The remarkably quiet phono stage encouraged music to burst from an inky black silence, so though the sense of space was not as pronounced as with the *HK6500*, for instance, its resolution of low-level detail was certainly more convincing. Bass sounds were not soft but neither were they as crisp as those provided by either the Pioneer or Mission. Overall, the *SU-V900* was placed in the top four or five as far as its disc stage was concerned.

A similarly transparent and airy acoustic was enjoyed via the CD input. There was a tendency for it to drag its heels very slightly in the bass and perhaps there wasn't quite the dynamic contrast we had come to expect.

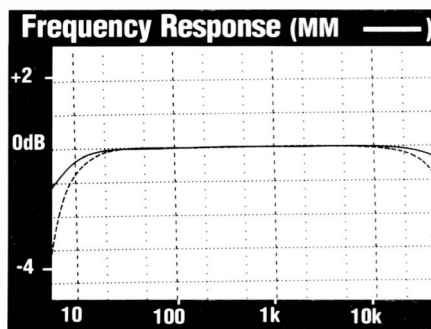
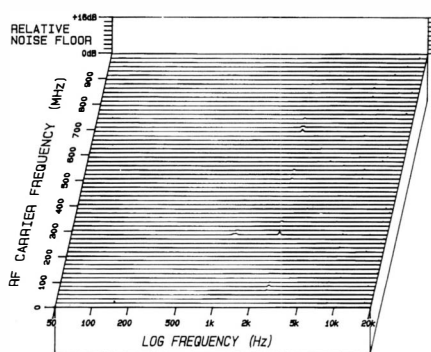
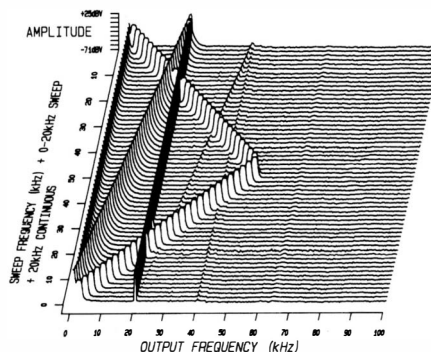
Yet individual instruments were supremely separated from the mix while still maintaining a tightly-knit sense of integration. Once again this stemmed from the amp's faithful portrayal of low-level music detail.

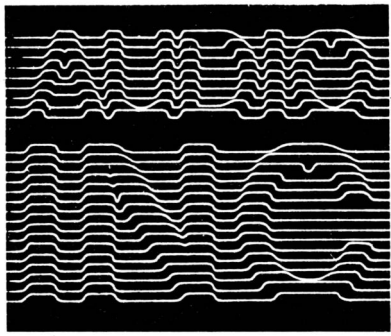
Conclusion

This is a physical brute of an amplifier but one that's not short on finesse. Certainly, Technics is offering a broad range of facilities on the *SU-V900* without significantly undermining its sonic potential, though there is still the faintest electronic 'tinge' to its music-making. At this price, a formal recommendation is not quite justified, but the *SU-V900* remains well worth considering.

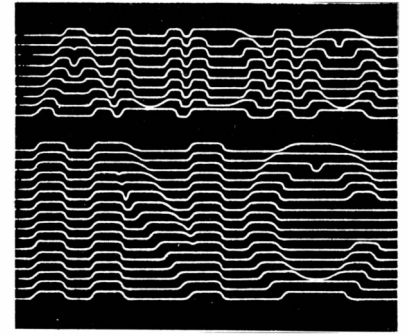
TEST RESULTS

| | 20Hz | 1kHz | 20kHz |
|--|-------------------------------------|----------|----------|
| Maximum Continuous Power Output, 8ohms | 114.3W | 125.3W | 121.2W |
| 4ohms | 179.1W | 187.2W | 189.9W |
| Dynamic Headroom (IHF) | +1.5dB (176.0W) | | |
| Peak Current (5msec, 1% THD) | 9.0A | | |
| Output Impedance | 0.071ohms | | |
| Damping Factor | 113.1 | | |
| | CD/Aux | MM | MC |
| Stereo Separation (1kHz) | 62.8dB | 64.2dB | 64.9dB |
| (20kHz) | 43.3dB | 42.1dB | 42.0dB |
| Channel Balance | | | |
| (1kHz, -20dBV) | 0.11dB | 0.13dB | 0.14dB |
| (-60dBV) | 0.48dB | 0.50dB | 0.52dB |
| Total Harmonic Dist. | | | |
| (0dBV) | -99.9dB | -101.3dB | -102.8dB |
| (2/3 power) | -98.0dB | -99.9dB | -99.1dB |
| CCIR Intermod. Dist. | | | |
| (0dBV) | -91.9dB | -92.2dB | -92.3dB |
| (2/3 power) | -96.1dB | -91.4dB | -91.6dB |
| Noise (A wtd, 0dBV) | -93.4dB | -88.2dB | -76.6dB |
| (2/3 power) | -101.5dB | -91.7dB | -76.6dB |
| Residual noise (unwtd) | -82.9dBV | -82.8dBV | -82.8dBV |
| Input Sensitivity | | | |
| (for 0dBV) | 9.4mV | 331uV | 31.4uV |
| (for full output) | 219.7mV | 3.71mV | 348uV |
| Disc Overload (20Hz) | 20.7mV | 2.0mV | |
| (1kHz) | 193.5mV | 18.4mV | |
| (20kHz) | 151.4mV | 135.4mV | |
| (50kHz) | 114.5mV | 138.8mV | |
| Tape Output/Impedance | 11.3V (disc)/1.05kohms | | |
| Input loading | 57kohms/500pF 45kohms/400pF 220ohms | | |
| Absolute Phase | Positive | | |
| DC offset, left/right | +1.2mV/+0.8mV | | |
| Retail Price | £500 | | |





JUST IN CASE YOU WANT THE BEST IN ANALOGUE



VPI = TNT TURNTABLE, EMINENT TECHNOLOGY ET2 TONEARM,
ORTOFON MC5000.

HW19 MK3 TURNTABLE + SME TONEARMS

KUZMA = STABI TURNTABLE WITH STOGI TONEARMS

MICHELL = GYRODEC AND SYNCRO WITH REGA TONEARMS

ALPHASON = SONATA, HR 100 MCS, ATLAS, MC3000

ALSO STOCKISTS OF

ACOUSTIC ENERGY, CONRAD JOHNSON, CROFT, J.P.W., LINX, PROAC, ROTEL,
RUARK, SD ACOUSTICS, MICRO MEGA, THORENS, PINK TRIANGLE, ROTHWELL,
SONICLINK, AUDIO INNOVATIONS, STRAIGHTWIRE.

44 WALTON ROAD, EAST MOLESEY, SURREY (NEAR HAMPTON COURT)
081-941 4234

EQUINOX

At Equinox we believe that you should not listen to hi-fi.

Strange philosophy from a manufacturer of high end audio products,
or simply a love of music?

If you really want to hear a hi-fi system, thats fine.

If you want to hear music reproduced in the manner intended by the
musician, audition the following products :-

Moving Coil Head Amplifier

Line Level Pre Amplifier

Stereo Power Amplifier

TimeAlign Interconnect and Speaker Cables

All products are designed and hand made in England, with emphasis
not only on sonic performance, but also on pride of ownership.

Build quality is intended to make our competitors wince, and all
products carry a three year guarantee.

To find your nearest dealer, where you will not be able to hear our
products, telephone 0327 704231

Conclusions, Best Buys and Recommendations

Paul Miller discusses which are the best and which are the rest in this month's amplifier reviews.

This group of amplifiers contained its fair share of surprises, both good and bad. One trend that has emerged is a greater awareness of Radio Frequency Interference and its implications for amplifier performance. Just take a look at how much 'cleaner' the RF IMD plots are compared to those of a year or two ago.

Cleaned-up

To some extent this has had the effect of unifying amplifier quality, conferring similarities in tonal balance and presentation that were remarked upon time after time by the members of the panel. Yet this sudden clearing-up of RF IMD is not the result of wholesale changes in circuit design, changes that might genuinely reduce the electronics' susceptibility to RF noise.

Instead, it's simply a reflection of the stiffer RF filters being employed, the tightening-up of specs - a direct consequence of tougher European rules on interference. Unfortunately, the filters themselves can introduce colorations of their own, distortions that are quite distinct from the business of banishing RF. Damn sound quality - welcome to the single European market!

Back home, the Alphason *Apollo* blew its fuses with monotonous regularity during the measurement programme, the Kelvin developed a parasitic RF resonance, while our first samples of both the Rational Audio and Sugden amps decided to pop their clogs midway through the listening session.

All of these products are very specialised and will appeal to certain niche-markets, yet Alphason will

need to consolidate its design before launching it on the great European consumer. Similarly, Kelvin must work on its latest modification if it is to restore the *Integrated's* status.

The Rational Audio amp is simply wacky, but I've no doubt it will work wonders in sympathetic - very sympathetic - systems. Just watch the MM disc loading. As for Sugden, well by all accounts this *A21a* was a trifle under-biased, so perhaps they might care to re-submit a genuine class A 25-watter and we'll try again.

So, by hook or by crook we ended up with a grand total of nine Recommendations (ten if you count Arcam's *D110* preamp) and two Best Buys. Not bad from a group totalling 22, though it's still worth remembering that all the crucial decisions were made by a jury of 'blind' listeners.

Recommendations and Best Buys

There were no real screamers in this test, but those models from Cambridge, Aiwa, Sansui, Arcam (*D120* power amp) and Entire Sound fared least well in the overall scheme of things. They simply failed to capture the mood of the marketplace.

Talking of which, it's amplifiers like the JVC *AX-A3*, a very smooth if not overtly dynamic design, that act as guide for performance in the budget category. This is a sensible no-frills model from JVC and one that should earn them new-found respect.

Between £150-£200, the scene is cluttered with various quality designs including the Creek *4040* which, in *Series 3* form, offers higher overload margins and an altogether tidier, refined

sound. Compared to the Denon *PMA-350* and Marantz *PM-30SE*, it looks a little expensive, however. And just look at the build quality that's available for £10 more in Kenwood's *KA-5020!*

The '350 is a rich and warm-sounding amp that'll entice you with its beguiling rather than forceful presentation. Just ignore the hype put out by Denon and let the amp speak for itself. But if you're looking for something with a little more blood 'n' guts then try the *PM-30SE* instead.

This leaves us with the Pioneer *A-300* as our remaining sub-£200 Recommendation, though not without qualification for LP lovers. Above £300, three utterly contrasting designs offer themselves for Recommendation. The enigmatic Lecson *Quattra* will appeal to the surround-sound enthusiast with its four-channel operation, while the average audiophile could not fail to be delighted with its magnetic and utterly three-dimensional sound.

Harman Kardon's *HK6500*, in common with the Mission *Cyrus Two*, will offer a drier and more substantial sound with a greater tolerance of insensitive speakers. The former is the more open, airy and sparkling of the two, while the latter competes with a tremendously punchy, confident sound via disc.

Nevertheless, under the shadow of Mission's superb *Cyrus One*, the *Cyrus Two* is less the benchmark. HK's *6500*, by contrast, is far and away the star of its current range and must surely re-establish them as front-runners in amp design. Tucked in amongst a group of this size you'd expect to find at least one very special amplifier. In fact, there were two amps that stood out from

the pack and earned themselves a Best Buy into the bargain.

At just £150, the Dual *CV5600* sounds dangerously close to Rotel's *RA-820AX*, a coincidence that seems less fanciful when you realise that Rotel actually builds it! It's a rich and colourful amplifier that's at its happiest reproducing the vibrant string tone of guitar or violin. Bigger and costlier amplifiers will have a better command of the deepest bass notes, but only a handful will counter its persuasive midband.

Lay waste

One of the few that will match the *CV5600* is Pioneer's *A-400*, but then this devastating amplifier will lay waste to most contenders up to £500 or more! It is certainly more than a beefed-up *A-300*, for there is a cohesiveness, a unification of ideas within this amplifier that has, perhaps more by luck than design, snapped into focus.

And that crystalline focus brings forth the most captivating music, fierce in its resolution of technical detail but never less than warm-hearted in its communication of the music's natural emotion. It will be interesting to see just how, not only the established specialists, but also the major Japanese manufacturers will respond to this most unexpected of gauntlets.

To conclude, I should like to thank those companies who submitted amplifiers for inclusion in this gruelling test, and gratefully acknowledge the help provided by John Bamford (*Hi-Fi Choice*), Keith Haddock (Harman UK), Mike Martindale (Arcam), Tony Mills (Rotel) and Guy Sargeant (Audio by Design) during the listening tests.

Tech Talk

Paul Miller explains the test procedures used in the amplifier reviews. Be warned - definitely not for beginners!

In keeping with the *Choice* rationale, every one of the amplifiers was auditioned under blind conditions. Both CD and vinyl sources were pressed into service with a range of software chosen for its ability to reveal different aspects of an amplifier's subjective performance.

The equipment included an Oracle *Delphi IV/SME Series IV/vdH MC Two* (analogue) and modified TEAC *D-10* CD transport feeding a 7350-equipped *PDM One* from Deltec.

During the listening tests it was most enlightening to hear just how much of the PDM's qualities were retained or masked by the amplifier in question. Snell *Type III* speakers were pressed into service for the group listening sessions, together with lengths of Gore-Tex *Black Sixteen* cable (manufacturer's own-brand cables were used if so instructed).

The listening programme included excerpts from: Radka Toneff and Steve Dobrogosz's *Fairytales* (Odin CD); Sadao Watanabe's *Dedicated to Charlie Parker* (Denon CD); Swing Out Sister's *Another Non-stop Sister* (Mercury CD); Marty Paich Big Band's *The New York Scene* (Discovery vinyl disc); Sting's *Nothing Like the Sun* (A&M vinyl disc); Rachmaninov's *Symphonic Dances* (Athena vinyl disc).

Measurement Programme

The test programme includes both standard IHF A202 measurements together with more advanced techniques made available by the IEEE-controlled digital test equipment.

Power Output, Dynamic Headroom and Peak Current
Quoted in good old fashioned Watts, this refers to the maximum output voltage of the amplifier into eight and 4ohm loads, one channel

driven to one per cent THD. The IHF-A-202 dynamic headroom test employs a gated 1kHz signal, 20-cycles on/480 cycles off, and refers to a maximum of 1 per cent THD into 8ohms relative to the continuous power available into that same load.

For the first time, the peak current available from an amplifier has been measured using a 5msec gated 1kHz signal into 1ohm, up to a limit of 1 per cent THD. Previous peak current measurements have not taken account of distortion, as evidenced by the asymmetric +/- values quoted. The use of a fixed THD benchmark enables all peak current values to be compared directly.

Separation, THD, IMD, noise and sensitivity

All input sensitivities are measured with respect to an output of 0dBW (=1W) and full power at 1kHz for the integrated and power amplifiers, or 1V = 0dBV out (6dB higher than IHF) in the case of the preamplifiers. Noise was measured with respect to the IHF input levels of 500uV (MC), 5mV (MM) and 0.5V (line), input shorted, A-wtd and assessed as the true RMS figure of 20 3rd-octave averages.

Disc overload is quoted in mV in the table so that this may easily be related to the peak output of a cartridge, while headroom is discussed in the text as a dB figure relative to these same IHF levels. Separation was measured some +20dB above the nominal sensitivity as is the THD of each amp. For CCIR IMD the respective peak composite (19kHz + 20kHz) levels were 10mV (MC), 100mV (MM) and 2V (line).

Broad-Band Radio Frequency Intermodulation Test

In general terms this test reveals just how sensitive an amplifier is to spurious Radio Frequency noise, whether

introduced directly or indirectly.

Conventional measurements examine the performance of the amplifier under closed-loop conditions where many of the inherent circuit non-linearities are compensated for by the feedback network. By contrast, the RF test probes the linearity of the amplifier under open-loop conditions where it is both non-linear and uncompensated.

A precision RF signal generator is employed to produce an RF carrier signal at 20mVp-p, modulated to a depth of 100 per cent using an external pseudo-random noise source. The resulting non-correlated AM/RF signal is then ramped between 1MHz-1GHz (1000MHz - now covering TV and satellite baseband transmissions) by controlling the generator through an IEEE interface BUS and using a dedicated programme developed in this laboratory.

Once connected to the amplifier (via the line or CD-direct input), any subsequent demodulation/intermodulation between the sweeping carrier and its pseudo-random sidebands results in a non-correlated noise appearing at audio frequencies at the output of the amplifier.

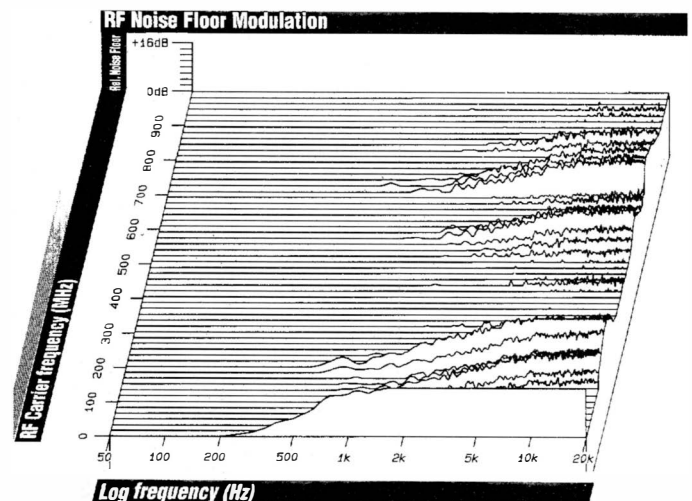
This therefore represents a change in the noise floor of

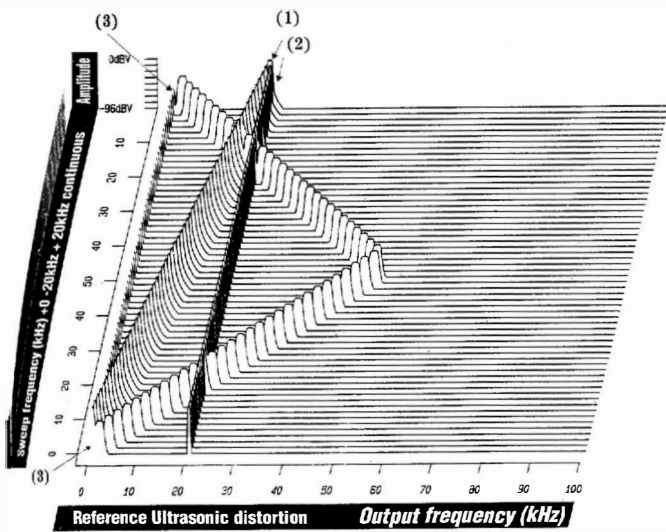
the amplifier over a discrete portion of its frequency range. Such a random fluctuation may not necessarily be heard directly but simply makes it more difficult for the ear or brain to distinguish subtle dynamic inflections in the music signal itself.

By comparing the steady-state noise-floor of the amplifier with its noise floor under the influence of RF IMD, a measure of the difference and therefore the actual effect of RF IMD can be deduced. It is this change or difference in the noise floor that is depicted on the 3D plots.

The depth or z-axis is calibrated in steps of 100MHz and denotes the changing frequency of the RF carrier. By contrast, the x-axis is restricted solely to the audio band (in this case 50Hz-20kHz) and is calibrated across a log, rather than linear, scale. The vertical or y-axis gives an indication of relative amplitude and is scaled in steps of 2dB over a maximum range of +16dB.

Clearly, any demodulated RF noise that causes a change in the noise floor greater than 16dB will give rise to a plateau effect on the plot. This situation is clear enough on the example plot which demonstrates an amplifier's undue sensitivity to RF noise centred on bands at 140, 200,





575, 730 and 850MHz.

If an amplifier were singularly insensitive to RF noise then this plot of relative change would appear as a series of straight, unperturbed lines.

Ultrasonic Distortion Test

Revised some 12 months ago, this is a particularly revealing test that highlights the interaction of high and moderate-level signals in the context of harmonic and intermodulation distortions (called 'routes' in the text) caused by such mechanisms as slew-limiting or the progressive reduction of feedback, the latter revealing an increase in open-loop non-linearities. It is not a knitting pattern, as one irreverent member of *Choice* would have you believe!

Three driving signals are employed, the 0-20kHz sweep (1 = F_{0-20k}) and continuous 20kHz tone (2 = F_{20k}) raising the amplifier to 2/3 voltage output into a 4ohm load while the 0-50kHz-0Hz reversed sweep (3 = $F_{0-50k-0}$) tracks at a level some -24dB below this. For integrated amps a pre-equalised composite signal was used for either the MC or MM vinyl disc inputs (ref. 20mV and 2mV at 1kHz respectively). Strictly speaking, an amplifier should be treated as a voltage source so each plot is individually calibrated in dBV (0dBV = 1V at 4ohms).

These sweeps were chosen to represent the kind of HF and ultrasonic signals likely to be handled by an amplifier in normal use. The ultrasonic spurious generated by CD players is a well-documented example, but it is less widely appreciated that the 20-

50kHz band noise from a vinyl disc or FM tuner can persist at levels only 10 to 20dB lower than peak signals in the audio band.

This is one reason why I place such store in disc overload margins (which generally fall relative to the excess gain required with increasing frequency) and why such measurements are now taken as high as 50kHz.

That aside, certain of these ultrasonic distortions will introduce IM products within the audio band of the amplifier - a point of particular interest with disc stages whereupon the IM routes will actually increase in level with decreasing frequency as a function of the RIAA characteristic.

The most obvious harmonic products are determined by multiples of the F_{0-20k} sweep (1) (given by

4,5) and the F_{20k} tone (2) (given by 6,7). The remaining distortions shown on the 3D are produced by intermodulation between either or all of (1), (2) and (3) and (1) together with the harmonics of (2), ie (6) and (7).

Directly audible IM distortions include the difference products $F_{20k} - yF_{0-20k}$ [$y = 1,2$] given by (8) and (9) and $2F_{20k} - 2F_{0-20k}$ given by (10). Higher-order difference IM distortions associated with multiples of (2) and (1) will also wend their way directly into the audio band.

This example plot shows a variety of basic summation IM routes such as $F_{20k} + yF_{0-20k}$ [$y = 1,2,3$] given by (11,12 and 13) together with higher-order secondary summation IMD such as $2F_{20k} + yF_{0-20k}$ [$y = 1,2,3$] and $3F_{20k} + yF_{0-20k}$ [$y = 1,2,3,4$]. These are marked as (14)-(16) and (17)-(20) respectively. Extremely high-order routes such as $4F_{20k} + yF_{0-20k}$ [$y = 1,2,3$], (21)-(23) are also visible.

Of course, there are the interactions between (3) and (1) and (2) to consider. Three summation IM routes are clearly visible: $F_{0-50k-0} + F_{0-20k}$ (24), $F_{0-50k-0} + F_{20k}$ (25) and $F_{0-50k-0} + F_{0-20k} + F_{20k}$ (26)!

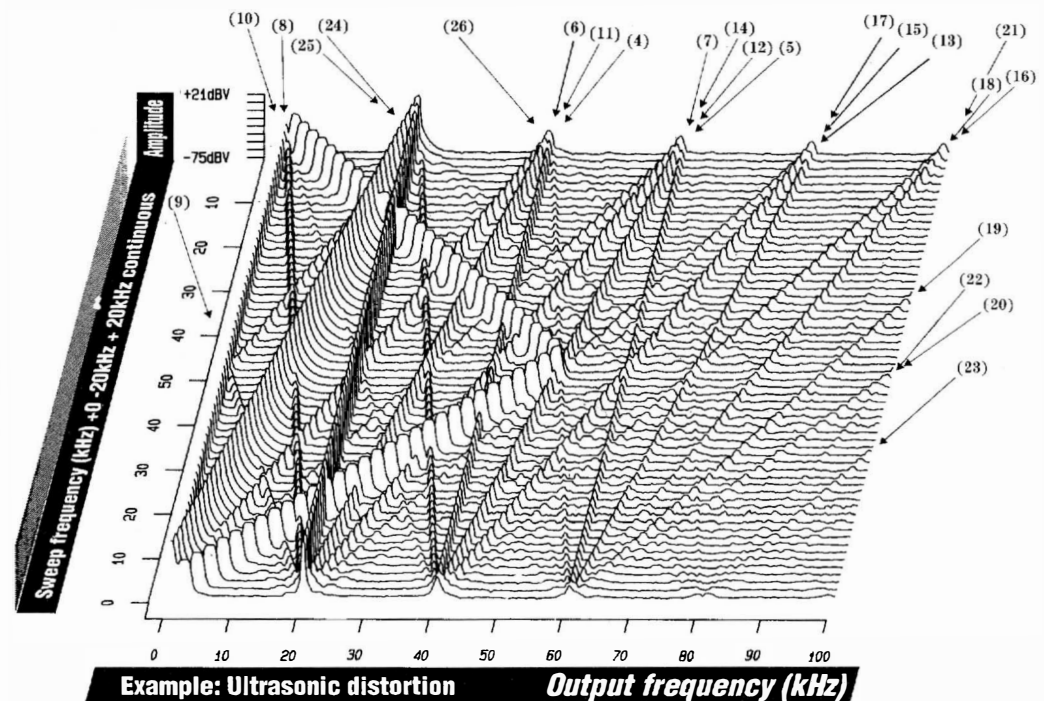
In general the presence of 2nd-order in-band IMD products seems to encourage a warmer though softer and richer sound quality, particularly if these distortions arise in the disc stage. The equivalent 3rd and

higher-order IMD mechanisms introduce a harder and less beguiling character.

A word of warning: do not use these plots as some sort of guide to the absolute quality of the amplifiers because this is simply not the case. Any distortion mechanism represented on the plot will have some subjective consequence. Conversely, just because a peculiar coloration or distortion is heard, this does not mean it will necessarily be manifest on the 3D plot. This test remains but one piece in a very complex jigsaw and the results must be viewed in the light of those obtained via the RF IMD test.

The combination of Ultrasonic Distortion and RF IMD plots can provide a valuable indication both of the amplifier's subjective performance and its likely compatibility with other audio equipment, particularly CD players. An amplifier that gives rise to a 'clean' Ultrasonic plot but suffers RF demodulation may well sound coarse or muddled as a result. Conversely, a relatively constant carpet of innocuous closed-loop distortions can effectively 'mask' the fatiguing effects of RF IMD.

Taken together, the two plots give more insight than ever before into the potential sound quality of an amplifier.





HANDS ON

the latest camcorders and stereo video
at Britain's Biggest Ever
Video Equipment Spectacular

■ The mightiest display of home video and audio visual equipment under one roof — in a great new venue that's *three times* the size of last year's big event! New pocket camcorders. Nicam stereo VCR and TV. Seminars. Entertainment. And loads more. See, hear and be amazed by the sound of tomorrow's hi-fi on video. The Video Show — for anyone who's serious about sound on vision.

BUY FROM THE

Tecno Show Shop

Come along and trade in your old equipment. Plus £1 off admission tickets when you buy in advance from Tecno

SEMINARS ■

ENTERTAINMENT

Dazzling displays and help from Panasonic, Sony, JVC, Ferguson, Canon, Hitachi and many many more

SECOND GREAT YEAR

THE
**VIDEO
SHOW**
1991

THE

Sponsored by What Video and Camcorder User

VIDEO SHOW

BUSINESS DESIGN CENTRE ISLINGTON LONDON N1

Thurs Feb 28 — March 3 1991 10-6pm Adm £3.50. Under 14 £2.50

Reader Offers

Improve the sound of your hi-fi system with these top quality LC-OFC interconnects and PC-OCC speaker cables, available to Hi-Fi Choice readers at discount prices

Furukawa Speaker Cables

Furukawa speaker cables are manufactured from PC-OCC, better known to its friends as Pure Copper by Ohno Continuous Casting. This means that the single crystal copper conductors have virtually no grain, and therefore no grain boundary to impede the flow of signals. The speaker cables are available in a choice of terminations, either banana plugs, spades, pins or a combination of them. All terminations are gold plated and attached using a solderless connection to the cable.

| | |
|--|---------|
| FS-2T14 Flatcap per 1m pair | £33.00 |
| <i>Add £9.00 per stereo metre for other lengths</i> | |
| FS-2F09 per 1m pair | £36.00 |
| <i>Add £12.00 per stereo metre for other lengths</i> | |
| FS-2T20F per 1m pair | £38.00 |
| <i>Add £14.00 per stereo metre for other lengths</i> | |
| FS-2T30F Flatcap per 1m pair | £48.00 |
| <i>Add £24.00 per stereo metre for other lengths</i> | |
| FS-2T35 per 1m pair | £50.00 |
| <i>Add £26.00 per stereo metre for other lengths</i> | |
| FS-2T55P Flatcap per 1m pair | £69.00 |
| <i>Add £45.00 per stereo metre for other lengths</i> | |
| FS-2T15S solid core per 1m pair | £124.00 |
| <i>Add £100 per stereo metre for other lengths</i> | |

Please state termination required when ordering.

Furukawa Interconnect Cables

Furukawa interconnect cables are made of PC-OCC copper and come with hermetically sealed gold plated copper RCA phono plugs as standard. Two types of cable are available, the FV1010 and the FD1010. Both are unbalanced digital interconnects, the FV1010 designed for video recorders or between CD players and separate DACs, and the FD1010 is for use between a CD player and amplifier. The FA2010 is a balanced analogue interconnect for use between pre and power amps.

| | |
|----------------------------|--------|
| FV1010 per 1m single | £42.50 |
| FD1010 per 1m pair | £75 |
| FA2010 per 1m pair | £80 |

A plastic optical fibre interconnect is also available, priced at £33.50 for a 1 metre length terminated with TOSLINK plugs.

Yfere Interconnect Cables

Multi purpose CD or analogue interconnects with copper, gold plated patented RCA plugs.

| | |
|---|-----|
| Twin per 1m pair | £50 |
| <i>Add £10 per metre for longer lengths</i> | |
| Quad per 1m pair | £80 |
| <i>Add £20 per metre for longer lengths</i> | |

CD Xtracts

Since we gave away a small pack of CD Xtracts free with our October issue, the Hi-Fi Choice office has been inundated with 'phone calls from readers asking where they could buy some more. Thanks to an exclusive deal with the manufacturer,

To order any item from this page, simply fill in the order form (right)



Design Logic, CD Xtracts are now available in packs of ten from our mail order department.

Please send me* packs of CD Xtracts @ **£2.99** each
 (* Insert quantity required. Each pack contains 10.)
 Please add **50 pence** postage & packing per order.

TO ORDER CABLES

Please send me the following interconnect/speaker cables

Cable type

Length.....(m)

Termination required

Cost £

I enclose cheque / PO made payable to Dennis Publishing for £.....

Please charge my Mastercard (Access) * / Visa *
 (* delete as appropriate)

Credit card number

Expiry date

Signature

Name

Address

.....

.....

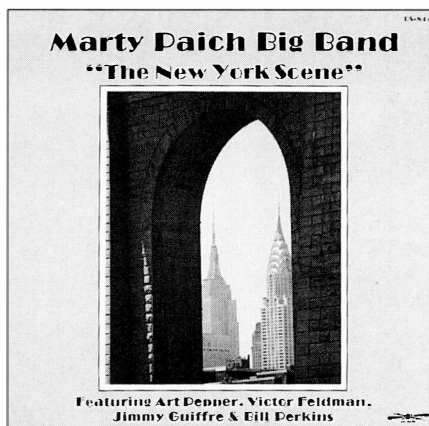
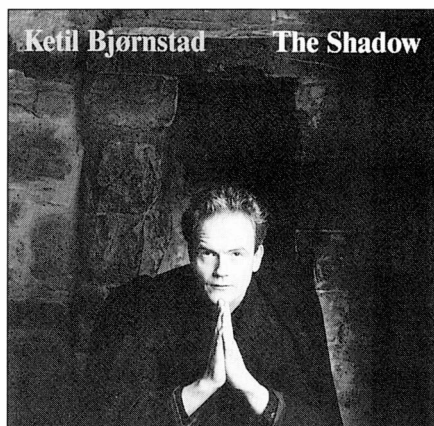
..... Postcode

* Offer available to UK readers only

Please send order form with payment to:
Hi-Fi Choice Mail Order, PO Box 320, London N21 2NB.

Audiophile Recordings

Our mail-order service allows Hi-Fi Choice readers to buy some of the world's best audiophile records and CDs.



As top-quality 'audiophile' recordings seem to be becoming more and more difficult to find in High Street record shops, *Hi-Fi Choice* is making a determined effort to source some of the best recordings from around the world and make them available to readers by mail order.

You might stumble across one or two of these records in some specialist record shops, but for the most part these records and/or CDs are not readily available in the UK. You certainly won't find them in your local record store! We have already added many exciting discs from specialist American record labels such as Reference, Wilson and Sheffield - and we expect our catalogue of LPs and CDs to expand considerably during the next few months.

RADKA TONEFF: Fairytales

Ref LP1 £12.95

Ref CD1 £14.95

The well known audiophile (digital) recording of female voice and piano. Worth the asking price alone for the opening song, *The Moon's A Harsh Mistress*. Odin CD03/LP03

ARNE DOMNERUS' KVARTETT: Blatoner fra Frolldhaugen

Ref CD34 £14.95

A selection of Grieg 'miniatures', imaginatively arranged for a jazz quartet. Superbly vivid sound. (Available on CD only.)

For-X, FXCD65.

KETIL BJØRNSTAD: The Shadow

Ref LP35 £12.95

Ref CD35 £14.95

Recorded in Oslo and released earlier this year, *The Shadow* features the delightful voice of Randi Stene in a collection of compositions inspired by the Poems of John Donne. Bjørnstad is one of Norway's finest session players. For-X, FXLP93/FXCD93.

SMITH/RICCI: Paganiniana

Ref LP10 £14.95

Ref CD10 £17.95

Breathtaking purist analogue audiophile recording of classical works performed on piano and violin. On the

American Water Lily Acoustics label, recorded by Kavi Alexander and sponsored by Conrad-Johnson. An essential addition to any audiophile's collection. Water Lily CJCD/CJLP

TOTTI BERGH: I Hear A Rhapsody

Ref LP4 £12.95

Ref CD4 £14.95

On the Gemini label, saxophonist Totti Bergh plays a selection of jazz standards. *Jazz Journal* magazine described this as "A delightful 'wee small hours' album". Gemini GMCD48/GMLP48

MARTY PAICH BIG BAND: The New York Scene

Ref LP13 £12.95

Featuring Art Pepper, Victor Feldman, Jimmy Guiffre and Bill Perkins, this soundful set includes extended modern stylings of some classic Broadway musical tunes by the likes of Cole Porter and Rodgers & Hammerstein. Discovery DS-844

MARTY PAICH: What's New

Ref LP14 £12.95

Another superb recording of big band 'swing' jazz, this time featuring mostly Marty Paich original compositions. It doesn't seem possible that this was recorded in 1957. Like *The New York Scene* LP, which dates from 1959, the

sound is quite breathtaking: vibrant, dynamic, and with a superbly natural soundstage. They knew what they were doing in those days. Discovery DS-857

OPUS 3 TEST RECORD 1: Depth Of Image

Ref LP11 £12.95

Ref CD11 £14.95

Produced with the idea of analysing hi-fi systems and their ability to reproduce depth of image. This is Opus 3's best selling recording, containing examples of the work of many of its recording artists. Opus CD7900/LP7900

OPUS 3 TEST RECORD 3: Dynamics

Ref LP12 £12.95

Ref CD12 £14.95

Another compilation on the Swedish Opus 3 label, with musical extracts carefully chosen to illustrate what is meant by musical dynamics and comprehensive liner notes to show you what you should be listening for. How good is your hi-fi system? Opus 3 CD8300/LP8300

GREX VOCALIS: Renaissance For Kor

Ref CD15 £14.95

A capella performances of Renaissance and medieval songs, beautifully recorded in natural acoustic

SOLD OUT!

environments for the Norwegian For-X label.

(Available on CD only.)

CD: For-X FXCD39

YTRE SULOENS JASS-ENSEMBLE / BARBARA ANN SHORTS: A Stone For Bessie Smith

Ref CD16 £14.95

Blues and gospel singer Barbara Ann Shorts, backed by a small jazz ensemble with musical roots in the New Orleans tradition, plays tribute to the great US blues singer Bessie Smith who died in 1937. This collection of songs includes a fascinating re-working of Sting's *Moon Over Bourbon Street*.

(Available on CD only.)

For-X FXCD69

ROAR ENGELBERG / STEIN-ERIK OLSEN: Mosaic

Ref CD17 £14.95

Scandinavia's only professional pan flautist, Roar Engelberg, plays a collection of arrangements with Stein-Erik Olsen (classical guitar) — pieces by Ravel, Bach, Faure, Desportes and more. Superb dynamics!

(Available on CD only.)

For-X FXCD81

JIM BROCK: Tropic Affair

Ref CD18 £15.99

Ref LP18 £15.99

Vibrant contemporary jazz, recorded live to two-track by Reference Recordings' Prof. Johnson. Remarkable clarity and a tremendous 3-D soundstage. RR31



WILLIAM WALTON: Facade Suite

Ref CD19 £15.99

Ref LP19 £15.99

One of the Reference label's earlier analogue recordings (these days the company concerns itself with improving digital techniques), featuring the superb playing of Chicago Pro Musica. "A true state-of-the-art recording", said *The Absolute Sound* magazine. RR16

STRAVINSKY: L' Histoire du soldat Suite

Ref CD20 £15.99

Ref LP20 £15.99

Chicago Pro Musica again. The US underground magazine *The Absolute Sound* reckoned this to be one of the best (analogue) recordings ever made! RR17

VIVALDI / BACH: Sinfonia in C; Trio Sonata in C, etc

Ref CD21 £15.99

Ref LP21 £15.99

An exemplary digital recording of the Helicon Ensemble playing Baroque music from Vivaldi and Bach. The CD contains an extra track, Bach's *Prelude in C*. RR23

COPLAND: Appalachian Spring Suite

Ref CD22 £15.99

Ref LP22 £15.99

The *Appalachian Spring Suite* in its original version for thirteen instruments, recorded with a Nakamichi DMP-100 digital encoder. Plus the Pacific Symphony Orchestra in a world premiere recording of *Eight Poems of Emily Dickinson*. The CD contains an extra (analogue) recording of *An Outdoor Overture* (8m 50s). RR22

NATIONAL SYMPHONIC WINDS: Winds of War and Peace

Ref CD23 £15.99

Ref LP23 £15.99

Conductor Lowell Graham leads performances of John Williams' *Liberty Fanfare*, Samuel Barber's *Commando March* and many more. A pure analogue audiophile recording from 1988 using John Curl's Ultramaster recorder. W8823, WCD8823

JAMES B. WELCH: Concert

Ref LP24 £15.99

JAMES B. WELCH: Recital

Ref LP25 £15.99

Two of the Wilson Audiophile label's famous recordings of classical organ works. On a big system these discs are truly breathtaking — watch out for your woofers!

Ref CD24/5 £15.99

Tremendous value: both *Concert* and *Recital* on one compact disc!

W177, W278, WCD177/278

The Choir of Grace Cathedral, San Francisco

Ref CD26 £15.99

Ref LP26 £15.99

W805, WCD794/805.

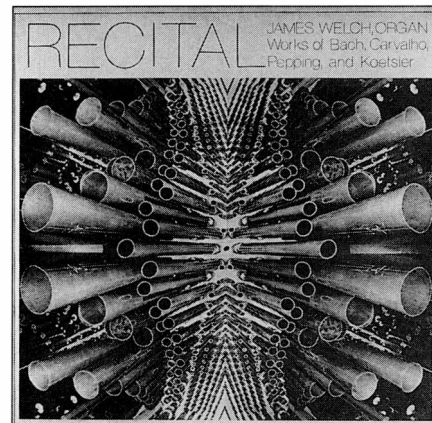
Another breathtaking example of Wilson Audiophile's pure analogue recordings, used as reference discs by hi-fi gurus around the world. The discs are hard to find in the UK.

THELMA HOUSTON & PRESSURE COOKER: I've Got the Music In Me

Ref LP27 £15.99

Ref CD27 £15.99

One of Sheffield Labs' most famous recordings. The original direct-cut has been out of print for many years and is now highly collectable — but the recording sessions were of course taped, and this issue will still blow



your socks off! Sheffield ST200, CD2.

Listed below are further highly collectable Sheffield Labs discs which are astonishing in their sense of realism and truly awesome dynamics:

CLAIR MARLO: Let It Go

Ref LP36 £15.99

Ref CD36 £15.99

TLP29, CD29

TOWER OF POWER: Tower Of Power Direct

Ref LP37 £15.99

Ref CD37 £15.99

LAB17, CD17

JIM KELTNER & RON TUTT: The Sheffield Lab Drum Record

* The CD also includes The Sheffield Track Record

Ref LP30 £15.99

Ref CD32 £15.99

LAB14, CD14/20

The Sheffield Lab Track Record

* The CD also includes 'The Sheffield Lab Drum Record'

Ref LP31 £15.99

Ref CD32 £15.99

LAB20, CD14/20.

JAMES NEWTON HOWARD: James Newton Howard and Friends

Ref LP33 £15.99

Ref CD33 £15.99

LAB23, CD23.

SPECIAL OFFER

Order any 3 LPs or 3 CDs and receive a **FREE** copy of *First Sampling* (RRS1CD), Reference Recordings' compilation CD featuring a variety of classical tracks from its catalogue.

TO ORDER YOUR LPs AND CDs

(tick selections)

All prices include VAT and postage and packing

Radka Toneff: *Fairytales*

- Ref LP1 (£12.95)
- Ref CD1 (£14.95)

Totti Bergh: *I Hear A Rhapsody*

- Ref LP4 (£12.95)
- Ref CD4 (£14.95)

Smith/Ricci: *Paganiniana*

- Ref LP10 (£14.95)
- Ref CD10 (£17.95)

Opus Test Record 1: *Depth Of Image*

- Ref LP11 (£12.95)
- Ref CD11 (£14.95)

Opus Test Record 3: *Dynamics*

- Ref LP12 (£12.95)
- Ref CD12 (£14.95)

Marty Paich Big Band: *The New York Scene*

- Ref LP13 (£12.95)

Marty Paich Big Band: *What's New*

- Ref LP14 (£12.95)

Grex Vocalis: *Renaissance For Kor*

- Ref CD15 (£14.95)

Ytre Suloens Jass-Ensemble / Barbara Ann

- Shorts: *A Stone For Bessie Smith***
- Ref CD16 (£14.95)

Roar Engelberg/Stein-Erik Olsen: *Mosaic*

- Ref CD17 (£14.95)

Jim Brock: *Tropic Affair*

- Ref CD18 (£15.99)
- Ref LP18 (£15.99)

William Walton: *Facade Suite*

- Ref CD19 (£15.99)
- Ref LP19 (£15.99)

Stravinsky: *L' Histoire du soldat Suite*

- Ref CD20 (£15.99)
- Ref LP20 (£15.99)

Vivaldi, Bach: *The Helicon Ensemble*

- Ref CD21 (£15.99)
- Ref LP21 (£15.99)

Copland: *Appalachian Spring Suite*

- Ref CD22 (£15.99)
- Ref LP22 (£15.99)

National Symphonic Winds: *Winds of War and Peace*

- Ref CD23 (£15.99)
- Ref LP23 (£15.99)

James B Welch: *Concert*

- Ref LP24 (£15.99)

James B Welch: *Recital*

- Ref LP25 (£15.99)
- Recital and Concert (on one CD)**
- Ref CD24/5 (£15.99)

The Choir of Grace Cathedral San Francisco: *Music for Easter, Ascension and Pentecost*

- Ref CD26 (£15.99)
- Ref LP26 (£15.99)

Thelma Houston and Pressure Cooker: *I've Got The Music In Me*

- Ref LP27 (£15.99)
- Ref CD27 (£15.99)

Jim Keltner and Ron Tutt: *The Sheffield Lab Drum Record*

- Ref LP30 (£15.99)

The Sheffield Lab Track Record

- Ref LP31 (£15.99)

Jim Keltner and Ron Tutt: *The Sheffield Lab Drum / The Sheffield Lab Track Record Record*

- Ref CD32 (£15.99)

James Newton Howard & Friends

- Ref LP33 (£15.99)
- Ref CD33 (£15.99)

Arne Domnerus' Kvartett: *Blatoner fra Frolidhaugen*

- Ref CD34 (£14.95)

Clair Marlo: *Let It Go*

- Ref LP36 (£15.99)
- Ref CD36 (£15.99)

Tower Of Power: *Tower Of Power Direct*

- Ref LP37 (£15.99)
- Ref CD37 (£15.99)

**ORDER ANY 3 LPs OR
CDs AND YOU WILL
RECEIVE A FREE
CLASSICAL SAMPLER
CD FROM REFERENCE
RECORDINGS**

PAYMENT

- I enclose my cheque/PO made payable to Dennis Publishing for £ _____
Total number of items ordered: _____

- Please charge my Mastercard (Access)/Visa (delete as appropriate) _____

Credit card number _____

Expiry date _____

Signature _____

Name _____

Address _____

Postcode _____

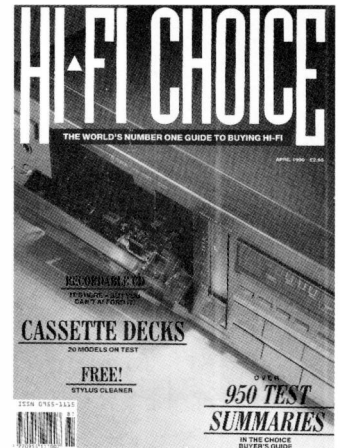
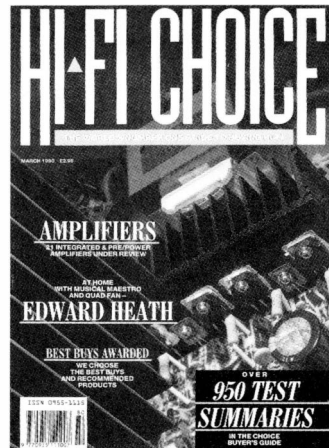
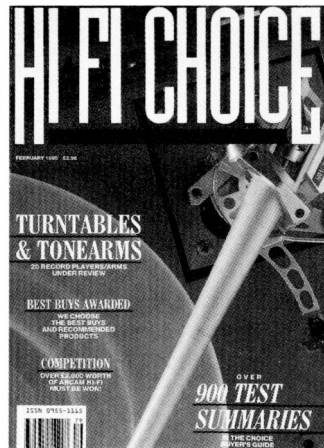
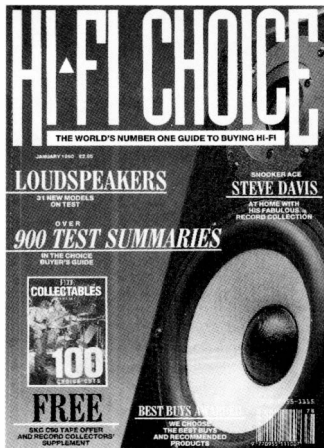
Please send order form with payment to:
Hi-Fi Choice Mail Order, PO Box 320, London N21 2NB

Goods are usually dispatched within 10 days of receipt of order. Whilst we endeavour to maintain stocks, some of these discs are extremely rare - so please bear with us in the event of any delays.

Available to UK readers only

Back Issues

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



TO ORDER BACK ISSUES: Please tick those you require

Aug 89 SEPARATES SYSTEMS (73)(with free cable labels)
Also includes: Yuppie Blasters
Plus: Studer C37 rebuild, part one

Sept 89 AMPLIFIERS (74)(with free jazz supplement)
Also includes: Miniature loudspeakers
Plus: Focus on CD testing

Dec 89 CD MIDI SYSTEMS (77)
Also includes: Valve amplifiers
Plus: Multi-bit and low-bit DAC technology explained

Feb 90 TURNTABLES AND TONEARMS (79)
Also includes: Dolby Pro-Logic explained
Plus: Focus On Ortofon MC3000MkII

Mar 90 AMPLIFIERS (80)
Also includes: Tweaking ideas
Plus: Statements... on the high-end

Apr 90 CASSETTE DECKS (81)
Also includes: Free stylus cleaner
Plus: Focus on Recordable CD

May 90 LOUDSPEAKERS (82)
Also includes: Free classical music supplement
Plus: An alternative approach to cartridge mounting

June 90 CD PLAYERS (83)
Also includes: Free cables, tables & stands supplement
Plus: Statements on the Naim NAC52 preamp

July 90 SYSTEMS (84)
Also includes: Free rock music supplement
Plus: Moving coil cartridges

Aug 90 AMPLIFIERS (85)
Also includes: Free classical records supplement
Plus: Magnetic cartridges

Sept 90 LOUDSPEAKERS (86)
Also includes: Free NICAM TV/VCR supplement
Plus: A visit to La Maison de L'audiophile in Paris

Oct 90 CASSETTE DECKS (87)
Also includes: free gift from CDextract
Plus: Further reviews on CD players

Nov 90 CD PLAYERS (88)
Also includes: Free *Metal Fatigue* supplement
Plus: Statements on the Morch tonearm

Dec 90 CD MIDI SYSTEMS (89)
Also includes: A free tape from Memorex
Plus: Aspirations visits sculptor Andrew Logan

Special Edition THE COLLECTION
Complete reviews on some of the best hi-fi in the world
(UK £4.50 inc. postage and packing, overseas £5.25)

Jan 91 LOUDSPEAKERS (90)
Also includes FREE blank tape supplement -
- over 30 cassette tapes tested

Feb 91 TURNTABLES AND TONEARMS (91)
Also includes: Further reviews on cartridges
Plus: Free classical music supplement

COMING SOON
Apr 91 CASSETTE DECKS (93)

May 91 LOUDSPEAKERS (94)

June 91 CD PLAYERS (95)
Individual issues including postage and packing: UK £4.00,
rest of the world £5.00 (air service)

TO ORDER BINDERS:

Keep your copies of *Hi-Fi Choice* in prime condition with our 8-issue binder finished in black and gold. £5.95 (UK), £7.95 (air service) inc. postage and packing.

PAYMENT:

I enclose my cheque/postal order made payable to *Dennis Publishing Ltd.*

Please charge my Access/Visa (delete as appropriate)

Total number of items ordered

Credit card number _____

Expiry Date _____

Signature _____

Name _____

Address _____

Postcode _____

(92) Please send order form and payment to: Hi-Fi Choice, Mail Order, P.O. Box 320, London N21 2NB

DEALER GUIDE

BERKSHIRE

B & B Hi-Fi Berkshire's Leading Specialist

Aiwa, Akai, Bang & Olufsen, Bose, B + W, Celestion, Denon, Dual, JPW, Kef, Kenwood, Marantz, Mission, Mitsubishi, Mordaunt/Short, NAD, Nakamichi, Panasonic, Philips, Pioneer, QED, Quad, Rotel, Sennheiser, Sony, Tannoy, Target, Technics, TDK, Wharfedale, Yamaha.

Ask about Free delivery & Free installation

11-12 Market Place, **Reading*** Tel: 0734 583730
36 Minster Street, **Reading** Tel: 0734 503729
18, King Street, **Maidenhead*** Tel: 0628 73420
4, Priory Road, **High Wycombe** Tel: 0494 35910
62, North Brook Street, **Newbury** Tel: 0635 32474
Princess Square, **Bracknell*** Tel: 0344 424556

DEMONSTRATION ROOMS*

CAMBRIDGESHIRE

University Audio CAMBRIDGE'S ROKSAN CENTRE

Turntable Artaxerxes Shiraz Artemis on Permanent Demonstration

Phone 0223 - 354237 for an appointment.

Cam Audio

DENON, LINN PRODUCTS, REGA RESEARCH, NIAM AUDIO, CREEK, MISSION, ARCAM, MARANTZ, MICROMEGA, NAKAMICHI, EXPOSURE

0% Interest free credit

SPECIALIST AUDIO RETAILERS (0223) 110 MILL ROAD, CAMBRIDGE 60442

CHESHIRE

aston audio

HI-FI SPECIALISTS

MARANTZ SPENDOR KEF
AUDIO-TECHNICA TANNOY
QUAD ARCAM REVOLVER
YAMAHA STAX
MORDAUNT-SHORT SME
DENON CELESTION
MONITOR AUDIO ROGERS
B&W NAKAMICHI CELLO
MERIDIAN AUDIOLAB
AMADEUS DUAL TECHNICS
CAMBRIDGE AUDIO ROTEL
ROKSAN NAD

4 WEST STREET
ALDERLEY EDGE
CHESHIRE
0625 582704
Closed Monday



DISCOUNT CD & TAPE
EXTENDED GUARANTEE
INTEREST FREE CREDIT

THE SOUNDSTAGE

Stockists of: Pink Triangle, Roksan, NVA, Alphason, Linn, Revolver, Ariston, Dual, Exposure, Onix, Moth, Nakamichi, Mission, Cyrus, Rotel, NAD, Royd, Mordaunt-Short, Tripod, Creek, EPOS, Yamaha, Infinity and many more accessories

Appointment not necessary. Free coffee. Parking at Crewe branch
21 Nantwich Rd. 99 Brook St.
Crewe, Cheshire CW2 6AF Chester, Cheshire CH1 3DX
0270-255488 0244-341172

CHESHIRE

The Hi-Fi Showroom

at Peter Martin

4 Duke Street, Congleton CW12 1AP. (0266) 273206.
1 Stanley Street, Leek ST13 5HG. (0538) 383780.

■ AURA ■ AIWA
■ ALPHASON
■ B & W ■ CELESTION
■ CREEK ■ CASTLE
■ HECO ■ INCA-TECH
■ MORDAUNT SHORT
■ PHILIPS ■ QED (HI-FI)
■ REVOLVER ■ ROTEL
■ SYSTEMDEK ■ SONY
■ SOLID ■ TECHNICS
■ TEAC ■ THORENS

CORNWALL

Definative Audio Cornwall for Definative Hi-Fi Cornwall

Voyd, Audio Inovations, Snell, Audio Note, Systemdek etc.

Free home Demonstrations and Installation
Phone for appointments. **0726 844039**

CUMBRIA

SEARLE AUDIO

STOCKING: AIWA, AR SPEAKERS, B&W, BEYER DYNAMIC, CELESTION, DENON, DUAL, KENWOOD, CAM AUDIO, MARANTZ, NAD, SONY ES, TARGET STANDS, TEAC, TECHNICS

Demonstrations given with pleasure - No hard selling - All equipment guaranteed with full in house service - Credit facilities available

WELL WORTH A VISIT
BARROW-IN-FURNESS
223-229 RAWLINSON ST. (0229) 821233/839692
CALL FOR DETAILS

DERBYSHIRE

STUDER - REVOX SERVICE CENTRE

NEW AND USED SALES SPARES
MULTI ROOM INSTALLATIONS ADVICE

| | |
|------------------|----------|
| B215 Ex Dem | 1,000.00 |
| B160 RDSFM Tuner | 500.00 |
| B150 Amplifier | 500.00 |
| A77 MK III H.S. | 480.00 |
| B77 MK II HS New | 1,300.00 |
| G36 MK II 2T | 500.00 |
| B780 Receiver | 600.00 |
| C270HS | 2,000.00 |

ALL + VAT
FROM

**EAST MIDLANDS
AUDIO SERVICES
CALL 0246-275479**

Active Audio

ARCAM, AUDIO INNOVATIONS, CELESTION, CYRUS, DENON, KEF REFERENCE, MERIDIAN, MARANTZ, NAKAMICHI, PIONEER, REVOLVER, RAYMOND LUMLEY, ROKSAN, ROGERS, ROTEL, TANSOY ETC., ETC

FULL DEMONSTRATION AND HOME TRIAL FACILITIES
ACCOUNT AND CREDIT CARDS

Active Audio
12 Osmaston Road, The Spot, Derby
Tel: (0332) 380385/385185



Closed Wednesdays

DEVON



UPTON electronics

DENON, ARCAM, NVA, LINX, MUSICAL FIDELITY, RUARK, MORDAUNT-SHORT, TANNOY, TEAC, KEF, WHARFDALE, ROGERS, MICROMEGA, AUDIO INNOVATIONS, ETC.

"PIONEER REFERENCE POINT DEALER"

Shop & Home Demonstrations

31 TORQUAY ROAD, PAIGNTON, DEVON, TQ3 3DT
TELEPHONE 0803551329



Opening Times
Weekdays 9.30-7.30
Sat 9.30-6.00

NAD, Denon, Yamaha, Pioneer, Nakamichi, Quad, Musical Fidelity, Rotel, Acoustic Energy, Meridian, Micromega, Kef, Wharfedale, Monitor Audio, Tannoy...

38 Walnut Road, Chelston, Torquay, Devon TQ2 6HS
Telephone: (0803) 606863

ESSEX



... sounds outstanding

ADC · AKAI · ARCAM* · BANG & OLUFSEN · CELESTION
CAMBRIDGE AUDIO* · DUAL · HARMAN KARDON
MERIDIAN · MORDAUNT-SHORT · MUSICAL FIDELITY
PIONEER · QUAD* · RUARK · SONY · YAMAHA

*Epping and Saffron Walden only

148 HIGH STREET · EPPING · ESSEX · TEL: (0378) 74242
26 KING STREET · SAFFRON WALDEN · ESSEX · TEL: (0799) 23728
70 SOUTH STREET · BISHOP'S STORTFORD · HERTS · TEL: (0279) 656401

GLOUCESTERSHIRE

R. LEWIS & Co. Ltd.

Hi-Fi Specialists

B&O, DENON, DUAL, GOODMAN'S, KEF, MISSION, MORDAUNT-SHORT, PANASONIC, SENNHEISER, SONY ES, TANNOY, TECHNICS, YAMAHA, CELESTION.

We have moved to:
45 HIGH ST. STROUD, GLOUCESTERSHIRE



Tel: 0453 762485



HAMPSHIRE

SOUNDWAVES

NAIM, LINN, CREEK, EXPOSURE, ARCAM, MORDAUNT SHORT, EPOS, DENON, NAKAMICHI ETC.
CLOSED MONDAYS . 3 YRS GUARANTEE

1 Holbury Drive Precinct, Holbury, Hants.
Tel: 0703 899131

DEALER GUIDE

HAMPSHIRE



Products from:
 AVI, Marantz, Kelvin Labs, Townshend Audio, TDL,
 Sendor, Audio-Technica, Dynavector, BLQ,
 Origin Live, Target, Grant, Nimbus, Minim
Tel. Fareham 0329 231773

The Audio Gallery

Sheet Green, Sheet, Nr
 Petersfield, HANTS, GU32 2AF
 TEL: (0730) 66556
 & (0730) 66556

Pioneer, Acoustic Energy, QED, Wadia, Threshold, NAD, Forte,
 Pink Triangle, Moth, Mordaunt-Short, Teac, Van Den Hul,
 Ortofon, Dual, Monitor Audio, Royd, Good quality Records &
 CDs to order. Cables and Interconnects by mail order

Pioneer 400, Phillips CD 850 & Mana Tables on Dem.
 Single Speaker, Demo Room 2 yr guarantee on
 some products. Car parking on site. 10-5 Tues-Sat

HEREFORDSHIRE

ENGLISH audio IN HERFORD

Arcam, Audio Innovations, Celestion, Creek,
 Deltec, Denon, Dual, Heybrook, JPW, Marantz,
 Micromega, Moth, Musical Fidelity, NAD,
 Nakamichi, Pink Triangle, Rogers, Rotel,
 Ruark, Systemdek, Tannoy

Free installations; Credit Facilities; Service Dept.
Mon-Sat 10-6
 95, Whitecross Road, Hereford (0432) 355081

HERTFORDSHIRE

The Audio File

27, Hockerill St,
 Bishops Stortford,
 Herts. 0279 506576.

2 Foundry Walk
 Market Hill, St Ives
 Cambridgeshire

1988. Sony Hi-Fi News Regional Award Winner.
 F.B.A. National Dealer Award.

1989. Sony Hi-Fi News National Award Winner.
 F.B.A. National Dealer Award.

NEED WE SAY MORE.

HUMBERSIDE

MANDERS HI-FI LTD.

For: Nakamichi, Quad, Dual,
 Kef, Michell, Denon, Revox, Harman-Kardon,
 A+R, Thorens, QED, Sendor, Monitor
 Audio, Rotel, Ariston, Revolver, Technics,
 Musical Fidelity, Wharfedale, Celestion,
 Meridian, Proton, A.E. Speakers etc.

Two year guarantee on hi-fi.

**2 Edward St, Grimsby,
 Humberside
 (0472) 351 391**

KENT

CHOOSE FROM: A&R, Acoustic Energy, Audio
 Innovations, Creek, Celestion, Dual, EPOS,
 Exposure, Foundation Audio, JPW, JRT, KEF, Linn,
 Marantz, Meridian, Mordaunt-Short, Nakamichi,
 NAD, Naim, Philips, Pink Triangle, Pioneer, QED,
 REGA, Revox, Rotel, Ruark, Sony ES, Sound
 Organisation, Target, Tripod, Wharfedale. E&EO



31 HIGH ST
 TUNBRIDGE WELLS
 ☎ 0892 24677

96 WOODLANDS RD
 GILLINGHAM, KENT
 ☎ 0634 52858

TONBRIDGE HI-FI CONSULTANTS



Tel: (0634) 573141
 or 576270

An excellent selection of Hi-Fi products. Take your
 pick from: **Pioneer, Sony, Kenwood Tannoy, B&W,
 Boes, Goodmans, Technics** at unbeatable prices
 Zero % Credit available. Come and See!
Panatec Sound + Vision Centre Ltd
 83B High Street, Gillingham, Kent ME7 1BL



Come in and listen.
 Marpaal Hi Fi, 3a The Parade, Ash Road,
 Hartley, Dartford, Kent, DA3 8HE
0474 73098

Radford CD, Pink Triangle, SME, Moth, Ortofon, Audio
 Technica, Croft & Radford valve amps, Monitor Audio,
 Mordaunt Short, SD Acoustics. Audio Quest cables made
 to order, plus many more

"On dem the new TVA-50 Mentmore Valve Pre Power Amp."
MAIL ORDER SERVICE
 AMERICAN EXPRESS * ACCESS * BARCLAYCARD

LANCASHIRE



*Hi-Fi
Specialists*

Foundation ■ Kenwood ■ Marantz ■ Monitor Audio
 ■ Mordaunt Short ■ Pioneer ■ Philips CD ■ Quad
 ■ Rogers ■ Rotel ■ Revox ■ Sony ■ Sendor ■
 Tannoy ■ Technics ■ Thorens ■ Yamaha etc

Two year guarantee
Private listening room
 Excellent comparator demonstrations

54 Chapel St., Chorley, Lancs.

Telephone (02572) 71935

LEICESTERSHIRE

SOUND ADVICE

ESTABLISHED 13 YEARS

**THE MIDLANDS LEADING BRITISH
 EQUIPMENT SPECIALISTS,
 FOR OVER A DECADE**

NAIM ● LINN ● MICROMEGA ● MISSION
 CYRUS ● ROYD AUDIO ● REVOX ● SENNHEISER
 ● ROTEL ● YAMAHA ● NAKAMICHI ●
 EPOS ● CREEK ● REGA ● A&R ● ARCAM ●
 HEYBROOK ● MORDAUNT-SHORT

EXCLUSIVE REGA AGENT:
 LEICESTERSHIRE & NOTTINGHAMSHIRE
 TEL LOUGHBOROUGH : 0509 218254

LEICESTERSHIRE

EASTWOODS

For Sales, Repair and Service
 We have the complete range of

Technics in stock

5% Off normal prices with this ad Until 29-6-91

257-261 Uppingham Road | 29-31 The Parade, Oadby,
 Leicester (0533) 719174 | Leicester (0533) 718174

LONDON

AUDIOVENUE

AUDIO CONSULTANTS AND RETAILERS

**24, CHURCH ROAD, CRYSTAL PALACE,
 LONDON SE19 2ET - TEL: 081-771 7787**

Stockists of: Linn Hi-Fi, Naim Audio, Creek,
 Rotel, Audio Tech, Epos, Denon, Dual,
 Revolver, BLQ, Yamaha, Marantz, Nakamichi,
 Cambridge etc.

2 single speaker demonstration rooms,
 Interest free & various credit facilities
 available.

Open 10-5.30pm
 Closed all day Wednesday
 and Sunday



A.U.D.I.O. C.O.N.C.E.P.T

**27 Bond Street, Ealing, London W5 5AS
 Tel: 081-567 8703**

A & R Cambridge, Bang & Olufsen,
 Beyer Dynamic, Cambridge Audio,
 Castle, Denon, Dual, Infinity, Kef,
 Mission/Cyrus, Monitor Audio,
 Mordaunt Short, NAD, Nakamichi, Onix,
 Proton, Rogers, Rotel, Sennheiser,
 Tannoy, Target Audio, Thorens,
 Wharfedale.

Opening hours: 10-6 Mon, Tues, Fri, Sat.
 10-7.30 Thursday. Closed Wednesday

ASK ELECTRONICS LTD

248-250 Tottenham
 Court Road,
 London W1
 071-637 0353

PRODUCT LIST:
 AIWA, AKAI, JVC,
 TECHNICS, TEAC

PRODUCT LIST:
 PIONEER, PHILIPS,
 SONY

237 Tottenham
 Court Road,
 London W1
 071-636 4611

**HARP
 ELECTRONICS
 LTD**

DEAN'S

JWS, Aiwa, Sharp, Panasonic, Sansui, Denon,
 Sony, Clarion, Aiki, B&W, Bose Dual,
 Harman-Kardon, JBL, JVC Kenwood
 Marantz, Pioneer, Technics, Proton, Philips

Mail order.

All major credit cards accepted.
**283 Edgware Road, London W2 1BB
 Tel: 071-724 2135 Fax: 071- 402 6666**

CLASSIFIED

DEALER GUIDE

MANCHESTER



30-32 SHUDEHILL, MANCHESTER M4 1EY
Tel: 061-834 6700

Main Agents for:
JBL, Mission, B&W, Wharfedale,
Teac, Harman-Kardon, Panasonic, Technics,
Sony, Bose, Aiwa, Trio-Kenwood

NORFOLK



Near Norwich
Norfolk.
Tel:
(0508) 70829

Basically Sound of Norfolk

Loudspeakers by Creek, Linn, Royd, Epos,
NAIM, Spondor, Acoustic Energy

NORTHAMPTONSHIRE

THE AUDIO SHOP

HI-FI SPECIALISTS

Appointed stockists of:-

Ariston, Creek, Denon, Dual, Goodmans, JPW
Mordaunt-Short, Rotel, Royd, Tannoy.

Coffee Tavern Court, 37a High Street, RUSHDEN.
Tel: (0933) 56651

WEST MIDLANDS

BRIDGE HIFI

3 Tudor House, Bridge Street, Walsall. (0922) 640456.

NAD, Dual, Yamaha, Sennheiser, Wharfedale, Bowers & Wilkins, Kenwood, Technics, Pioneer, Mission, Celestion, Denon, Mordaunt Short, Marantz, Aiwa, Akai.

Demonstrations, Home trial and free installations. Access, Visa, Diners, Amex.
Credit to £1,000. 9.15 - 5.30. Mon-Sat.

Service Dept.



Norman H. Field Hi-Fi

Consultants for Home High Fidelity

- B&W
- Denon
- Castle
- Dual
- Mordaunt-Short
- Technics
- Thorens
- Tannoy
- Yamaha
- Kenwood



Two-year guarantee

Private listening room

HURST STREET
BIRMINGHAM B5 4BJ
Telephone: 021-622 2323

NOTTINGHAMSHIRE

PETER ELLIS AUDIO

A comprehensive range of Hi-Fi separates in stock including:

KENWOOD, MARANTZ, TECHNICS, SUGDEN,
CREEK, CASTLE, CELESTION, KEF, TANNOY, ARCAM, PHILIPS,
YAMAHA, NAKAMICHI, TEAC, DENON, CAMBRIDGE AUDIO,
QUAD, STAX, AKAI, MUSICAL FIDELITY, QED, ONYX, ROGERS,
MORDAUNT-SHORT, BAYER, SENNHEISER, THATS.

Also a wide range of separates always in stock.

29, KIRKGATE, NEWARK, NOTTINGHAM.
(0636) 704571

OXFORDSHIRE

WITNEY AUDIO VISUAL

FOR THE BEST KNOWN NAMES IN HI-FI

AIWA * AKAI * A/R * BOSE * B&W *
CAMBRIDGE * DUAL * MORDAUNT-SHORT * NAD * ONKYO * PIONEER *
ROBERTS * SONY * SONY-ES * TANNOY *
WHARFEDALE * YAMAHA

WE OFFER FREE ADVICE, IN STORE DEMONSTRATIONS,
WORKSHOP FACILITIES, SPARES & ACCESSORIES
PART EXCHANGE * VISA * ACCESS

Telephone: (0993) 702414

28 High Street, Witney, Oxfordshire, OX8 6HG
Facsimile: (0993) 779584

o v e s t u r e

| | |
|-----------------|----------------|
| arcam | jpw |
| acoustic energy | lim products |
| audiolab | marantz |
| creek | meridian |
| cyrus | mission |
| denon | mordaunt-short |
| dual | quad |
| epos | systemline |
| hybrook | yamaha |

3 Church Lane, Banbury, Oxon
(0295) 272158

SHROPSHIRE

Mid Shropshire Audio

4, Holland Court, Dawley, Telford, Shropshire
Telford (0952) 630172

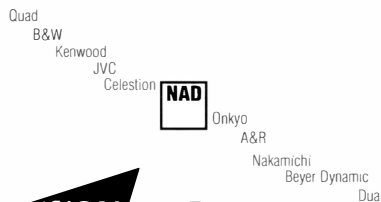
Agencies include: Alexander, Apollo, Ariston, Audio Innovations, Audio Technica, Bose, Cambridge Audio, Denon, Dual, Goldring, Ion Systems, Lynwood Electronics, Manticore, Marantz, Michell, Mission, Monitor Audio, Monster, Moth, Onkyo, Ortofon, Pink Triangle, QED, Royd, Ruark Acoustics, SD Acoustics, Sennheiser, Sherwood, S.M.E., Snell, Soniclink, Systemdek, Tannoy, Target, TDL, That's Tape.

12 Month's Interest free Credit

2 demonstration lounges. Access, Visa. Open six days a week, Sundays and evenings by arrangement.

We specialise in audio visual and surround sound (Marantz SP50) also pub/club sound systems (no labour charges).

SHROPSHIRE'S HI-FI CENTRE!



12 Barker Street, Shrewsbury
(0743) 55166

SHROPSHIRE HI-FI THE HI-FI SPECIALIST

ARISTON, AUDIO TECHNICA, CAMBRIDGE AUDIO, DELTEC, DENON, DUAL, INFINITY, MORDAUNT SHORT, MUSICAL FIDELITY, MONITOR AUDIO, PROAC, QED, ROKSAN, RUARK, ROTEL, TARGET, TEAC, THORENS, TOWNSHEND, ETC.

Demonstration Room, Free Parking,
Free installation, Repairs.

SHROPSHIRE HI-FI, ST. MICHAEL'S STREET, SHREWSBURY 0743 232065
SMC GROUP

SOMERSET

"How many WATTS do I need?"
Is a very good question indeed!
One WATT is sufficient -
At WATTS we're Deficient
Of SALESMEN who suffer from GREED.

Watts Radio THE ENGINEERS
Jim Badman and Staff (0458) 72440

1 West St, SOMERTON, Somerset TA11 71P

STAFFORDSHIRE

Active Audio

ARCAM, AUDIO INNOVATIONS, CELESTION, CYRUS, DENON, KEF REFERENCE, MERIDIAN, MARANTZ, NAKAMICHI, PIONEER, REVOLVER, RAYMOND LUMLEY, RDESAN, ROGERS, ROTEL, TANNOY, ETC, ETC.

FULL DEMONSTRATION AND HOME TRIAL FACILITIES
ACCOUNT AND CREDIT CARDS

Active Audio
95 Stafford Street,
Hanley, Stoke-On-Trent
Tel: (0782) 214994



Private Carpark
At Rear

CLASSIFIED

MAINWAY Tel: 0922 473499

MIDLANDS HI-FI CENTRE

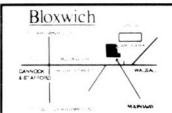
Listening Studio - Instant credit up to £1,000 -
Open 6 days a week - Ample parking - 2 year
guarantee - Free delivery - Service department

MERIDIAN, KEF, ARCAM, ARISTON, AUDIO TECHNICA,
CAMBRIDGE, HARMAN, JPW, LINX, MISSION, MOTH, MUSICAL FIDELITY, ORTOFON, QED, ROGERS, SOUND FACTORY, SYSTEMDEK, TDL, VAN DEN HUL, WHARFEDALE, XPL, YAMAHA.

Just off the High Street



Bloxwich
Walsall
West Mids



HI-FI VISION

Birmingham City Centre's Biggest range of
Hi-Fi, TV & Ncam Video Recorders

AIWA, AKAI, BOSE, CANON, GOODMANS, HITACHI, KEF,
KENWOOD, NIKON, OLYMPUS, PANASONIC, PIONEER
REFERENCE POINT, SHARP, SONY, TOSHIBA,
WHARFEDALE

OPEN 6 DAYS A WEEK 9-6PM
122-123 NEW STREET, BIRMINGHAM B2 4JU
021 633 4944



DEALER GUIDE

STAFFORDSHIRE

Active Audio

ARCAM, AUDIO INNOVATIONS, CELESTION, CYRUS, DENON, KEF REFERENCE, MERIDIAN, MARANTZ, NAKAMICHI, PIONEER, REVOLVER, RAYMOND LUMLEY, ROKSAN, ROGERS, ROTEL, TANNOY ETC, ETC

FULL DEMONSTRATION AND HOME TRIAL FACILITIES
ACCOUNT AND CREDIT CARDS

Active Audio
29 Market Street, Tamworth, Staffs
Tel: (0827) 53355



SURREY

Fed up with "Top-End Hype"
and the sound of CDs?

contact-

"The Cartridge Man"

It doesn't have to cost an arm and a leg
to get the best - listen to my Koetsu-and-
Decca-eater.

Also agents for Croft, Sugden, Thorens &
Pentachord Speakers.

081-688 6565

SUSSEX



Roksan, Musical Fidelity, Marantz, JPW,
Bryston, Yamaha, Acoustic Energy,
JBL, Tannoy, Monitor Audio,
Harman Kardon
and other fine equipment.

Comfortable Demo Room Knowledgeable and friendly staff

the powerplant

66 Upper North Street Brighton
Telephone 0273 775978

Late night Wednesday - 8pm
Closed Mondays

SUSSEX AUDIO

MID SUSSEX ELECTRONICS

· EXPOSURE · MANTICORE · ROKSAN
· AR · NAD · CAMBRIDGE · B&W · ONIX ·
MONOTOR · TANNOY · NAKAMICHI ·
DENON · RUARK · PIONEER · AURA · DUAL
· PHILIPS · CELESTION · SHERWOOD

163-165 CHURCH ROAD,
BURGESS HILL, WEST SUSSEX.



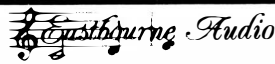
(0444) 242336



KENWOOD ● MARANTZ ● CAMBRIDGE ● HECO ● INFINITY
● SUGDEN ● NAKAMICHI ● ROTEL ● B&W ● THORENS
● REVOLVER ● SUPRA ● AURA ● LEXICON ● TEAC ● JBL ●
MONSTER ● TANNOY ● CASTLE ● LUXMAN ● ALLISON ●
DENON ● AKAI ● CERWIN-VEGA ● PIONEER ● HARMAN ●
MONITOR AUDIO ● DUAL ● YAMAHA ● REVOX ● ROGERS ●
AR ● EPSON ● QED ● AUDIO QUEST

LASER DISC - CD - CDV STOCKIST
72 Terminus Road, Eastbourne
E. Sussex BN21 3LX Tel (0323) 640911

SUSSEX



Audio Innovations, Castle, Celestion, Chord, Finestra,
JPW, Kelvin Labs, Musical Fidelity, Nakamichi, Pink
Triangle, Oracle, Radford, Rose, Snell, Sumo,
Spendor, Townshend, Yamaha and many more.

16, Albert Parade, Green Street, Eastbourne,
BN21 1SD. Tel: (0323) 25828

Hastings Hi-Fi

CONSULTANTS

32 WESTERN ROAD, ST LEONARDS. (0424) 442975

Selected Hi-Fi
from

EXPOSURE, MUSICAL FIDELITY, QUAD,
NAKAMICHI, MONITOR AUDIO, ROGERS,
TANNOY, NAD, MANTICORE, TDL, MARANTZ,
AUDIO LAB, DENON, CELESTION, LINN, KEF,
YAMAHA, WHARFEDALE, ARCAM, SNELL,
SYSTEMDEK, PROAC, ROTEL.

■ OPEN MON - SAT 9.00 - 6.00
■ FULL DEMONSTRATIONS - IN STORE & IN HOME

FOR
YOUR
HI-FI
NEEDS

BOWERS & WILKINS WORTHING

1 Becket Buildings,
Little Hampton Road,
Tel: 641 41

definitive audio

We now stock the PIONEER A400
- the definitive budget amplifier

Unit 8, Dyke Road Mews, 74-76 Dyke Road,
Brighton Tel: (0273) 208649

Tuesday-Saturday 10am - 6pm
Telephone appointments preferred
Late opening and home demonstrations by appointment

WEST SUSSEX



Appointed Stockists of A&R, Cambridge, Denon, Castle,
Creek Audio, Goldring, Linn, Niam, Quad, Rega,
Rogers, SME, Monitor Audio, Roksan, Royd, Spendor,
Tannoy.

7 St. Pancras, Chichester
Telephone 0243 776402 (Closed all day Monday)

WARWICKSHIRE

neam - HI-FI VISION - neam

AWA - AKAI - KENWOOD - PIONEER
REFERECE PONIT - SONY - TECHNICS -
WHARFEDALE - PANASONIC - KEF - BOSE -
TECHNICS - CANON

78 Lower Precinct, Coventry,
Warwickshire CV1 1DX
0203 632086

WILTSHIRE

PR SOUNDS

A N D V I S I O N

**SUPERB RANGE OF
HI FI AT
COMPETITIVE
PRICES**

**PIONEER, TECHNICS, B&W
KENWOOD, PANASONIC,
DENON, AKAI, TANNOY,
MORDAUNT-SHORT, JPW**

| | | |
|--|--|---|
| 5. King Street Melksham Wilts (0225) 708045 | 58 Castle Street Trowbridge Wilts (0225) 777799 | 21. High Street Devizes Wilt (0380) 724787 |
|--|--|---|

WEST YORKS

Audiovision (Brighouse) Ltd

ESTABLISHED OVER 30 YEARS
PERSONAL SERVICE AND EXPERT ADVICE
SPECIALIST MAIN AGENTS - SALES - SERVICE

Technics

West Yorkshire's only Authorised
'Digital Reference' Series Stockist

Castle Acoustics

LARGEST RANGE IN THE NORTH.
CASTLE CONWAY III AND STIRLING SPEAKERS
AT SPECIAL SALE PRICES.

CALL US NOW! - Comparison made Easy

8 (0484) 713996

5, BETHEL STREET, BRIGHOUSE, W. YORKS. HD6 1JR
1 MILE FROM JUNCTION 25, M62.

NORTH WALES

ELECTRO-TRADER HI-FI

Phone John Hodgkinson for expert advice,
personal service & keen prices

PRODUCT LIST: ARCAM, ARISTON, B&W,
BOSE, CAMBRIDGE AUDIO, HARMAN -
KARDON, HECO, INFINITY, JBL, MOR-
DAUNT-SHORT, MONITOR AUDIO, NAD,
NAKAMICHI, ONKYO, REVOLVER, ROTEL,
TANNOY, TDL, TEAC, THORENS,
WHARFEDALE, YAMAHA.

19 COLWYN CRESCENT, RHOS-ON-SEA,
COLWYN BAY, CLYWD. PHONE: 0492 48932

SOUTH WALES

Established 1908

A. E. Hughes & Sons Ltd

26-28 Clarence Place, Newport, Gwent NP9 0UX
Telephone: (0633) 258851

**The Only B&O Crown Centre in
Southern Wales**

Kenwood Hi Fi Centre

Agents for: Roberts' Radio, Dynatron,
Mitsubishi, Mordaunt-Short, Castle,
Sheraton

DEALER GUIDE

EIRE

DUBLIN

CLONEY Audio
55 MAIN STREET
BLACKROCK
DUBLIN.
TEL: 01-889449/888477
FAX: 834887

| | |
|------------------|----------|
| MUSICAL FIDELITY | TECHNICS |
| MAGNEPLANAR | SPENDOR |
| NAKAMICHI | APOGEE |
| ARCAM | ROGERS |
| PHILIPS | CLASSE |
| LINN | DELTEC |
| NAIM | CREEK |
| REGA | SONY |

AND THE BEST OF THE REST!!
CLOSED MONDAY - OPEN LATE TILL 9 P.M. THURSDAY/FRIDAY

STUDIO ONE
VIDEO — HI-FI — T.V.

DENON : MISSION : REGA : DUAL :
SENNHEISER : AR : SONY :
TECHNICS : PIONEER : NAGAOKA

Trade ins taken

17/18 Upper O'Connell St.,
Dublin 1, Ireland.
Tel. 742550

NORTHERN IRELAND

BELFAST

SONY HI-FI NEWS RECORDS & VIDEO
DEALER OF THE YEAR
SCOTLAND & N. IRELAND

23A KINGSGATE STREET,
COLRAINE (0265) 56634
6, HOPE STREET, BELFAST
TEL: (0232) 332522
OPENING HOURS MON-SAT 10AM -
5.30PM THURSDAY TIL 8.30

ZEUS Audio

ASTON AUDIO
Stockist of: Akai, Technics, JVC, Pioneer,
Mitsubishi, Panasonic, Toshiba, Sharp,
Sanyo
Service Dept - Demonstrations Available

| | |
|--|---|
| 17 Hillhead Rd. Dundonald, Belfast (0217) 872431 | Please phone for directions. Open Mon-Fri 2-8, Sat 10-4 |
|--|---|

SCOTLAND

ANDREW THOMSON
Arcam, QED, Kenwood, Quad, Denon,
Technics, Nakamichi, B+W, Tannoy,
Monitor Audio

| | | |
|---|---|--|
| 19-23 High St., Dunfermline Tel: (0383) 724541 | 195 Morningside Rd., Edinburgh Tel: (031) 447 5229 (031) 447 6880 | 3 Whytescause Way, Kirkcaldy Tel: (0592) 205997 |
|---|---|--|

MUSIC

Crazy Jazz
MAIL ORDER CD'S
Catalogue of over 4,500 CD's
available - £2
Phone 0992 25436 for details
5 Prospect Road, Cheshunt, Herts EN8 9QX
Fax 0992 640644

acorn MUSIC
Incorporating
Peter Russell's
Hot Record Store
Est 1959

Mail Order Specialists for Jazz, Latin-American, Big Bands,
Blues, R&B, Nostalgia etc. Huge stocks of CDs, LPs and
tapes: Noted for Jazz Books and Videos.
Free lists. Callers welcome by appointment.
GROVE HILL, VICTORIA ROAD, BARNSTAPLE
DEVON EX32 8DS. TEL: 0271 43477

DISC WYSE!

CDs from £5.99 - Popular £9.99. We
specialise in CD's. Phone or Write
for Catalogue: Disc Wyse,
14 Thornhill Road, Uxbridge
UB10 8SF Tel: 0895 633558



ACCESSORIES

WHAT RUSS ANDREWS CAN DO FOR YOUR CD PLAYER
If you love CD definition, impact, solidity and clarity but want analogue
openness, smoothness, reality and involvement as well, you have
just found the answer - our accessories will give you exactly that

- **TORLYTE CD PLATFORM** Improves all round performance but particularly bass definition and imaging
- **KIMBER KABLE INTERCONNECTS** will give sweeter high frequencies, more believable voices and a more spacious, relaxed sound stage.
- **KIMBER KABLE DATA LINKS** for two box players are a revelation in all areas!
- **KIMBER KABLE MAINS CABLE** eliminates that high frequency aggression so common in CD players and seriously improves bass too!

Send for full details and prices. We accept credit card telephone orders. Full money back guarantee if you are not delighted

RUSS ANDREWS TURNTABLE ACCESSORIES LTD
EDGE BANK HOUSE, SKELSMERGH, KENDAL,
CUMBRIA LA8 9AS TEL: SELSIDE (053 983) 247

Go For Gold!
WITH **INCAPLUG**
The original and best **double plated gold** over nickel **13amp fused** plugs.
Available only from **Direct Audio**
£9.35 each including postage.

CREDIT CARDS WELCOME

 Phone Direct Audio on 
0992 440844

Unit 3B, Plumpton House, Plumpton
Road, Hoddesdon, Hertfordshire

FOR SALE -PRIVATE

Krell KSA-80, 3 months old -
Ring Ian and ask why! £3,000
no offers. 0258 451186
(Blanford).

FOR SALE -PRIVATE

Pink Triangle PT TOO/SMEIV/
0C9- 6 months old, £1300 ono.
Musical Fidelity A100 £350.
Musical Fidelity MCA/Target
HJ1513 £350 ono. Amp/
SPeakers 8 weeks old. Richard
(0865) 513872.

FOR SALE -TRADE

STOP
the noise from domestic electrical equipment eg.
fluorescent lights, televisions, fridges, etc. affecting
your Hi-Fi system by fitting a Lynwood Mains Conditioner.
This results in :-

- * Huge increase in soundstage width, height and depth.
- * More space around each now clearly distinct instrument.
- * Much deeper, extended bass with better control and focus.
- * More natural, relaxed sound especially with CD. Cuts out RF interference.

This is the only unit we have found which accomplishes these things without degrading the music in any way. The Lynwood Conditioner will supply over 500 W of clean power and is fitted into an expanded mains plus to replace the ordinary plug on your equipment leads or extension sockets. Available on a sale or return basis for

£49.95
incl P&P send a cheque or SAE for further information to
LYNWOOD ELECTRONICS
Coley Lane Farm, Wentworth,
Rotherham S62 7SQ

SERVICES

Restoration of classic equipment by Electronics Engineer, suitably qualified (Degree/MAES) and nearly 40 years experience. Quad service agent and specialist knowledge of Radford, Leak Rogers, Armstrong etc. Extensive workshop enables original design standards, accompanied by detailed reports. 7 days. Woodford, Essex. Tel: 081 504 5467.

WANTED

BUY! SELL! EXCHANGE!
We accept for cash or exchange
ALL 2nd hand Audio & Video
equipment. Everything accepted in **ANY**
condition - absolutely nothing

MUSIC & VIDEO EXCHANGE
56 Notting Hill Gate, London W11
Open 7 days 10am - 8pm
Tel: 071 221 1075

CLASSIFIED

Choosing a good hi-fi dealer is the most vital step in acquiring the system that is right for you. This unique directory gives full information on dealers in your area.

AVON

PAUL GREEN HI-FI LTD, Kensington Showrooms, London Road, Bath, (0225) 316197. Linn, Musical Fidelity, Krell, A&R, Creek, Rogers, Quad, Cust. car park. Best selection in the West. **BADA**
 RADFORD HI-FI, 52-54 Gloucester Rd, Bristol. (0272) 428247. Linn, Naim, Mission, Denon, NAD 3 demo rooms. Installation. Access, Visa credit. Service dept. **BADA**
 PAUL ROBERTS HI-FI, 31-33 Gloucester Road, Bristol. (0272) 429370 Huge selection from the worlds leading names, comprehensive demo facilities including comparator demo rooms, and home trial. Total Total after sales care. Compact Disc specialists - gursented the best deal in the UK on any CD player from stock. Credit facilities. Open 9.30-7.30 Mon-Fri, 9.30-6 Sat. Best Price Promise.
 PAUL ROBERTS HI-FI, 203 Milton Road, Weston-Super-Mare, (0934) 414423. For facilities see entry above

BEDFORDSHIRE

HYPERTEC, 66-68 Saint Lyles St., Bedford. (0234) 325066. Pioneer Reference Point, Tannoy, Bang & Olufsen, Musical Fidelity, B&W, Rotel, Wharfedale, Dual, Marantz, Alphasone. Demo facilities. Private demo room by appointment. Home trial facilities. Free installation. Service dept. Access, Visa, Hypertec, credit charge. 9.30-5.30 Mon-Sat, closed Thurs. WENTWORTH AUDIO, 83 High Street North, Dunstable. (0582) 663383. Pioneer, Marantz, Pink Triangle, Musical Fidelity, Yamaha, Ariston, m Linn, Acoustic Energy, Revox, Monitor Audio. 2 large single speaker dem rooms. 1 general showroom. Noappt. nec. Home trial. Free install. Service dept. Access & Visa. Tue-Sat, 10-6.

BERKSHIRE

B&B HI-FI, 11-12 Market Place, Reading, Berkshire, RG1 2EG. (0734) 583730. Aiwa, Denon, Kenwood, Mission, NAD, Panasonic, Pioneer, Rotel, Sony, Technics. Free installation. Service dept. Access, Visa, Credit Facilities including interest free credit subject to status. 9.30-5.30, Sat 9-5.30. Also at; Bracknell, Maiden Head, High Wycombe, Newbury
 NEWBURY AUDIO, 2 Weavers Walk, Northbrooke Street, Newbury, Berkshire RG13 1A1 (0635) 33929. 6 days 9.30-6.00. Linn, Naim, Roksan, Exposure, Creek, Epos, Royd, Denon, Nakamichi. Single speaker dem. room. Appts. necessary. Home trial facilities. Free installation. Service department. Late appointments. Access, Visa. Interest free credit subject to status. 6 days 9.30am-6.00pm
 READING HI-FI CENTRE, 4 Queen's Walk, Reading RG1 7QF. (0734) 585463. 'The best equipment, advice and service from Berkshire's premier Hi-Fi emporium' **BADA**

BUCKINGHAMSHIRE

AUDIO INSIGHT LTD, 53 Wolverton Rd, Stony Stratford, Milton Keynes. (0908) 561551. Arcam, Audiolab, Heybrook, Ion, Linn, Meridian, Quad and more. Access, Visa. Finance. Dem. room etc **BADA**
 AYLESBURY HI FIDELITY, 98 Cambridge St, Aylesbury. (0296) 28790 Denon, Dual, Exposure, Heybrook, Marantz, Musical Fidelity, NAD, Roksan, Rotel, Systemdek. 2 Dem rooms, appointment reqd. Mon-Fri 10-6, Sat 9.30-5.30. Home trial, free installation, credit to £1,500. Access, Amex, Diner, Visa. Service dept.
 DEJAC HI-FI CONSULTANTS, 21 The Broadway, Old Amersham, Bucks, HP7 0HL. (0494) 431290. NAD, Rotel, Musical Fidelity, Quad, A&R, Cambridge, Denon, Monitor Audio, Tannoy, Celestion, Dual. Single speaker Dem. room. No appt necessary. Home trial facilities. Free intall. Custom remote controlled systems. Instant credit tricity finance. 9.30-5.30 Mon-Sat.
 TECHNOSOUND, 7 Graville Square, Willen Centre, G-Milton Keynes (0908) 604949. Bang & Olufson, Denon, Rotel, Technics, Yamaha and enthusiast hi-fi. Also at Luton and Dunstable.

CAMBRIDGESHIRE

AUDIO FILE, 2 Foundry Walk, Market Hill, St Ives, Cambridgeshire, (0480) 66123. Linn, Naim, Rega, Quad, Cyrus, Arcam, Musical Fidelity 9.30am-6pm 6 days 0% Credit. **BADA**
 CAM AUDIO, 110 Mill Road, Cambridge, CB1 2BD. (0223) 60442. Linn, Naim, Rega, Arcam, Micromega, Denon, Marantz, Nakamichi, Creek, JPW. 2 single speaker demo rooms, appointments preferred. Free installation. Access & Visa. Interest Free Credit. 9.30-6.00 Mon-Sat, closed Thurs.
 CAMBRIDGE HI-FI, 1-3 Hawthorn Way, Chesterton, Cambs, CB4 1AT (0223) 67773. Mission-Cyrus, Rotel, Kenwood, Pioneer, Manticoe, Revolver, Ariston, IFL, KEF, Meridian, Technics, Ruark. Monitor Audio. Single speaker dem room. Tues-Sat 9.30-5.30 closed Mon. Free installation. Service Dept. Visa, Access Credit facilities.
 HYPERTEC, 86 Bridge St, Rivergate, Peterboro' (0733) 890533. Nakamichi, B&W, Denon, Marantz, Musical Fidelity, Rotel, Tannoy, Wharfedale, Linn, Alphasone. Demo facilities including private demo room by appointment. Home trials, Free installation, Service dept. Access, Visa, Hypertec, Credit charge. 9.30-5.30 6 days, Thurs 9.30-8.00

STEVE BOXSHALL AUDIO, 41 Victoria Rd, Cambridge CB4 3BW. (0223) 68305. 10-6 - 6 days. 3 dem rooms, home trial, appts. preferred. Free installation and service dept. Access, Visa & credit **BADA**
 STILTON AUDIO, 489 Lincoln Road, Peterborough PE1 2PE. (0733) 558838 897152. Linn, Mission, Arcam, Rotel, Teac, Meridian, TDL, Cambridge Audio, Musical Fidelity, Creek/Mordaunt Short. Home trial, free installation. G-Credit facilities. Access, Visa, Amex, Avco Finance. 10.00-18.00 Mon-Sat.
 UNIVERSITY AUDIO, 1-2 Peas Hill, Cambridge. (0223) 354237. Quad, Spondor, Arcam, Yamaha, Rotel, ATC, Marantz, Aragon, Rowland, Pioneer, Oracle. 2 dems, 1 single speaker. Home trial, free install, Service Dept. Visa, Access, Amex, Credit. 9-5.30.

CHESHIRE

ASTON AUDIO, 4 West St., Alderley Edge. (0625) 582704. Mission, Samsui, Deltac, Aura. Wide range of specialist audio, interest free credit. Visa. Access. Home trial. **BADA**
 DOUG BRADY HI-FI, Kingsway Studios, Kingsway North, Warrington. (Padgate 0925) 828009. 'Largest choice of specialist Hi-Fi in N.W.' All credit cards. 3 Dem rooms. Open 6 days. **BADA**
 CHRIS BROOKS HI-FI, 29 Gaskell St, Stockton Heath, Warrington. 0925 61212/3. Tues-Sat 10-6. 2 dem rooms. Credit facilities. All credit cards. Total absence of bull**** **BADA**
 NEW DAWN HI-FI, 1-3 Castle St, Lower Bridge St, Chester. (0244) 324179. Linn, Quad, Technics, National Panasonic, Denon, Rotel, Dual, Meridian, Aiwa, Philips.
 SOUNDSTAGE, 99 brook str., Chester, CH1 3DX. (0244) 341172. For Facilities see entry below.
 SOUNDSTAGE, 21 Nantwich Road, Crewe, Cheshire CW2 6AF. (0270) 255488. Linn, Alphasone, Creek, Onix, Royd, Epos, NAD, Denon, Mission, Rotel. Two dem rooms. Home trial. Free installation. All major credit cards. Credit facilities. 9.30-6, 6 days. Evening dems by appt. Part exchange welcome.
 SWIFT OF WILMSLOW, 4-8 St Annes Parade, Wilmslow. (0625) 526213. Arcam, Denon, Kenwood, Musical Fidelity, Marantz, NAD, Cambridge. 2 dem rooms. Tues-Sat 9.15-6pm. No pressure! **BADA**

CLEVELAND

GILSON AUDIO, 172 Borough Road, Middlesborough, Cleveland TS1 2EJ. (0642) 248793. Linn, Exposure, Quad, Mission, NAD, Rotel, Marantz, Denon, Audio Lab, Tannoy, Dem Room, appts. preferred. Home trial, free install. Service Dept. Access, Visa £1000 credit subject to status. 10-5 Mon-Sat.

CORNWALL

DEFINITIVE AUDIO, Redruth, Cornwall, TR16 5NH. (0726) 844039. Voyd, Audio Innovations, Snell, Helius, Audio Note, System Dek, JPW, Deltac, Goldring, etc. Free Home Demo and Installations throughout Cornwall. Credit facilities. Open 7 days

CUMBRIA

PETER TYSON, 6 Abbey St., Carlisle, Cumbria, CA3 8TX. "Cumbria's premiere hi-fi centre". Part exchange welcome. (0228) 46756. Linn, Musical Fidelity, Cyrus, Marantz, Denon, Philips, Nakamichi, Technics, Pioneer, Creek & more. Dem room. Dems without obligation. Home trial. Free Install. In-house service dept. Visa, Access, HP. 9-5.30. Closed Thursdays.

DERBYSHIRE

ACTIVE AUDIO LTD., 12 Osmaston Rd, The Spot, Derby. (0332) 380385/385185. Arcam, Ariston, Celestion, Denon, Kef, Kef Reference, Cyrus, Marantz, Revox, Rotel, Rogers, etc. etc. Meridian, Musical Fidelity. Account and credit cards. Ring for opening times and free 'Fac Pack' The only BADA MEMBER in Derbyshire. **BADA**

DEVONSHIRE

CHELSTON HI-FI, 38 Walnut Road, Chelston, Torquay, Devon TQ2 6HS. Tel: (0803) 606863. Denon, Marantz, Rotel, Musical Fidelity, Acoustic Energy, NAD, Castle, Heybrook, Celestion, JPWetc. 2 dem rooms. Home trial. Free installation. Access, Visa, Amex, Diners, Hi-Fi Markets Charecard. Credit facilities. 9.30-7.30 Mon-Fri, 9.30-6 Sat
 UPTON ELECTRONICS, 31 Torquay Road, Paignton, Devon. (0803) 551329. Pioneer, Denon, NVA, Musical Fidelity, Tannoy, Ruark, Arcam, Cambridge, Linn, Revolver etc. Single speaker dem room. Home dems. Appts. nec. for dems. Free install. Own service dept. Access, Visa, inst. cred. up to £1000. 9-5.30 Mon-Sat. 9-1 Weds.

ESSEX

1ST AND FOREMOST HI-FI CENTRE, 49-55 North Station Road, Colchester, Essex CO1 1RQ. Tel: (0206) 549842. Fax: (0206) 762900 Tlx: 987873 SAIDG. Trio Kenwood, JVC, Akai, Aiwa, Sony, Pioneer, Technics, Nakamichi, Panasonic, Revox, etc. Home trial, free installation. G-Service dept. Instant credit available + all credit cards accepted Monday to Saturday 9am-6pm.

AUDIO T, 442/4 Cranbrook Rd, Gants Hill, Ilford. (01) 518 0915. Mon-Sat, 10-6. Two dem rooms. Access, Visa. Sony Hi-Fi News Best Dealer '86 & '88 (National) **BADA**
 BRENTWOOD MUSIC & HI-FI CENTRE, 2 Ingrave Rd, Brentwood. (0277) 221210. Alphasone, Denon, Marantz, Quad, DNM, Rock/Glastonbury, E.A.R., Exposure, Kelvin Labs, Rotel, plus many more. Dem facilities, home trial, evening appts. (high end), Home installations. System problem diagnosis. Mon-Sat 9.30-5.30 (Thurs from 10am, Sat from 9am). Credit facilities. Access, Visa, Hi-Fi Markets Charecard. Service facilities.
 LYON AUDIO, 16 Peartree Business Centre, Peartree Road, Stanway, Colchester. Essex CO3 5JN. (0206) 560259. Quad, Rogers, Mission, Denon, Cyrus, Marantz, Audiolab, Rotel, NAD, Wharfedale, TDL. Dem facilities. Mon-Sat 9-6. Installations. Access, Visa, Instant credit. Service dept available.
 RAYLEIGH HI-FI, 44a High Street, Rayleigh, Essex. (0268) 779762/747571. 216 Moulsham St, On-the-Parkway, Chelmsford. (0245) 265245. 132-134 London Road, Southend-on-sea. (0702) 435255. A&R, Creek, Cyrus, Denon, Epos, Ion, Linn, Mission, Naim, Quad, Rega, Roksan, Rotel, Royd, 0% finance **BADA**
 THOMSONS, 2 High Street, Great Baddow, Chelmsford, Essex. Tel (0245) 71465. JVC, Kenwood, Mitsubishi, Toshiba, Tannoy, Mordaunt-Short, Acoustic Research, Wharfedale, Philips, Audio-Visual dealer. Home trial. Free installation. Service dept. Access, Visa, HP. Open 9-1, 2-5.30 Mon-Sat. Open 9-1 Wed.

GLOUCESTERSHIRE

AUDIO EXCELLENCE, 58 Bristol Road, Gloucester. (0452) 300046. Audio Research, Arcam, Mission, Quad, Linn, Naim, NAD, Yamaha and lots more. Closed Mon. **BADA**
 ROBBS OF GLOUCESTER, 13/15 Worcester Street, Gloucester GL1 3AJ. (0452) 419777. Sony, Technics, Aiwa, Pioneer, Denon, Bose, Celestion, Dual, Kenwood, JVC. Largest selection in Gloucestershire. Dem facilities. Home trial. In house service dept. Access, Visa. 9-5.30 6 days.

HAMPSHIRE

HAMPSHIRE AUDIO Ltd, 2-12 Hursley Rd, Chandlers Ford. (0703) 252827/265232. Quality CD and analogue agencies. 5 dem studios Large free car park. **BADA**
 HOPKINS HI-FI, 38/40 Fratton Rd, Portsmouth PO1 5BX. (0705) 822155. Technics, Quad, Monitor Audio, Tannoy, Denon, Naim, Heybrook, Onkyo, Dual, Marantz plus others. Dem facilities, appointments necessary. Access, Visa. 9-5.30. Open to 6 Thurs. Closed Wed. Service dept.
 JEFFRIES HI-FI (PORTSMOUTH), 29 London Road, Portsmouth PO2 0BH; (0705) 663604. 2 dem rooms. Closed Mon. Late night Wed. Parking. Bus Route. Credit fac.
 MARTON MUSIC, 5 Ventnor Way, Fareham, Hants. (0329) 231773. AV International, Marantz, Kelvin Labs, Townshend Audio, TDL, Spondor, Grant Amplifiers, Audio Technica, Dynavector, Origin Live. Demos, by appointment. Home Trial Facilities, Free installation. Phone Anytime.
 TRU-FI SOUND & VISION, 10-12 Grosvenor Road, Aldershot, Hants. Tel/ Fax: (0252) 26390/332424. Aiwa, Audio Technica, B&W, Nakamichi, Mission, Mordaunt-Short, Nagaoka, Sony, Technics. Dem fac. Free install. Service dept. 0% finance. Access, Visa. Mon-Sat 9.30-6

HEREFORDSHIRE

ENGLISH AUDIO, 95 Whitecross Road, Hereford HR4 0DG. (0432) 355081. Musical Fidelity, Arcam, Pink Triangle, Denon, Marantz, Rogers, Audio Innovations, Rotel, Nakamichi, Heybrook and others. Dem room. Home trial. Free install. Service dept. Access, Visa. Credit arranged. Open Mon-Sat 10am-6pm

HERTFORDSHIRE

ACOUSTIC ARTS Ltd, 101 St Albans Rd, Watford, Herts. (0923) 245250. A&R, Audiolab, Audio Research, Apogee, Denon, Krell, Magneplanar, Meridian, Quad, Rogers, TLD. Mon-Sat 9.30-5.30. **BADA**
 DARBYS OF ST. ALBANS, 6 Market Place, near the clock tower, St. Albans, Herts. (0727) 50961. Alphasone, A&R Cambridge, Bang & Olufsen, Denon, JBL, Harman Kardon, Musical Fidelity, Quad, Ruark, Sony. Home demonstrations, free delivery and installation. Sales rental service. In house credit. Lombard, Tricity. Mon-Sat 9-6.
 DYNAMICS, Welwyn, Herts. (0438) 714038 Mark Levinson, Threshokod, Oxford Acoustics, Meridian, Infinity, Mirage, Proac, Melos, Air Tangent, Rotand, Burmester, Ray Lumley, Jardis. We buy, sell & exchange all high end audio, special offers always, Demo room, available by appointment, Service, Installations, Access & Visa. Mon-Sat 10-7, Sun 10-1, or other times by apt.
 HYPERTEC, 6 Bancroft Road, Hitchin, Herts. (0462) 452248. B&W, Denon, Marantz, Musical Fidelity, Pioneer Reference Point, Rotel, Tannoy, Wharfedale, Bang & Olufsen, Linn, Alphasone. 2 dem rooms without appointment. Private dem room + evening dem by apt. Home trial. Free Install. Service dept. Access, Visa, Hypertec credit charge. 9.30-5.30 6 days per week.
 STUDIO 99, 82 High Street, Harpenden. (05827) 64246. Linn, Naim,

The Choice Dealer Directory

BRITISH AUDIO DEALERS ASSOCIATION



Meridian, Rega, Nakamichi, Mission/Cyrus, Quad, Creek, KEF, Bang & Olufsen, Yamaha etc. Quiet single speaker dem room. Appts nec. Home trial, free install. Service Dept. Visa/c, Access/c & finance terms. 9-5.30pm (Mon-Sat). Closed Weds.

THE AUDIO FILE, 27 Hockerill St, Bishops Stortford, Herts CM23 2DW. (0279) 506576. 9.30-5.30 6 days. Dealer Of The Year 1988/89. Linn, Naim, Rega, Quad, Cyrus, Arcam, Musical Fidelity. 0% credit. **BADA**

NORTH HUMBERSIDE

MURRAY HI-FI, Princes Dock Side, Hull. (0482) 227867. Linn, Naim, Rega, Arcam, Yamaha, Royd, Epos, Creek, Nakamichi, Rotel. Full Demo Facilities. No appointments necessary. Free install & delivery. Service dept. Full 2 yr guarantee on all products. Access, Visa, Lombard Tricity, Licensed credit broker. 10-6 Tue-Sat.

KENT

HI-FI CENTRE LTD., 65 King Street, Ramsgate, 0843 590321. A.R., Aiwa, Ariston, Celestion, Goodmans, Kenwood, Marantz, NAD, Radford, Tannoy, etc. etc. + guaranteed recon. equip. Dem room + home dems. Hi-Fi repairs & servicing, Trade in & Cred facs. Mon-Sat (9.30-5.30).

JOHN MARLEY HI-FI CENTRES, 2 Station Rd, West Canterbury. (0227) 769329. Also at Dover - (0304) 207562. B&W, Heybrook, Magnum, M.Y.S.T., Nakamichi, Pink Triangle, Rotel, Sansui, Technics, Quad. Dem and home trial fac. Mon-Sat 9-5.30 closed Thurs. Free install. Credit to £1,000. Access, Visa, Creditcharge. Service dept.

PHOTOCRAFT HI-FI, 40 High St, Ashford. (0233) 624441. No. 1 in Kent for Linn, Naim, Rega, Roksan, Exposure, Onix, Epos, Royd, Creek. But before you choose equipment choose where to buy it. Dem room, appts. necessary. Home trial and free installation. Visa, Access, Bada Chargecard. 9-5.30 Mon-Fri (Wed & Sat to 5 only). Service Dept

PROGRESSIVE AUDIO, Rainham, Kent. (0634) 389004. Alphason, Audio Innovation, Conrad Johnson, Proac, Raymond Lumley, Rock Reference, Snell, TDL, Voyd and others. Dem by appt., please phone. Home trial. Free installation. Access, Visa.

STANDENS, 92a High Street, Tonbridge, Kent, TN9 1AP. (0732) 353540. Pink Triangle, Kelvin Labs, TDL, Ruark, Marantz, Quad, Musical Fidelity, Micromega, NAD, Arcam. 2 Demo rooms. Home trials. Free installation and Service dept. Access & Visa. HP terms, and Bada credit charge. 9.00-5.30 Mon-Sat except Wed 9.00-1.00.

TONBRIDGE HI-FI, 96 Woodlands Road, Gillingham, Kent. (0634) 52858 Linn, Naim, Rega, Pink Triangle, Exposure, Creek, JRT, Sony, Ruark, KEF, Arcam etc. If your interest is music pay us a visit + find out what we do. TONBRIDGE HI-FI, 31 High Street, Tunbridge Wells, Kent, (0892) 24677. Linn, Naim, Rega, Pink Triangle, Exposure, Creek, JRT, Sony, Ruark, KEF, Arcam etc. If your interest is music pay us a visit + find out what we do

VJ HI-FI, 29 Guildhall St., Folkestone. (0303) 56860. Mon-Sat 9-6. NAD, Yamaha, Marantz, Cambridge Audio, Denon, Kenwood, Rogers, Dual, Musical Fidelity, Quad, Dem and home trial facilities, free install, credit to £1000. Amex, Diners, Visa, Access. Service dept.

VJ HI-FI, 119 High Street, Margate. (0843) 226977. Mon-Sat 9-6. NAD, Yamaha, Marantz, Cambridge Audio, Denon, Kenwood, Rogers, Dual, Musical Fidelity, Pioneer. Dem and home trial facilities, free installation, credit to £1000. Amex, Diners, Visa, Access. Service dept.

LANCASHIRE

MONITOR SOUND, 54 Chapel St, Chorley. (02572) 71935. A&R, Dual, Mission, Quad, Rogers, Rotel, Spondor, Thorens, Nakamichi, Yamaha, etc. 2 dem rooms. Open Mon-Sat, closed Weds. Free installation. Credit to £1,000. Access, Visa. Service dept.

NORMAN AUDIO, 131 Friargate, Preston PR1 2EE. (0772) 53057. Fax 562731. Sony Hi-Fi News Area Winner. Aiwa, B&W Loudspeakers, Denon, Marantz, Mission Cyrus, Monitor Audio, Nakamichi, Quad, Roksan, Rotel & many others! 2 lux. dem. Inge. Home trial by arrangement. Free install. Service dept. Inst. cred. facs. with several companies. Most credit cards accepted. 6 days 9-5.30. **BADA**

LEICESTERSHIRE

ALPHA AUDIO 1-3 Guildhall Lane, Leicester, LE1 5FQ. (0533) 530 330. Allison, AR, Denon, Luxman, Proton, Revox, Teac, Thorens, plus lots more. 3 demo rooms. Jovial, friendly, crazy staff. Relaxed atmosphere. Home trial facilities, free installation, service dept on premises. Credit facilities (sort of interest free). 10-5, closed Thurs afternoons (sometimes).

MUS HI-FI, 80 Stapleton Lane, Barwell, Leicester LE9 8HE. (0455) 46977. The Rock, Audio Innovations, Kelvin Labs, Snell, Heliuss, Sugden, Ruark, Concordant, Valdi, JPW. Dem and home trial facilities. Mon-Sat 9.30-7.00. Free installation and service dept. Visa, Access.

THE LEICESTER HI-FI CO, 6 Silver Walk, St. Martins Square, Leicester LE1 5EW. (0533) 539753. Arcam, Creek, Marantz, Mission/Cyrus, Musical Fidelity, Nakamichi, QED HI-FI, Quad, Rogers, Roksan, "and oodles more". 2 dem rooms, home trial arranged, free installation service department, credit facilities, Hi-Fi Markets, Access, Visa, Diners, Amex. 6 days 9.30-5.30. Leicestershire's only Bada member.

SOUND ADVICE, Duke Street, Loughborough LE11 1ED. (0509) 218254. Arcam, Creek, Linn, Epos, Mission, Cyrus, Naim, Rega, Rotel, Yamaha etc. Dem facilities. Appts required. Free installation. Service dept. Credit facilities, Access, Visa, Amex. Mon-Sat 9.30-6

LINCOLNSHIRE

BOSTON HI FI CENTRE, 65a Wide Bargate, John Adams Way, Boston, Lincs PE21 6SG. (0205) 365477. Quad, Nakamichi, Creek, Ariston, NAD, Denon, Marantz, Castle, Rotel, JPW, Rogers. Separate demo studio. Home trial, free installation, service department. Access, Visa, Hi-Fi Markets Chargecard. Tues-Sat 9-5.30 pm.

LONDON

AUDIO T, 190 West End Lane, London NW6. (071) 794 7848. Mon-Sat 10-6. 2 dem rooms. Access/Visa. Sony Hi-Fi News Best Dealer '86 & '88 (National)

ANALOG AUDIO, 849 High Road, London N12. (081) 445 3267. Denon, Dual, JBL, NAD, Marantz, Rotel, Wharfedale, Cerwin Vega Teac, Mordaunt Short. Free install. Service dept. Instant credit up to £1000. Visa & Access. 9.30-6 6 days.

AUDIO ACOUSTIC, West Ealing. (081) 998 9041. Audio Dimensions, Audio Innovations, Audion, Audio Note, Delta Inertia, D.C.M., Glastonbury, Goldring, Heliuss, Infinity & Modules, JPW, Keski, Lynwood, Mana Acoustics, Marantz Audiophile, Michell, Nova, Ongaku, Originlive, Ortophon, Pirates, Rata, Revox, Rotel, Rose Industries, Rock Reference, Snell, Supra, Systemdek, Target, Valdi, Voyd. Demos by appt only. Access & Visa. Home Trial, Free Installation. Open Mon-Sat 9.30-6.

AUDIO CHOICES, 66 High Road, Leytonstone, Stratford E15. 081 534 6987. Marantz, A&R, Musical Fidelity, SD Acoustics, Rotel, Audio Technica, Ruark, Roksan, Moth, Nakamichi, B&W, Van den Hul, Dual, Pink Triangle, Alison Acoustics. Dem room, home dems within M25 area. 10.30-7.30

AUDIO VENUE, 24 Church Road, Crystal Palace, London SE19 2ET. (081) 771 7787. Linn, Naim, Nakamichi, Marantz, Dual. Credit available, 2 yr warranty, 2 Demo Rooms. Closed Weds.

BILLY VEE SOUND SYSTEMS, 248 Lee High Road, London SE13. (081) 3185755. Linn, Rega, Naim, Nakamichi, Quad etc. 2 dem rooms. Int. free credit. Access, Visa. Closed Thurs

CORNFLAKE SHOP, 37 Windmill Street (just off Tottenham Court Road), London W1. (071) 631 0472. Mon-Sat 10-7. Rega, Roksan, Naim, Monitor Audio, Koetsu, Marantz, Yamaha, SME, DNM, Epos. Three dem rooms. Delivery and installation service. Credit facilities. Access, Visa.

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.

GRAHAMSMHI-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-£3,000-£13,000. **BADA**

JUST MUSIC, 52 Upper Tooting Road, London SW17 7PB. (081) 767 1233. Aiwa, Dual, Denon, Marantz, Quad, Rogers, Thorens, Musical Fidelity, Sugden, Heybrook and many more. Dem facilities. Appts can be arranged. Home trial. Free installation available. Access, Visa, Amex, Hi-Fi Markets, Chargecard, Creditcharge, finance arranged. 10am-7pm Mon-Thurs, 10-6 Fri & Sat.

KAMLA ELECTRONICS, 251 Tottenham Court Road, London W1. (071) 323 2747. Amadens, Ariston, BLQ, Gale, Incatech, JPW, Linn, Mordaunt Short, SME, Systemdek, Thorens, Townshend, Ruark, Wharfedale.

KJ WEST ONE, 26 New Cavendish St, London W1M 7LH. (071) 486 8262/63. Fax (071) 487 3452. Arcam, Audio Research, Acoustic Research, Apogee, Arcam, Audioblab, Creek, Epos, Linn, Meridian, Musical Fidelity, Pink Triangle. Appts. nec. Home trial. Free installation. Service dept.

major credit cards. Mon-Sat 10-6pm. (Late night Thursday til 7pm.)

SOUND ORGANISATION LONDON, 1 Cathedral Street, London SE1 9DE. (071) 403 2255/3088. Linn, Rega, Roksan, Micromega, Radford, Rotel, Nakamichi, Onix, Creek, Naim, Exposure, Royd, Heybrook, Epos. Interesting new equipment always under evaluation. Single speaker listening room. Credit facilities. Appts. preferred, free install., Service dept. Open Tues - Sat 10-6. Late dem. by appt.

SOUND SENSE, 350 Edgware Road, London, W2 1DX. (071) 402 2100. Alphason, B&W, Nakamichi, Celestion, Cambridge Audio, Dual, Denon, Monitor Audio, Marantz NVA, Sony ES. Appointments preferred, Installations available. Access, Visa, Standard credit facilities. Mon-Sat 9.30-6.30.

SOUTH LONDON HI-FI & VIDEO, 210 Brixton Hill, Steatham, SW2. (081) 674 4433/2033. Denon, Rotel, Yamaha, Kenwood, Tannoy, B&W, Nakamichi, Dual, Thorens, Technics, Monitor Audio. Single speaker demo room, Appts. not nec. Installation available, Service Dept. Access, Visa, Amex, Interest Free & Standard credit. 9-6, 6 days

STUDIO 99, 79-81 Fairfax Road, London NW6. (071) 624 8855. Linn, Naim, Meridian, Rega, Quad, Nakamichi, Mission/Cyrus, KEF, Bang & Olufsen, Yamaha, Creek etc. 2 single speaker dem rooms. Appts. nec. Home trials, free install. Service dept. Visa/c, Access/c & finance terms 10-7 (Mon-Fri), 10-6 (Sat)

TIME AND TUNE, 218/220 Whitechape Road, London, E1 1BJ. (071) 247 0567/8/9. Akai, Aiwa, Bose, Hitachi, Kenwood, Mitsubishi, Panasonic, Philips, Pioneer, Sony, Technics. Home Trial Facilities, Free Installation, Service Dept., Instant Higher Purchase. 9.30am-6pm Mon-Fri, 9.30am-2pm Sun, Sat Closed.

GREATER MANCHESTER

THE AUDIO COUNSEL, 12 Shaw Road, Oldham, Manchester OL1 3LQ. (061) 633 2602. Linn Naim Rega, Rotel, Arcam, Micromega, EPOS, Creek, Nakamichi, Denon. 2 dem. rooms. Free install. Visa, Access. Licensed credit brokers up to £1000 instant credit. 10.00-5.30 Tues,

Weds, Sat; 10.00-7.30 Thurs, Fri. Closed Mon.

CHRIS BROOKS AUDIO, 10-12 Oak Street, Hazel Grove, Stockport SK7 4EJ. (061) 419 9050. Tues-Sat 10-6. 2 dem rooms, credit facilities, All credit cards. Just like the Warrington Shop - total absence of bull*** **BADA**

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 HIFI DELIVERY, 12 Chapel Street, Chaddle. (061) 428 7222. Arcam, Denon, Kenwood, <arantz, Nad, Cyrus, Rotel, Pioneer, Mission, Tannoy. Demo Room. 9.30-6, Closed Wed.

MIDDLESEX

AUDIO T, 159 Chase Side, Enfield, Middx. (01) 367 3132. Mon-Sat 10-6. Two dem rooms. Car Park. Access/Visa. Sony/Hi-Fi News Best Dealer '86 & '88. **BADA**

AUDIO T, 173-175 Station Rd, Edgware, Middx. (01) 952 5535. Mon-Sat 10-6. 2 dem rooms. Access, Visa. Sony/Hi-Fi News Best Dealer '86 & '88 (National).

HARROW AUDIO, 27 Springfield Rd, Harrow. (01) 863 0938. Mon-Sat 9.30-5.30. A&R, Audioblab, Cyrus, Denon, Dual, Heybrook, Linn, Monitor Audio, Musical Fidelity, Quad, Rotel, Tannoy etc. **BADA**

NORTHWOOD AUDIO, 126 Pinner Road, Northwood, Middlesex HA6 1BP. (0927) 420877. Exposure, Musical Fidelity, Pink Triangle, Mantecore, Audio Innovations, Rotel, Ruad, Ruark, SD Acoustics, Moth. Dem. room. Home trial. Free Install. Access, Visa. 9-6 Mon-Sat.

UXBRIDGE AUDIO LTD, 278 High St, Uxbridge, Middx UB8 1LZ. (0895) 30404 (Multi-line). A&R, AR, Ariston, Creek, Cyrus, Denon, Dual, JPW, KEF, Mantecore, Meridian, NAD, Nakamichi, Quad, Rotel, Wharfedale, Yamaha, etc. 2 dem rooms. Mon-Sat 10-6.

MERSEYSIDE

BETTER HI-FI, 16 Cook St, Liverpool L2 9RF. (051) 227 5007. Linn, Naim, Quad, Arcam, Audio Innovations, Threshold, Creek, Denon, Yamaha, Mordaunt Short. 3 dem rooms. Home trial. Free install. Service Dept. Access, Visa. Instant credit up to £1000, 0% on certain items. 9-5 Mon-Sat.

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**

IN CONCERT HI-FI, 144 Seaview Road, Wallasey, Wirral, Merseyside. (051) 630 5055. Denon, Kenwood, QED, G-Alexander, Spica, Sharg Acoustics, Systemdek, Musical Fidelity, Audio Dimensions, Voyd. Single speaker dem room. Home trial free installation. 10-6 - closed Mon. Access Visa.

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. Established 1968. **BADA**

MARTINS HI-FI, 85/91 Ber Street, Norwich. (0603) 627010. Established 1968. **BADA**

SOUND APPROACH, 161 Unithank Road, Norwich. (0603) 622833. Kuzma, Ariston, Castle, Denon, Exposure, Ion, Royd, NVA, Roksan, Ruark, etc. etc. Dem and home trial facilities. Mon-Sat 9-6.30. Free installation. Credit to £1,500. Visa, Access, Diners Club. Service dept.

NORTHAMPTONSHIRE

CLASSIC HI-FI & VIDEO, School Lane, Kettering, Northants. (0536) 515766. Rotel Musical Fidelity, Wharfedale, Monitor Audio, Yamaha, JBL, Dual, Marantz, Kenwood, Kef, Celestion, and many more. Home trial, free instal, service dept. Access, Visa, credit facs. 9.30-5.30pm.

THE AUDIO SHOP, Coffee Tavern Court, High St, Rushden. (0933) 56651. Audio Technica, Denons, Goodmans, Rotel, Tannoy, Ion Systems, Thorens, Gale, BLQ, Royd. Dem room. Home trial and free installation. Mon-Sat 9.30-5.30 (Thurs 9.30-2). Service dept.

NOTTINGHAMSHIRE

CHANNY AUDIO, Chantry Walk, 18a Eldon Street, Tuxford, Newark, Notts NG22 0LH. (0777) 870372. Pink Triangle, Royd, JPW, Rotel, S.D. Acoustics, NVA, Michell, Art Audio (valve), Kelvin Labs, Sumo, + much more. 2 Dem. Rooms. Appts preferred. Home trial, free installation. Access, Visa + credit facilities and mail order. Mon-Fri 10am-4.30pm. Sat 9.30-5.30. Sun home dem by appt. Closed Weds.

DEFINITIVE AUDIO. (0602) 813562. Voyd, Audio Innovations, Snell, Heliuss, Systemdek, Revox, Deltac, JPW, Pirate, Loewe Audio Visual plus more. Home dems throughout Notts and E. Mids. Free install. 10-7, 7 days. Tel: (0602) 813562 for further info appt

WEST MIDLANDS

ALTERNATIVE AUDIO Ltd, 93-95 Hobs Moat Rd, Solihull. (021) 742 0254 (sales), 0248 (service). The widest range of quality hi-fi and CD in the West

The Choice Dealer Directory

BRITISH AUDIO DEALERS ASSOCIATION



Midlands. Tues-Sat 10-6.

BADA
AUDIO CENTRE MAINWAY, Sharing Asda Car Park, High Street, Bloxwich, Walsall, W. Midlands. (0922) 473499. Linn, Ariston, Aura, Arcam, Cambridge Audio, QED, Musical Fidelity, Rogers, QED, Systemdek, Moth etc. The Midlands most exclusive Hi-Fi Centre with private listening studio. Open evenings by appointment. Home trial. Free install. Own service department. Inst. credit, Chargecard. Interest free. Access, Barclaycard. Mon-Sat 9-5.30.

BRIDGE HI-FI, 3 Tudor House, Bridge St, Walsall. (0922) 640456. NAD, Dual, Yamaha, Kenwood, Technics, Pioneer, Mission, Celestion, Denon, Mordaunt Short. Appts required. Home trial & free install. Access, Visa, Diners, Amex. Credit to £1,000. 9.15-5.30 Mon-Sat. Service dept.

FIVEWAYS HI-FIDELITY LTD, 12 Islington Row, Edgbaston, Birmingham. (021) 4550667. Alphason, Arcam, Denon, Meridian, Musical Fidelity, Quad, Revox, Spondor, TDL, Thorens, etc. Dem facilities. Tues-Sat 9.30-6. Free installation. Access, Visa. Service Dept.

FRANK HARVEY HI-FI EXCELLENCE, 163 Medievale 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.

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

BADA
HORNTON ELECTRONICS (1987) LTD, 8-9 Lower Temple St, Birmingham B2 4JD. (021) 643 0972. Aiwa, Acoustic Research, Denon, Marantz, Mordaunt Short, JVC, Mission, Sony, Technics, Wharfedale. Credit to £1000. Access, Visa. 9-5.30 Mon-Sat. Service dept.

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

NAAM HI FI VISION, 122-123 New Street, Birmingham, 021 633 4944. Pioneer, Akai, Aiwa, Panasonic, 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.

SUPERFI 67 Smallbrook, Queensway, Birmingham, B5 4HZ. (021) 631 2675. Specialist Hi-Fi stockists of: Audio Lab, Musical Fidelity, Quad, Pioneer, Yamaha, Rptel, Wharfedale, Tannoy, Celestion and many more. Single Spkr Rooms by appt. **BADA**

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.

HORNS OF OXFORD LTD, 6 South Parade, Summertown, Oxford. (0865) 511241. Alphason, Ariston, B&W, Celestion, Marantz, Nakamichi, Pink Triangle, Quad, Sony, Technics. Free installation. Service dept. Access, Visa. 9-5.30. Closed Thurs.

OXFORD AUDIO CONSULTANTS LTD, Cantay Hse, Park End Place, Oxford OX1 1JE. (0865) 790879. Oxford Acoustics, Audio Research, Krell, Magneplanar, Apogee, Aragon, Stax, Marantz, Wharfedale, Cambridge Audio. Home trial and free installation. Instant Credit. Access, Amex, Visa. 10-6 Tues-Sat. Service dept

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-Sat 9-5.30. Free installation, credit to £1,000. Access, Visa. Service dept.

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.

SOMERSET

PAUL ROBERTS HI-FI, 32 North Str., Taunton. (0823) 270000. For facilities see entry under Avon.

WATTS RADIO - the engineers, Jim Badman, 1 West Street, Somerton. (0458) 72440. Castle, Dual, Denon, KEF, Mordaunt-Short, Ortonof, Quad, Rogers, Thorens, Yamaha. Dem and home trial facilities. Mon-Sat 9-1, 2-5.30, Wed 9-1. Free installation. Credit to £1,000. Access, Visa. Service dept.

STAFFORDSHIRE

ACTIVE AUDIO, 29 Market Street, Tamworth, Staffordshire. (0827) 53355. Arcam, Ariston, Celestion, Denon, Heybrook, Kel, Cyrus, Musical Fidelity, Marantz, Revox, Rotel, Rogers, etc. The only BADA Member in Staffordshire. Full dem. & home trial facts. Account and credit cards. Ring for opening times and free 'Fact Pack'.

ACTIVE AUDIO, 95 Stafford Street, Hanley, Stoke on Trent. (0782) 214994. Arcam, Ariston, Celestion, Cyrus, Denon, Kel, Kel Reference, Marantz, Rogers, Rotel, etc. The only BADA Member in Staffordshire.

Full dem. & home trial facts. Account and credit cards. Ring for opening times and free Fact Pack.

BADA
GRANGE HI-FI LTD, 153 Branston Road, Burton-on-Trent DE14 3DQ. (0283) 33655. Audio Innovations, Arcam, Creek, Systemdek, Snell, Spondor, Rotel, Pink Triangle, Quad, Voyd, etc. 2 dem rooms. Mon, Tues, Thurs, Fri, Sat. Open 9-5.30. Closed Wed. Free installation. Credit facilities. Visa, Access. Service dept

INTERSOUNDS, 62 Bennett Precinct, Longton, Stoke on Trent. (0782) 336233. Arcam, Denon, Dual, Mission, Musical Fidelity, NAD, Nakamichi, Revolver, Rotel, Systemdek etc. G.000 8 different speaker manufacturers. 2 dem rooms. Free install. In-house Service Dept. Access, Visa. £1000 credit subject to status. 9.30-5.30 Mon-Sat, Closed Thurs.

MUSICAL APPROACH, 137A Newport Road, Stafford (above Royal London Insurance). (0785) 55154. Linn Products, Arcam, Creek, NVA, Revolver, Audiotec, Onix, Epos, Marantz, Rotel and more. Home trial. Free installation. Service dept. Credit facilities available, Access, Visa. 9.30-5.30 Mon-Sat.

SUFFOLK

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
THE STEREO SHOP, 94 Norwich Road, Ipswich, Suffolk. (0743) 233832. Linn, Exposure, Musicality Fidelity, Creek, Epos, Monitor Audio, Mordaunt Short, Marantz, Rotel, Philips, NAD. 2 Single speaker listening rooms. Multi rooms specialists. Free installations. Service dept. Plus 3 year guarantee. Access & Visa. Licensed credit broker. 10.00-6.00 Tue-Sat, Thurs 10.00-8.00 (by appointment).

SURREY

AUDIO INC, 44 Walton Road, East Molesey, Surrey, KT8 0DQ. (081) 941 4234. Acoustic Energy, Conrad, Johnson, JA Michell, Proac, Croft, VPI, Thorens, Pink Triangle, Rotel, Luxman. Single speaker demo room. Home trial facilities. Free installation. Access, Visa, Interest Free Credit on some items, Standard credit terms. 10-6 Mon-Sat, 10-8 Thurs, 10-4 Sun.

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
ROGERS HI-FI, 13 Bridge Street, Guildford (0483) 61049. Aiwa, Denon, Dual, JPW, Marantz, Monitor Audio, Philips, Pioneer, Tannoy, Trio-Kenwood. Mon-Sat 9.30-6. Dem. facilities. Instant Credit. Access, Visa. Service dept.

SOUNDS EXCLUSIVE, 1 Kent House, High Street, Cranleigh, Surrey GU6 8AU. (0483) 268185. Marantz, Sumo, QED, Michell, Alphason, SME, Ortonof, Finestra, Proac, Bose. Home trial. Demos a pleasure. Appts preferred. Service Dept. Free install. Access, Barclaycard.

SPALDINGS HI-FI, 352-4 Lower Addiscombe Rd, Croydon, Surrey. (01) 654 1231. 3 dem rooms + 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 (01) 546 5549. Quad, Dual, Denon, Kenwood, Nakamichi, Rotel, Pioneer, QED, B&W, Tannoy. Dem and home trial facilities. Access, Visa. 9.30-5.00 Tues-Sat. Service dept.

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 St, 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.

UNILET HI-FI, 35 High St, New Malden, Surrey KT3 4BY. (01) 942 9567. Kel, Mission, Musical Fidelity, NAD, Nakamichi, Quad, Rotel, Tannoy Dem. Amex, Access, Visa, etc

SUSSEX (EAST)

DEFINITIVE AUDIO BRIGHTON, 8 Dyke Road Mews, 74-76 Dyke Road, Brighton BN1 3JD. (0273) 208649. Voyd, Systemdek, Audio Innovations, Heliuss, Audionote, JPW, Snell, Pirate Stands, Goldring etc. Home dems throughout Sussex. Credit facilities. Visa.

HASTINGS HI-FI, 33-35 Western Road, St. Leonards, E. Sussex TN37 6DJ. (0424) 442975. Linn, Musical Fidelity, Quad, Nakamichi, Arcam, Celestion, NAD, Denon, Yamaha, Tannoy. 2 listening rooms. Home trial Free installation. Service dept. All credit cards welcome. Instant credit up to £1,000, written details on request. 9-6pm Mon-Sat.

JEFFRIES HI-FI, 69 London Rd, Brighton, East Sussex. (0273) 609 431. 2 dem rooms, closed Mon, late night Wed. Parking, bus route. Credit facilities.

BADA
JEFFRIES HI-FI, 4 Albert Parade, Green St, Eastbourne, East Sussex. (0323) 31336. 2 dem rooms, closed Mon. Late night Wed. Parking, bus route. Credit facts.

BADA
LASER SOUND & VISION, 72 Terminus Road, Eastbourne, East Sussex BN21 3LX. (0323) 640911. Marantz, Cambridge, Kenwood, Denon, Rotel, Infinity, Tannoy, Michell, KEF, Heco etc. Dem room. Home trial. Free installation. Service dept. Visa, Access. 9am-6pm Mon-Sat.

SUSSEX (WEST)

BOWERS AND WILKINS Ltd, 1 Becket Buildings, Littlehampton Rd, Worthing. (0903) 64141. B&W, Nakamichi, Castle, Denon, Dual, JVC, Mordaunt-Short, Philips, Quad, Sony, Technics. 3 dem rooms. Mon-Sat 9-5.30, Weds 9-1. Home trial facilities, free installation, credit to £1,000 Access, Visa. Service dept

CHICHESTER HI FI, 7 St Pancras, Chichester, W. Sussex PO19 1SJ. Tel: (0243) 776402. Linn, Naim, Rega, Creek, Nakamichi, A&R, Denon, Roksan etc. Tues-Sat, 10-1, 2-5.15 (closed Mon)

BADA
MALCOLM AUDIO 12 South Street, Chichester, W. Sussex. (0243) 787562. Sony, Technics, Denon, Yamaha, Sherwood, Mordaunt Short, Wharfedale, Allison, Dual, NAD. Appointments necessary, Home Trial Facilities, Free Installation, Service Dept. Access, Visa. 9.15-5. Mon-Sat.

TYNE & WEAR

BILL HUTCHINSON LTD., 87A Clayton Street, Newcastle-Upon-Tyne Tel: 091 230 3600. A.R., AIWA, Denon, Dual, JVC, Mission, Mordaunt-Short, Omar, Technics, Yamaha, etc. Demonstration facilities, free installation, service department. Instant credit, Access, Visa. Mon-Sat 10-6 RED RADIO SHOP AND HI-FI CENTRE, 11 Olive St, (Off Park Lane) Sunderland. (091 567) 2087. Castle, Denon, Bose, JVC, Kenwood, Mordaunt-Short, Michell, Teac, Tannoy, Shure. Dem room, large with comparator facility. Free install. Service dept. Interest free credit and nodeposit interest free credit. 9am-5.30pm daily.

WARWICKSHIRE

NAAM HI-FI VISION, 78 Lower Precinct, Coventry, CV1 1DX. (0203) 632086. Technics, Pioneer, Kenwood, AR, Akai, Aiwa, Panasonic, Toshiba, Waledale, KEF. Demo Facilities, Access, Visa, Amex, Lombard Tricity credit charge. 9.0-6.00 Mon-Sat..

WORCESTERSHIRE

WEST MIDLANDS AUDIO, 158 Omberley Road, Worcester, WR3 7HA. (0905) 58046. Linn, Naim, Rega, Absolute Sounds, Meridian, Mission, Arcam, Ion Systems, Roksan. 3 dem. rms. for budget. High end & Audio Visual. Appt. nec. Home trials, Free Install. Service Dept. Access, Visa, Amex, Diners, Lombard/Hitachi. Mon-Fri 9.30-8.30 by appt. Sat 9-5.30.

YORKSHIRE (NORTH)

ELITE HI-FI, 178 Kings Road, Harrogate HG1 5JG (0423) 521 831. Voyd, Valdi, Avalon, Systemdek, Heliuss, Audionote, Goldring, Audio Innovations, Sugden, Marantz. Mon-Sat 9-5.30. Free installation. Service dept.

SCARBOROUGH HI-FI CENTRE, 53 Dean Road, Scarborough YO12 7SN. (0723) 374547. Cambridge Audio, Rotel, QED, Denon, Nad (incl. Monitor series), Thorens, Onkyo, Tannoy, Marantz, Ruark. Dem Room. Appts preferred. Home trial facilities. Mail order and part exchange. Visa, Access, Diners, Hi-Fi Markets Chargecard facilities. Open 10-6 Mon-Sat. SOUND ORGANISATION YORK, 16 Gillygate, York YO3 7EQ. Tel: (0904) 627108. Linn, Naim, Rega, Roksan, Sony, Arcam, Mission, Denon, Ion, Rotel. 2 single speaker dem rooms. Appts. preferred. Home trial. Free installation. Service dept. Access, Visa. Instant free credit available.

10am-6pm Tues-Sat. Sony dealer. Award nominated 86, 87, 88

BADA

YORKSHIRE (SOUTH)

HI-FI STUDIOS, Sunnyfields, Doncaster. (0302) 781387. Heybrook, Monitor Audio, Art Audio, TDL, Michell, Sugden, Acoustic Energy, Alphason, Teac, Quad. Listening Room Demos, Appointments necessary, Home trial, Free installations, Service available. Access, Visa. 10-8pm 7 days. phone for further info.

MOORGATE ACOUSTICS, 184 Fitzwilliam St., Sheffield. 0742 756048. Roksan, Linn, Musical Fidelity, Denon, Meridian, Krell, Quad, Audio Research, Exposure, Nakamichi. 2 Demo Rooms. Free installation. Service Dept. Access, Visa, Credit. 9.30-5.30 Closed Mon.

MOORGATE ACOUSTICS, 8 Westgate Chambers, Rotherham. 0709 370666. Roksan, Linn, Musical Fidelity, Denon, Meridian, Krell, Quad, Audio Research, Exposure, Nakamichi. A multitude of demo rooms. Free installation, Service Dept. Access, Visa credit facilities. 9.30-5.15 Closed Thurs.

YORKSHIRE (WEST)

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

BADA
AUDIOVISION (BRIGHOUSE) LTD, 5 Bethel Street, Brighouse, W.Yorks. HD6 1JR. 0484 713996. Largest range of Technics hi-fi in Yorkshire, Aiwa separates, Mordaunt-Short and Castle Acoustics Speakers. Panasonic, Finlux & Mitsubishi. Nicam TVs & Hi-Fi VCR's. Excellent CD dems. using comparator facts & over 1000 CD titles. Appts. pref. please phone. Free expert install. In-store Service dept. Visa, Access, Credit charge. Licensed credit broker. Open Mon-Fri 9-6, Sat 9-5.30.

ERRICKS, Hi-Fi Experience, Fotoson House, Rawson Square, Bradford (0274) 309266. Dem facilities. Sales/service agents for A&R, Linn, Quad, Exposure, Nakamichi, Mission etc.

BADA
HUDDERSFIELD HI-FI CENTRE, 4 Cross Church St, Huddersfield. (0484) 544668. B&W, Kenwood, Denon, Dual, Arcam, Musical Fidelity, Quad, NVA, Audio Lab, Philips, Mission, etc. Dem facilities - appointment reqd.

The Choice Dealer Directory

Mon-Sat 9-5.30, Thurs 9-8. Closed Wed. Free installation, credit facilities Access, Visa.

IMAGE HI-FI Ltd, 8-10 St Annes Rd, Headingley, Leeds. (0532) 789374 AR, Audio Lab, Denon, Linn, Marantz, Meridian, Mission, Monitor Audio, NAD, Quad. **(05102)**

IMAGE HI-FI, 17 The Springs, Wakefield, WF1 1QE. (0924) 200272. AR, Audio Lab, Denon, Linn, Marantz, Meridian, Mission, Monitor Audio, NAD, Quad.

SELECTIVE AUDIO, The Forge Cottage, 19 Crossgate, Otley. (0943) 467689. Exclusively handles Alphason, Roksan, NVA, ProAc, TDL, JDI, in the area and other minimalist British designer products for the discerning listener. Dem facility. Member of the Cognoscenti. Mon-Sat 10-6.

NORTHERN IRELAND

ARMAGH

LYRIC HI-FI, 84 Bridge Street, Portadown, Armagh, N. Ireland. (0762) 358 059. Linn, Naim, Rega, Arcam, Denon, Rotel, Musical Fidelity, Revox, Mission, Akai, Panasonic, etc. Mon-Sat 10am-6pm. **(05102)**

BELFAST

LYRIC HI-FI, 163 Stranmills Road, Belfast. (0232) 381 296. Linn, Naim, Rega, Arcam, Denon, Rotel, Musical Fidelity, Revox, Mission etc. Mon-Sat 10-6, Late night Thurs. **(05102)**

ZEUS AUDIO, 6 Hope Street, Belfast. (0232) 332522. Audio Innovations, Pink Triangle, Roksan, Marantz, Celestion, Linn, Meridian, Mission Cyrus, Ortofon, etc. Mon-Sat 10.00-5.30, Late night Thurs. **(05102)**

LONDONDERRY

ZEUS AUDIO, 23a Kingsgate Str, Colrairie, BT52 4LB. (0265) 56634. Marantz, Mission Cyrus, Aiwa, Akia, Alphason, Sony, Pink Tri, Celestion, Rotel. Opne Mon-Sat 10-5.30, Closed Thurs. **(05102)**

EIRE

CEOL PRODUCTS, 185 Lower Rathmines Road, Dublin 6. Tel: 0001 975984 961358. Alphason, Audio Innovation, Exposure, Linn, Marantz, Monitor Audio, Mordaunt Short, Musical Fidelity, Rega, Roksan. Single Speaker listening rooms. Free installation. All major cards. Mon-Sat 9.30-6.00 SCOTLAND

SCOTLAND CENTRAL

HI-FI CORNER, 44 Cow Wynd, Falkirk. (0324) 29011. Nakamichi, Denon, TDL, Ruark, Technics, Luxman, Thorens. 9.30-5.30 Mon - Sat Closed Weds. Demo. room available.

EDINBURGH

BILL HUTCHINSON Ltd, 43 Clarke St, Edinburgh. (031) 667 2877. AR, Aiwa, Denon, Dual, JVC, Mission, Mordaunt-Short, Omar, Technics, Yamaha etc. Dem facilities. Mon-Sat 10-6. Free installation, instant credit. Access, Visa. Service dept.

HI-HI CORNER, 121b Rose Street Pedestrian Precinct, Rose Str, Edinburgh EH2 3DD. 031 220 1535. Large range of products such as Nakamichi, Arcam, Audio Lan, Quad, Cyrus, Mission, Allison, Proton, NAD, Technics. Mon-Sat 10-5.30pm, Thurs 10-7.00pm **(05102)**

RUSS ANDREWS HI-FI, 34 Northumberland St, Edinburgh. (031) 557 1672. Linn, Naim, Rega, Arcam, Rotel, Marantz, Nakamichi, Quad, MS, MA, Yamaha. Demos. 10-5.30 Mon-Fri, 10-5 Sat. **(05102)**

GLASGOW

BILL HUTCHINSON Ltd, 43 Hope Street, Glasgow. (041) 248 2857. A.R., Aiwa, Denon, Dual, JVC, Mission, Mordaunt-Short, Omar, Technics, Yamaha etc. Dem facilities. Mon-Sat 10-6. Free installation, instant credit. Access, Visa. Service dept

HI-FI CORNER, 52 Gordon Street, Glasgow (041) 248 2840. The best in unbiased sound advice. Open 10-5.30 Tues - Sat. **(05102)**

HI-FI EXPERIENCE 145 Bath St, Glasgow. (041) 226 4268. Linn, Meridian, DNM, Celestian, Quad, Mission-Cyrus, Denon, Wharfedale, Ruark. 2 Demo Rooms. Tue-Sat 9.30-5.30. Contact James or Gordon. **(05102)**

STEREO STEREO, 278 St Vincent St, Glasgow G2 5RL. (041) 248 4079. Linn, Naim, Rega, Arcam, Creek, Epos, Exposure, Revox, PT, etc. Mon-Sat 10-6. Interest free credit. **(05102)**

GRAMPIAN

HOLBURN HI FI Ltd, 441 Holburn St, Aberdeen (0224) 585713. Linn, Rega, Quad, Audiolab, Mission Cyrus, Rotel, QED, NAD, Krell, Nakamichi, Denon, Sony, KEF, Wharfedale, Monitor Audio, Kenwood, etc. 9.30 5.30 Mon-Sat **(05102)**

TAYSIDE

W.M. COUPAR, 33 Reform Street, Dundee. (0382) 29588. Bang & Olufsen, NAD, Technics, Denon, Kenwood, Dual, Nakamichi, B&W, Acoustic Research, JBL. No appointment necessary, free installation, service department. All demonstration systems wired through a demonstration comparator. Licensed credit broker, Access, Visa. Monday-Saturday 9.00 am-5.30.

WALES

CLWYD

THE HI-FI ROOM, Apple Sound, Unit 3, Cambrian Business Park, Queens Lane, Mold, CH7 1NJ. (0352) 700433. AR, Aura, Denon (including DAT), DCM, Dual, Harman Kardon, JPW, Ruark, Thorens and more. Singisystem demos. Appointments necc. Home trial facilities, Free installation, Service dept, Credit facilities. Mon-Sat

DYFED

LEWIS AUDIO, 2 Queen Street, Carmarthen, Dyfed. (0267) 236463. NAD, Dual, Kenwood, Harman-Kardon, Rotel, Marantz, Denon, JPW, Wharfedale, JBL, Dem. room. Home trial facilities, free installation, Service dept Access, Visa, Amex, £1000 instant credit. Mon - Sat 9.30-5.15

SOUTH GLAMORGAN

AUDIO EXCELLENCE, 134 Crwys Road, Cardiff. (0222) 228565. Audio Research, Krell, Linn, Naim, NAD, Yamaha, Quad, Arcam, Mission + lots more. Closed Mon.

WEST GLAMORGAN

AUDIO EXCELLENCE, 9 High St, Swansea. (0792) 474608. Audio Research, Linn, Arcam, Mission, Quad, Naim, NAD, Yamaha, etc. Closed Mon.

GWENT

AUDIO EXCELLENCE, 37 High St, Newport. (0633) 220012. Audio Research, Linn, Naim, NAD, Yamaha, Arcam, Mission, Quad, etc. Closed Mon. **(05102)**

NORTH WALES

ACTION GATE AUDIO, 4 Ruabon Road, Wrexham, Clwyd. (0978) 364500. Arcam, Cambridge, Celestion, NAD, Quad, Radford, Rotel. Semilink, Tannoy, Yamaha etc. Dem room, appts. nec. Free install. Service Dept. Access, Visa, Amex. 9-5.30 Mon-Sat. Closed Weds
ELECTRO TRADER, 19 Colwyn Crescent, Rhos On Sea, Colwyn Bay, Clwyd. (0492) 48932. Ariston, Arcam, B&W, Heco, Infinity, Onkyo, Rotel, Tannoy, TDL, Yamaha etc. Dem room. Appts preferred Home trial. Free installation. Access, Visa, American Express, Diners. 9.30-1.00, 2.00-5.30 Mon-Sat



BRITISH "COTTAGE INDUSTRY" HI-FI AT ITS BEST

The Rothwell Electronics valve pre-amp is a high end pre-amp of modular design, offering the music lover renewed enjoyment of his/her music collection.

The first link in the chain is the moving coil step-up transformer. This is a high quality unit significantly better than miniature "in-line" transformers or the moving coil stage of most integrated amps.

Then comes the phono-stage. This is a valve amp with its own (separately boxed) power supply. The image depth and focus provided by this unit makes listening to vinyl much more of a real experience, and the separation between instruments makes the music much more understandable

And finally, the selector/attenuator is a passive pre-amp of elegant simplicity. Just select from any of the seven inputs, set the volume, and enjoy the music.

However, unlike many passive pre-amps, this is not just a "pot in a box". Instead of using a humble potentiometer as a volume control, a high quality stepped attenuator has been used. The result is superb inter-channel balance and unsurpassed control over the volume, especially at low listening levels.

The moving coil step-up transformer (£98.00), the valve phono stage (£320.00), and the passive pre-amp (£145.00) are all available separately (and all have their uses as separate items), or can be purchased together to form a complete and versatile pre-amp.

The price may be ridiculously low for hi-fi of this quality, but you'll obviously want to know more than I can tell you in this ad before investing in any or all of the modules. So if you are considering an upgrade to your system, give me a call or write to me at this address and I will send you free further details. Then you can audition the pre-amp where it really matters - at home in your own system.

ROTHWELL ELECTRONICS.
16 OAKLEIGH AVENUE,
GREAT LEVER,
BOLTON BL3 2ES.
Telephone (0204) 29399

A. Rothwell
ANDREW ROTHWELL.

MAIL ORDER
Anywhere in UK (mainland)
£9.00
Free insurance up to £1000
Worldwide tax free export



OPENING HOURS
10-6PM MON-FRI
10-3PM SAT
for
Demonstration of any equipment
RING 071-836 1120

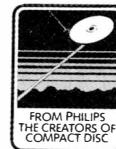
PHONE: 071-233 0774
071-836 1120
FAX: 071-233 7226

WHILE BUYING A CD PLAYER FOR US

your choice is not restricted

We have in stock:

CD PLAYERS:
ARISTON,
ARCAM,
CARVER,
DENON,
DUAL,
MARANTZ,
MICROMEGA,
NAD,
NACKAMICHI,
PHILIPS,
ROTEL, SONY,
TEAC,
TECHNICS,
YAMAHA



SPECIAL OFFERS:

Marantz CD 65MKII
SE (ex demo) £159.00

Marantz CD 75MKII SE
(ex demo) £209.00

BARGAIN OF THE MONTH

PHILIPS CD PLAYER R/CONTROL
ONLY £129.00

★ £25 CD Vouchers with Rotel
RCD 865

★ 3 CDs Free with SONY CDP790

★ Free delivery of DAT machines
throughout U.K. (mainland)

**SONY, JVC & DENON DAT Machines are now
available with us.**

**Audition DENON 4400 MONO BLOCKS,
KELVIN LABS, Q.E.D.
& AUDIO INNOVATION AMPS.**

Stockists of: Acoustic Energy, AR, Alphason, Ariston, Allison, Arcam, ATC, Audio Innovation, Audiolab, B&W, Beard, Carver, Castle, Creek, Celestion, Denon, Dual, Heybrook, Hafler, Infinity, JBL, JPW, Kelvin, Musical Fidelity, Marantz, Meridian, Mordaunt Short, Manticoe, Quad, Monitor Audio, NAD, Nakamichi, Orell, Pink Triangle, Proac, Proton, Pioneer, Gath, Rotel, Ruark, Sony, Snell, Sponder, Tannoy, Teac, Voyd, Wharfedale, Yamaha etc

**34 BUCKINGHAM PALACE ROAD, LONDON SW1
(NEAR VICTORIA STATION)
TEL: 071-233 0774 FAX: 071-233 7226**

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 retail price is placed in its respective category in alphabetical order. For instance, the Acoustic Research *EB101* is presently at the beginning of the Turntables and Tonearms section; however, the Ariston *Superior* heads the Motor Units section as it is solid and was reviewed as a separate component - requiring a separate arm. Where there are several products with the same name but different model numbers these are in price ascending order.

Then come 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.

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. 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

(especially the electromagnetic elements - that is to say the cartridge and the speakers), 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.

The *Hi-Fi Choice Directory* is constantly updated with the latest reviews and price changes as well as having any discontinued products removed. If a listed product is updated to a 'mark two' form and the alterations are purely cosmetic or not too extensive, we sometimes leave the product in with its current model number, together with an asterisk in order to denote that it has changed since our original review was published.

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.

Yet those who choose the separates route still have lingering doubts - usually completely unjustified - over the compatibility of components from different manufacturers. Gross incompatibilities are very rare nowadays, only likely to rear their heads amongst the most exotic components. Here the delicate art of 'supercompatibility' really takes over the major role and might be regarded as the key to 'real' hi-fi.

There are now three different prerecorded music media competing for the attention 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 separates purchasers may start with just one source, adding others or a tuner when funds permit.

There will always be controversy over the relative qualities of LP, CD and cassette. LP is still the choice for ultimate sound quality - particularly for those prepared to spend a substantial sum on a good quality turntable system.

Cassette has never really challenged vinyl's superior quality, but it is a multiple role format, offering 'go anywhere'

flexibility, a uniquely 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 latest challenger to these two established media, using a digital instead of analogue storage format. The sound quality remains controversial, hailed as near perfect by its fans but derided by vinyl freaks, so it is probably fairest to say that CD is fine for most listeners, but may not suit everyone; certainly the lack of background noise, defects and deterioration are major strengths.

While there will always be arguments about the different music storage and transmission formats available to the hi-fi listener, there is also controversy over the relative importance of the different components which make up the system chain - by which is meant the source, the amplification, and the loudspeakers (and for the pedantic the room itself, though there's often little that can be done here).

For many years the 'weakest link' theory proposed that the loudspeakers needed the most attention, that amplifiers merely had to have sufficient power, and that turntables were pretty well perfect. However, this perspective has become steadily discredited by an alternative 'theory of precedence', which stresses that

no subsequent component can make up for the inadequacies of its predecessors - all it can do is supply its own additional degradations. In such a context it is not uncommon to find more than half the system budget allocated to the record player, with scrimping and saving made on amplifiers and loudspeakers.

Choosing the components of a system is only part of the task of getting the system as a whole working as well as possible. Good turntables and loudspeakers both benefit to a surprising degree from proper support - from stands that enable them to give their best performance, whether floor-standing or wall mounted.

Siting of components within a room can play a significant role, as can the room itself. Some people may prefer an acoustically more 'live' room than others, but most will agree that the larger it is the better, because this tends to provide smoother and better extended bass reproduction. All rooms create reflections and standing waves, and the effects of these are more severe if all opposing walls are parallel, similar distances apart, and with hard reflective surfaces. Provided that the loudspeakers can be placed fairly symmetrically, slight asymmetry elsewhere in the room is usually helpful.

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 similar immediate acoustic environment, unencumbered by other furnishings and

structure, and a similar distance from each listener, 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 being closely mechanically coupled via proper stands to the floor.

Mixing and matching the components of a record player to get optimum results can be something of a black art, over and beyond the fairly simple business of choosing a cartridge of roughly the right compliance to suit the arm effective mass. Certainly the combining of turntables and tonearms is not a simple matter, and this is where a good specialist dealer will come into his own, both in terms of recommending good combinations from the models he holds in stock, and then in correctly carrying out the sometimes tricky set up procedures which are often required to get the best results.

The key to getting the best results from a separates 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 so that it can be used by *Choice* readers as a buying guide. A guide in the sense that that you should use the information in it to make a shortlist of equipment suited to your needs and budget, and then audition it at a dealers' before taking the plunge. Because tastes inevitably differ it would be unwise to buy purely on the basis of our recommendation and dealers are the most experienced people around when it comes to making systems work as a whole.

TURNTABLES & TONEARMS

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 players with a variety of automatic facilities, sometimes tied into system remote control. But engineering compromises severely limit sound quality, cartridge choice may be P-mount restricted, and such machines are rarely stocked by specialist hi-fi dealers these days.

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 individual components, but 'naturally sympathetic' combinations do exist, and the good dealer can help.

Listed separately as integrated players and as turntable motor units and tonearms, our sound quality rating is based on results achieved using a high quality system – but in point of fact the turntable is usually the limiting factor soundwise in any system. Lab performance 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.

INTEGRATED TURNTABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES ARM EFF. MASS | VALUE | ISSUE |
|--|------------------------|--|--|-------|-------|
| Acoustic Research EB101 £230 | Good Good | This genuine high fidelity product offers an impressive package at a competitive price | Subchassis, manual, 13.5g | BB | 48 |
| Alphason Solo/Xenon MCS £420/£300 | Average Good | The deck is warm and euphonious with high levels of clarity. Wow artefacts occasionally just audible | Suspended motor unit, optional quartz PSU, 13g | | 67 |
| Alphason Sonata/HR-100S MCS/Atlas £720/£480/£340 | Very Good 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 |
| Alphason Super Nova £300 | Good Good | Informative, easy to listen to and quite lively deck with good detail and occasionally uneven bass. Build quality of review sample not perfect | Subchassis, manual, belt drive, detachable arm, 12g | R | 91 |
| Ariston Forte £350 | Average - Average | Heavy on engineering, short of soul? The Forte almost makes it, losing out only because of some residual pitch variations and a lack of bass power. The arm is modestly good | Manual 2-speed belt drive player and detachable arm, 10g | | 67 |
| Ariston Icon £215 | Good Good | A thoughtful and efficient design that offers good sound, excellent value and semi-automatic operation too! Good vibration isolation eases siting | Belt drive, suspended, semi-automatic, 10g | BB | 79 |
| Ariston Pro £180 | Good Good | Remarkably clear and detailed for the price, very neutral. Benefits from cartridge upgrade | Manual, belt drive, 12g | BB | 91 |
| Ariston Q-Deck £165 | Good Average + | Well engineered and good sounding low cost package which is both easy to set up and to use | Semi-auto, belt drive, solid | BB | 67 |
| Dual CS430 £100 | Average 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 |
| Dual CS5000 £230 | Average 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 |
| Dual CS503-2 £140 | Good - Average | 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 |
| Dual CS505-4 £160 | Good - Good - | The old-time favourite which never gives up. Sound is enjoyable if not perfectly clear, all-round value is excellent | Semi-auto, belt drive | BB | 91 |
| Goldmund ST4 £4589 | Very Good Excellent | The Studio turntable takes on a cheaper tonearm than the T3F, yet provides a similar reference standard objective and subjective performance at £2,000 less, in a neatly integrated though bulky package | Solid subchassis, direct drive, parallel arm, detachable h/shell | R | 60 |
| Heybrook TT2 turntable & arm £424/£269 | Average Good + | 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, belt drive, 14g | R | 67 |
| JVC AL-FQ555 £170 | Average - Poor | 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 |
| Kenwood DP-990 £400 | Average Average | Smart, slick and massive player suitable for low compliance cartridges only. A good but not inspired performer | Semi-auto 2 speed direct drive, 16g | | 67 |
| Kuzma Stabi/Stogi Reference £900/£700 | 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 |
| Linn Axis/Akito £399 | 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 |
| Linn LP12-Lingo/Ekos/Troika £1128/£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 very best. Ekos arm, though pricey, is well made and suited to many decks | Manual, subchassis, belt drive, 9g | R | 91 |
| Manticore Mantra/Musician £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 |
| Marantz TT400 £150 | Average - Poor | Everything one hopes a budget deck won't be; coarse, confused, muddled and woolly. Construction isn't wonderful, either | Manual, belt drive, 16g | | 91 |
| NAD 5120 £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 |
| Omega Point Silver/Black £895/£295 | Good Good + | An avowedly stripped down turntable that lacks even an on/off switch, the Omega Point Silver offers fine midrange clarity and good stereo, but some HF compression and a lack of 'wellie' | Manual, solid, belt drive, unipivot, 11g | | 55 |
| Opus 3 Continuo/Decca London International (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 |
| Rational Audio Aura 01 £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 arm, 10g | R | 91 |
| Rega Planar 2 £155 | Average + Good | A remarkable product at the price, surprisingly articulate and confident | Manual, 11.5g | BB | 48 |
| Rega Planar 3 £207 | 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 |
| Revolver Rebel £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 |
| Revox B291 * £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, prefitted cartridge | | 55 |
| Roksan Xerxes/Artemiz /Artaxerxes £695/£595/£495 | Good - Good | Slightly over-bright sound can very be impressive and this deck has many followers. However, this sample was thought to lack fine detail, and the bass tended to thump. Careful siting required to minimise feedback | Manual, belt drive, semi-suspended, built-in preamp | | 91 |
| Rotel RP-855 £189 | 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 |
| Systemdek IIX £248 | Good Average + | Poised, clean sounding deck, forward and explicit in character. A good value deck under £250, and a relatively cheap and satisfactory suspended model | 2 speed belt drive manual turntable and arm, 11g | R | 67 |

INTEGRATED TURNTABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES ARM EFF. MASS | VALUE | ISSUE |
|---|------------------------|--|---|-------|-----------|
| Technics SL-DD33 £110 | Average Average | As with the QD33 though better value | Automatic, direct drive, solid plinth, 7.5g, P-mount | BB | 48 |
| Technics SL-QD33 £140 | 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 |
| Technics SLBD-22 £90 | 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 |
| Thorens TD 166 Mk V £200 | Good Good | Classic suspended-subchassis deck with clear, stable sound of no particular character. Unlikely to make enemies | Belt drive, suspended, 12g | BB | 79 |
| Thorens TD 280 Mk II £180 | Good - Good - | Legendary Thorens build quality on the cheap – slightly unsuitable sound but eminently liveable-with and very good value | Belt drive, solid, electronic PSU, 12g | BB | 79 |
| Thorens TD 316 Mk II £220 | 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 |
| Thorens TD2001 £630 | Good Good - | Similar to TD320 but much dearer - why? Sound is comfortable but not very detailed | Semi-auto, belt drive, subchassis 15g | | 91 |
| Thorens TD320 Mk II £350 | 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 |
| Townshend Rock Reference/Excalibur £1995/£695 | 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 |
| Voyd Reference/Helios Cyalene £1066/£5299 | 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. A strong contender for best turntable in the known universe | Belt drive, 3 motors, subchassis, outboard PSU, 12/14g | R | Coll. '90 |
| Well Tempered WTAT £1690 | Average Very Good | Intriguing and challenging design. Musically it is not ideal, but it has a limpid 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 R arm, 7.5g | R | 67 |
| Zarathustra S4/Pluto 5A 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 |
|--|------------------------|---|--|-------|-------|
| Ariston Superior £598 | Good + Good | Good but slightly damped sound quality, with powerful and stable bass. The pro quo is a certain lack of pace, energy and resolution | Belt drive, subchassis, electronic | | 55 |
| CEC ST930 £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 |
| CS Audio Resan kit for Rega £80 | 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 |
| Michell Gyrodec £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 |
| Michell Syncro £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 |
| NVA Senior £450 | Good - Average | Very high sensitivity to low-frequency vibration, especially on NVA stand, gives strange subjective bass response and confused sound. Looks are unusual but pleasing | Belt drive, electronic PSU, two-part plinth | | 79 |
| Oracle Alexandria Mk III £995 - £1095 | Very Good Very Good | One of the most beautifully presented players made, and fully supported by superb separation, Good dynamics and a euphonious style of delivery. | Manual 2-speed belt drive | R | 67 |
| Oracle Paris £595 | Good - Average | Looks good but sounds coarse, confused and uneven, with bass liable to thump | Belt drive, semi-suspended, electronic | | 91 |
| Origin Live Oasis A £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 |
| Origin Live Oasis 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 |
| Oxford Acoustics Crystal Reference £2395 | Very Good Excellent | This big, open and powerful sounding turntable works beautifully with Airtangent arm to give superb 3-D imagery | Manual, belt drive, subchassis, stand | R | 60 |
| Pink Triangle Anniversary £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 |
| Pink Triangle Export £620 | Very Good Excellent | Basically a PT TOO 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 |
| Pink Triangle Little Pink Thing £345 | 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 |
| Revolver £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 |
| Roksan Xerxes £695 | Excellent Very Good | This unique design cuts a swathe through the conventions of turntable design, providing superb resolution and stereo. Power supply has since been upgraded – see issue 78 for our latest report | Manual, belt drive, solid/decoupled | R | 67 |
| Systemdek IIXE £248 | Good Very Good | Fine, honestly specified and well built player which easily betters its closest stablemate, the IIX. Frankly, at the price it's a sonic bargain | Manual 2-speed, external PSU | R | 67 |
| Systemdek IV £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 |
| Voyd 'The Voyd Plus' £2777 | 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, so we've dubbed it The Voyd Plus. Superb build and finish; colourful, dramatic performance. A thoroughbred | Belt drive, 3 motors, subchassis, outboard PSU | R | 72 |
| Voyd Valdi £680 | Good - Good + | Slight 'one-note bass' effect and lack of pitch stability compromise the performance of this well-made deck | Belt drive, suspended subchassis, electronic PSU | | 79 |
| VPI HW-19 £1317 | 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 |
|-------------------------------|-------------------|---|-----------------|-------|-------|
| Airtangent 1B £1990 | n/a Excellent | A complex but superbly built arm for high quality systems, giving excellent stereo and resolution | 7.5g (vertical) | R | 60 |
| Alphason Delta £190 | Good Average + | A highly competent design from Alphason gives good sound quality but with slight blurring and treble fizz | 16g | R | 48 |

Why do we win these awards?

F.B.A. PUBLIC ACCLAIM
DEALER OF THE YEAR 1985

SONY HI-FI NEWS & RECORDS REVIEW DEALER AWARDS
1986 WINNER
GREATER LONDON

SONY HI-FI NEWS & RECORDS REVIEW DEALER AWARDS
1989 WINNER
GREATER LONDON

SONY HI-FI NEWS & RECORDS REVIEW DEALER AWARDS
1990 WINNER
GREATER LONDON

SONY HI-FI NEWS & RECORDS REVIEW DEALER AWARDS
1990 NATIONAL DEALER OF THE YEAR

“One of the 5 best Hi-Fi shops in the world.”
High Fidelity mag. May 1990

Because they are voted by the public! Satisfied customers are so impressed by the service, advice and ultimate quality of the hi-fi we supply, that not only do they recommend their friends but also take the trouble to nominate Grahams for these honours. Five air-conditioned dem rooms, probably the

finest hi-fi facilities in Europe (most people are amazed when they visit us for the first time), lots of FREE parking, helpful, trained staff, 60 years trading, systems from £400 upwards. *Ring for a chat, an appointment and a map!*



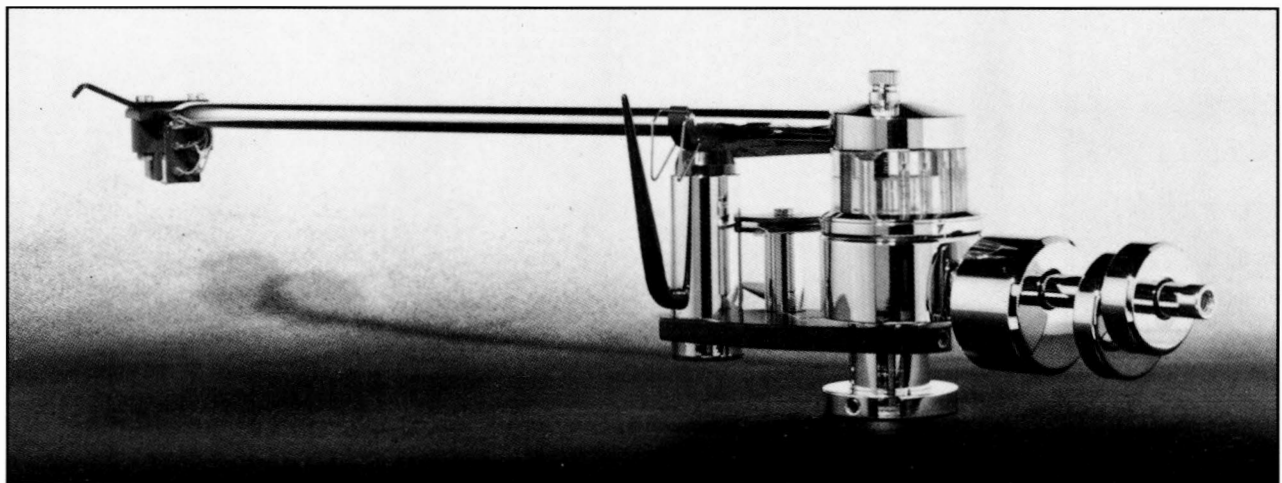
hear **Come and see why!**



Canonbury Yard
190A New North Road
London N1 7BS ☎ 071-226 5500

Mørch DP-6

In spite of the slender appearance, the Mørch tonearms have an amazing mechanical strength and stability. They are the result of the best precision mechanics, the finest craftsmanship, and realize technical and tonal claims without compromise. What has been achieved with the Mørch tonearms enables the cartridge to accomplish its task with extraordinary motional ease while maintaining a very high degree of stability. The proof of their superiority lies in the listening! The Mørch arms have received high acclaim from both critics and skeptics, simply because their sonic superiority can be easily demonstrated.



• ARCIGI • DYNAUDIO • LECTRON • H.H. MORCH • POSSELT • SP AUDIO •

ELECTROACTIVITY

132 LONGLAND DRIVE LONDON N20 8HL

TEL: 081 445 6151 FAX: 081 445 5444

TONEARMS

| MODEL PRICE | LAB SOUND | COMMENTS | ARM EFF, MAS | VALUE | ISSUE |
|--|------------------------|--|---------------|-------|-----------|
| Alphason HR100S £420 | Very Good | This S-shaped arm sounds smooth, but nevertheless reproduces transients with fine attack | 10g | R | Coll. '86 |
| Alphason Opal £130 | Good Average | This is a straightforward adequate sounding low cost arm, priced just above where it rightly belongs | 10g | | 55 |
| Alphason Xenon £240 | 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 |
| Ariston Enigma £99 | Average Average + | Good but not the best in its class: mid-band sounds a little uneven; treble a trifle 'brash' | 11.5g | | 48 |
| Audio Technica AT1130 £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 |
| Decca London International £49 | 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 |
| Eminent Technology £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 |
| Goldmund T3F arm £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 |
| Helius Orion 2 £490 | Very Good Very Good | Excellent engineering with rigid bearings, free from slack. It remains expensive but the level of performance deserves Recommendation | 12g | R | 48 |
| Kuzma Stogi Reference £699 | 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 |
| Linn Ekos £895 | Very Good Very Good | Superb, state of the art design which builds significantly on Ittok's strengths | 9g | R | 67 |
| Mission Mechanic £900 | Good Good + | Nearly right, but inconsistency with level and vague imagery spoil what is otherwise a firm, powerful advocate for black vinyl! | 11g | | 55 |
| Moth Arm £78 | Good Good + | The ultimate budget arm? Refined, detailed, sweet and natural – performance improves in line with the rest of the system | 12g | BB | 60 |
| Naim Aro £700 | Good Good - | Designed for use on the Linn LP12, the Aro is a little bright and congested. | 10.5g | | 91 |
| Rega RB300 £115 | 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 |
| Roksan Artemiz £595 | Average Good | Interesting design which works a treat on the Xerxes deck. Fits Rega cut-out. See issue 91 for up to date assessment | 8g | | 67 |
| Roksan Tabriz £150 | 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 |
| SME 3009 Series III £253 | Good Average + | Comprehensively adjustable and very well made, suited to MM and high compliance MC cartridges | | 5g | 48 |
| SME 3009 Series IIIS £182 | Good Average + | A simplified less flexible (as regards adjustment) Series III with a similarly 'soft' sonic character | 5g | | 48 |
| SME 3009R £335 | Average + Average + | A higher mass version of the Series III designed for low compliance MC cartridges | 12g | | 48 |
| SME 309 £495 | Very Good Very Good | Beautifully made, finished and presented, this arm is fully and easily adjustable and a highly neutral performer | 10g | R | 79 |
| SME Series IV £810 | Excellent Very Good | Superb engineering and finish with a finely balanced sound giving impressive stereo focus and low coloration | 10.5g | R | 60 |
| SME Series V £1247 | 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 |

CARTRIDGES

Very much the 'slave' of turntable and tonearm and to some extent undermined by the supply of free 'starter' cartridges on many turntable systems, 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 record collection – and the cartridge also plays a significant role in determining the overall balance of a system.

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 moving magnet 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 which will be used

| MODEL PRICE | LAB SOUND | COMMENTS | ARM OUTPUT/TYPE | VALUE | ISSUE |
|---|------------------------|--|----------------------------|-------|-------|
| Arcam C77 £22 | Average + Average + | A sensible moving magnet package with good bounce at a competitive price | 6-16g Normal, MM | BB | 48 |
| Arcam C77Mg £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 |
| Arcam E77Mg £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 |
| Arcam P77Mg £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 |
| Arcam PMX10 £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 |
| Audio Technica ART1 £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 |
| Audio Technica AT-420E OCC £31.50 | 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 |
| Audio Technica AT-430E OCC £44.50 | Average + Average | A rising high frequency response yields something of a treble sting, not a good all-rounder | 3-7g Normal, MM | | 67 |
| Audio Technica AT-F3/OCC LE £74 | Average + Good | Though the 'limited edition' badge is a trifle tongue-in-cheek, the F3 still offers excellent value | 8-15g Low, MC | BB | 67 |

CARTRIDGES

| MODEL PRICE | LAB SOUND | COMMENTS | ARM OUTPUT/TYPE | VALUE | ISSUE |
|--|------------------------|---|-------------------------------|-------|-------|
| Audio Technica AT-F5/OCC LE £106 | Average Good + | This latest sample demonstrated some technical weaknesses but its spacious, fluid sound quality still represents a benchmark at this price | 4-10g Low, MC | BB | 67 |
| Audio Technica AT95E £18 | Average - Average | Clear, dynamic if richly balanced, the magnetic '95E is a definite Best Buy | 8-14g Normal, MM | BB | 48 |
| Audio Technica ATOC7 £265 | Good + Good + | The OC9 is better if you can afford the extra. But OC7 is at least a taste of the high-end at a sensible price | 6-13g Low, MC | R | 54 |
| Audio Technica ATOC9 £400 | Average + Very Good | Tonal colours are reproduced faithfully and it rarely puts a foot wrong. Slightly less transparent than more costly MCs but it has got real wellie. Good value (really!) | 6-14g Low, MC | R | 60 |
| Audionote IO2VDH £895 | Good Very Good | One of the best, giving 'an extraordinarily relaxing midrange clarity', needs a transformer | 8-18g Very low, MC | R | 43 |
| Audioquest AQ 404i-L £400 | Very Good Good + | Slight harshness detracted from the performance of this otherwise clear-sounding and detailed cartridge | 8-16g Low, MC | | 84 |
| Audioquest AQ 7000 £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 |
| Audioquest MC5 £220 | Average Average | Offers high-output benefits but the drooping frequency response and severe VTA error preclude recommendation | 10-20g Normal, MC | | 54 |
| Cello Chorale £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 |
| Denon DL 103 £99 | Average Good | This classic spherical stylus model gives a lively sound with powerful bass, and is popular in broadcast studios | 6-16g Low, MC | R | 48 |
| Denon DL110 £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 |
| Denon DL160 £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 |
| Dynavector 17D2 £280 | Very Good Very Good | Clear, detailed, neutral and generally very informative - excellent | 6-18g Low, MC | R | 91 |
| Dynavector DV-50X £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 |
| Dynavector DV10X IV £125 | Average Average + | Fine sounding and realistically priced, damping is recommended to ensure successful tracking ability | 8-18g Normal, MC | R | 48 |
| Dynavector DV23RS £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 |
| Dynavector XX-1 £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 |
| Dynavector XX-1L £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 |
| Empire 800 Mk II £33 | Good Average | This very high output MM appears to be based on the classic Ortofon VMS series. A trifle uninspiring overall | 7-17g Normal, MM | | 67 |
| Empire Benz Micro MC-2 £600 | 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 |
| Empire MC-5M £110 | Average + Good | A very low compliance renders this MC best suited to heavy tonearms while its sweet, non-aggressive sound quality earns it a recommendation | 13-20g Low, MC | R | 67 |
| Glanz GMC-10EH £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 |
| Glanz GMC-10LX £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 |
| Glanz GMC-20E £129 | Good + Good + | Very good tracking, smooth sound and good detail. Very slight surface noise enhancement | 5-10g Low, MC | R | 91 |
| Glanz MFG-110EX £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 |
| Glanz MFG-310LX £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 |
| Glanz MFG-610LX £90 | Good + Good + | Similar to cheaper '310 but slightly clearer transients and bass. Benefits from lowish impedance loading | 3-10g Normal, MF | R | 85 |
| Goldmund Clearaudio £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 |
| Goldring 1012 £40 | 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 |
| Goldring 1022 £60 | 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 |
| Goldring 1042 £85 | Good + Good | Not terribly subtle, and not such good value alongside 1012 and 1022. Quite lively, though | 7-12g Normal, MM | | 91 |
| Goldring Elan £16 | 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 |
| Goldring Epic II £26 | Average Average + | An excellent budget choice though the limitations of the stylus are rather obvious at higher frequencies | 5-12g Normal, MM | R | 67 |
| Goldring Eroica £100 | 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 |
| Goldring Eroica LX £115 | 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 |
| Goldring Excel £500 | 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 |
| Grado ZF3E + * £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 |
| Grado ZTE +1 £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 |
| Kiseki Blackheart £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 |
| Kiseki Blue Goldspot £450 | Very Good Good + | Good bass and imaging, but hints of spit and coloration let the side down slightly | 8-15g Low, MC | | 84 |
| Kiseki Lapis Lazuli £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 |
| Kiseki Purpleheart Sapphire £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 |

The Directory

CARTRIDGES

| MODEL PRICE | LAB SOUND | COMMENTS | ARM OUTPUT/TYPE | VALUE | ISSUE |
|------------------------------------|------------------------|---|--|-------|-----------|
| Koetsu Black S £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 |
| Linn Asaka £365 | 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 |
| Linn K5 £37 | Average Average + | Not as crisply focused as the costlier Linn magnetics, the K5 offers a smoother presentation | 7-16g Normal, MM | R | 67 |
| Linn K9 £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 |
| Linn Karma £552 | 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 |
| Linn Troika £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 |
| London Maroon £149 | Average Average + | Now manufactured under the London brandname this Decca cartridge is as iconoclastic as ever | 9-20g (damp) Normal, MM | | 67 |
| London Super Gold £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, damp Normal, fixed stylus MM | | 84 |
| Milltek Aurora £249 | Good + Good + | An overall feeling of relaxed ease characterised this clear and atmospheric Kiseki-built cartridge | 8-16g Normal, MC | R | Coll. '86 |
| Milltek Olympia £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 |
| Nagaoka MM4 £9 | Average - Average - | Clear punchy sound that delivers the rudiments of a good performance. | 6-16g Normal, MM | R | 54 |
| Nagaoka MP10 £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 |
| Nagaoka MP11 Boron £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 |
| Nagaoka MP11 Gold £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 |
| Nagaoka Stilton TS10 £50 | Good - Good | Stilton-designed solid body (with three-point mounting) certainly gives remarkably resonance-free sound, but tip and generator are less good – a little rough at times. | 5-10g Normal, MM | R | 85 |
| Nagaoka Stilton TS11 £70 | Good - Good | Differs from TS10 in having Vital stylus with better tracing but still some high frequency harshness. | 5-10g Normal, MM | | 85 |
| Ortofon 510 £30 | Good Good + | For the price, a good blend of virtues – weight, clarity and neutrality. | 3-11g Normal, MM | BB | 85 |
| Ortofon 520 £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 |
| Ortofon 530 £80 | Good + Good + | Very clean and assured sound; transients not quite perfectly pure but plenty of detail. | 4-11g Normal, MM | R | 85 |
| Ortofon 540 £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 |
| Ortofon MC10 Super £70 | Average Good | 'What a delightfully sweet-sounding cartridge this is ...' we said | 5-15g Low, MC | BB | 48 |
| Ortofon MC20 Super £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 |
| Ortofon MC30 Super £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 |
| Ortofon MC3000 MkII £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 |
| Ortofon MC5000 £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 |
| Ortofon OM10 £20 | Average Average | One of the leading 'cheapies', this gives a fine level of sound quality for the price, with good matching compatibility | 5-15g Normal, MM | BB | 48 |
| Ortofon OM20 £45 | Average Average + | This turned out to be the listening panel's favourite among Ortofon's moving magnet models | 5-16g Normal, MM | R | 48 |
| Ortofon OM40 £90 | Average Average + | Highly competent engineering, secure tracking and decent sound quality are major strengths. But it's a little cold, a little polite | 3-8g Normal, MM | | 48 |
| Ortofon OM5E £15 | Average - Average - | The OM10 is a hi-fi cartridge – the OM5E is not | 5-16g Normal, MM | | 43 |
| Ortofon Quasar £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 |
| Ortofon X1 £50 | Average Average | The cheaper X1 scored higher marks with our listening panel than the X3, but both were a disappointment | 6-15g Normal, MC | | 48 |
| Ortofon X3 £70 | Average Average | A lack of bass power, definition and a 'zitty' top end makes this competent but uninviting | 5-15g Normal, MC | | 48 |
| RATA RP20 £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 |
| RATA RP40 £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 |
| RATA RP70 £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 |
| RATA RP70vdH £99 | Average + Good | Able to retrieve bags of musical detail (thanks to the vdH stylus), RATA's top cartridge ranks as one of the most articulate MM's available | 11-18g Normal, MM | R | 67 |
| Rega Bias £34 | Average Average + | Difficult to mount in some arms due to its shallow build, the bias offers a gentile, refined SQ that certainly makes it worthy of audition | 4-10g Normal, MM | | 67 |
| Rega Elys £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 |
| Revolver £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 |
| Roksan Corus Black £100 | Good + Good | Recognisably related to Corus Blue, but distinctly more civilised and smoother. | 7-12g Normal, MM | R | 91 |
| Roksan Corus Blue £60 | Good + Good | Roksan-specified modified Goldring 1012; slight harshness detracts from otherwise good sound | 7-11g Normal, MM | | 91 |
| Shure M104E £36 | Average - Average | Capable in many ways, but giving no substantial improvement over the 92E in our view | 5-15g Normal, MM | | 38 |

CARTRIDGES

| MODEL PRICE | LAB SOUND | COMMENTS | ARM OUTPUT/TYPE | VALUE | ISSUE |
|--------------------------------------|------------------------|---|----------------------|-------|---------|
| Shure M105E £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 |
| Shure M110HE £60 | Average 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 |
| Shure M111HE £72 | Average Average | Early reviews of this cartridge complained principally of the price – which has since come down | 5-10g Normal, MM | | 38 Summ |
| Shure M92E £17 | Average - Average | Though lacking depth, the overall sound quality was competent, but treble was not its forte | 10-15g Normal, MM | | 43 |
| Shure M99E £29 | Average - Average - | Sister to the 92E this is a solid but not particularly exciting cartridge | 5-10g Normal, MM | | 38 Summ |
| Shure ME75ED £26.50 | Average Average - | Rather bright and splashy in the high frequencies but nevertheless a competent model | 5-10g Normal, MM | | 38 |
| Shure ME97HE £49 | Average 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 |
| Shure ML120HE £95 | Average + Average + | Quite decent sound quality and a generally fine balanced performance | 6-18g Normal, MM | | 48 |
| Shure ML140HE £120 | Average + Good | Qualitatively the treble of this well-balanced moving magnet model was a match for many moving coil cartridges | 6-16g Normal, MM | | 43 |
| Shure Ultra 500 £499 | Good Good | There was no doubting the accomplishments of what could well be the finest moving magnet cartridge around | 6-14g Normal, MM | | 48 |
| Shure V15 VMR £215 | Good Average + | 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 |
| Shure VST V £158 | Very Good 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 |
| Stifton/AT-F3 £110 | Good + Good + | At a premium of some £40 this modified AT-F3 offers a startlingly refined performance and is strongly recommended | 8-18g Low, MC | R | 67 |
| Van den Hul MC One £699 | Good Very 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 |
| Van den Hul MC Two £899 | Good Very 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 |
| Van den Hul MC1 Super £800 | Very Good 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 |
| Van den Hul MC10 £499 | Good Good + | A neutral balanced performer giving transparent midrange, fine depth and focus with firm extended bass. Gosh! | 5-10g Low, MC | R | 60 |

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 |
|--|------------------------|---|---|-------|-------|
| Acoustic Research A03 £160 | Average Average | New slimmed down version of the A04 with less power and facilities but also a slightly 'fuzzy' sound | 38W, MM disc, CD direct and 3 aux inputs | | 74 |
| Acoustic Research A07 £299 | 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 |
| Aiwa XA-005 £130 | Good + Average - | A technically competent amp with big, friendly but not overly engrossing sound quality | 61W, MM 5 line inputs, source-direct | | 80 |
| Akai AM-52 £230 | Average + Average - | Basically equipped, this amplifier offers a comfortable but hardly over-detailed sound | 95W, MM/MC disc, 5 line inputs, loudness | | 74 |
| Akai AM-65B £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 |
| Akai AM-93 £550 | Average Average - | Unfortunately Akai's on-board D/A converters were less successful than its conventional analogue CD input. | 112W, coax and optical dig inputs. MM/MC | | 68 |
| Amadeus Gold £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 inputs | R | 74 |
| Amadeus Silver £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 |
| Aragon 4004 £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 |
| Arcam Alpha II £180 | Good Good + | Very confident, convincingly musical and punchy sound that sets the standard for other budget amps | 41W, 4 line and MM inputs | BB | 68 |
| Arcam Delta 60 £280 | 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 |
| Arcam Delta 90.2 £400 | 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 |
| Ariston Amp £219 | Average Average + | Slightly veiled and thin sound but proved suitably attractive in the listening tests | 32W, full logic control, MM and 4 line inputs | R | 68 |
| Audio Innovations Series 1000/2nd Audio Amplifier £1379/2579 | Poor Excellent | This valve combination offered awesome dynamic range with superb transparency and power to match. Compatibility with other brands is unpredictable | 15W, MM, 6 inputs, monoblocks | R | 63 |

The Directory

AMPLIFIERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|---|--|-------|-----------|
| Audio Innovations Series 200 £429 | Poor Very Good | Like most 'Innovations valve power amps, compatibility with other brands is unpredictable. Hardly a powerhouse, but nicely 'open', transparent and dynamic sound in small(ish) systems | 12W | R | 77 |
| Audio Innovations Series 300 £479 | Poor Very Good | Something of an anomaly, the 300 is an integrated valve amp that looks awful in the lab but sounds remarkable in a system | 10W, MM, 6 inputs | BB | 63 |
| Audio Innovations Series 400 £625 | Poor Very Good | Superior styling and better build quality than the Series 300 make for a very attractive integrated valve amp. Capable of fine results in the right system, but can sound too 'thin' and lacking in welly with inefficient speakers | 12W, MM and 4 line inputs | R | 77 |
| Audiolab 8000A £350 | Very Good Good + | Exceptionally detailed, tactile and transparent via CD but slightly more clouded via disc. A stalwart design | 72W, MM/MC, 4 line and full record out selection | R | 74 |
| Audiolab 8000C £325 | Excellent Good | A well established preamp with a highly controlled sound, though it could do with more life and depth | MM/MC, 5 inputs, hdph, tone controls | R | 62 |
| Audiolab 8000P £495 | Excellent Good + | A dynamic powerhouse, load tolerant and sonically reliable | 100W | R | 62 |
| Audion CD-1 £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 |
| Aura VA-40 £189 | 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 |
| Beard 506 £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 |
| Beard Audio CA35/P35mkII £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 |
| Beard M70 £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 |
| Bryston 0.5B/2B £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 |
| Bryston 12B/4B £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 |
| Cambridge P50 £200 | Good Average + | A pleasant enough sound with full bass yet with a slightly mechanical quality that reduced its sense of 'naturalness' | 56W, 4 line inputs + MM/MC + tone | | 85 |
| Cello Audio Suite £1200 | Excellent 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 |
| Chord SPM-900 £1725 | 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 |
| Concordant Excelsior £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 |
| Conrad Johnson Motif MC-8 £1995 | Very Good Very Good | A cheaper alternative to the '7, this preamp is an undoubted success in maintaining the Motif sound but does not compare on sound quality | MM/MC | R | 50 |
| Conrad Johnson MV50 £1995 | Good + Good + | Coupled with the PV5, this CJ power amp performed well on audition | 50W | | Coll. '87 |
| Conrad-Johnson Premier Seven £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 | 72 |
| Conrad-Johnson PV10 £1395 | 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 |
| Creek CAS 4040 S2 £179 | Good Good | More neutral than its predecessor tonally, substantial improvements in transparency were also noted, while the lively punchy, character is retained | 30W, MM, 4 inputs, tone controls | BB | 62 |
| Creek CAS 4140S2 £219 | Average Good | Disc headroom still poor but the open and detailed, if slightly bright, sound wins through | 40W, MM/MC, 3 line inputs, mono and mute | R | 80 |
| Creek CAS-5050 £399 | Average Good | Strong RF IMD compromises the sound of the CD input which contrasts with the delightful performance via MM/mc | 72W, MM/MC, aux CD and video + pre/power mode | R | 74 |
| Croft Series IV(S) £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 |
| Croft Series IVSA £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 |
| Croft Super Micro A £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 | 4 inputs, MM, straight line | R | 57 |
| Cyclone Catalyst £1995 | Good + Very Good | Exceptionally load tolerant and very refined in delivery. Extra options available in future | 74W, external MM or MC stages, 3 line inputs | R | 80 |
| Deftec DPA 100S £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 |
| Deftec DSP-50S DPA-50S £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 |
| Denon DAP-2500/POA-4400A £549/£599 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, monobloks Opt/Coax dig + 2 tape, 4 line and MM/MC inputs | | 68 |
| Denon PMA-250II £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 |
| Denon POA-6600 £1000 pr. | Excellent Very Good | Delivers abundant high quality sound, solid engineering expertise and content clearly compensating for any compromising of purist audiophile principles | 250W monoblok, remote power | R | 60 |
| DNM 3A From £1000 | 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 |
| E.A.R. 549 £3628 pr | 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 |
| E.A.R. 802/509mkII £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, monobloks | R | 63 |
| Exposure VI/VII*/VIII £320/£500 | 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 |
| Exposure VII/VIII £430/£470 | 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 |
| Exposure XI/XII/VIII Super £1600 | 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 |
| Grant 660AMS £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 monobloks Bohms | R | 57 |
| Hafler DH120 assembled £360 | 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 |

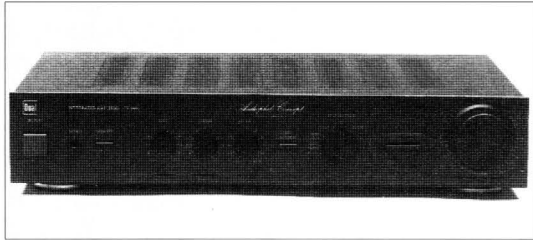
The Directory

AMPLIFIERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|------------------------|--|--|-------|-------|
| Hafner DH120 kit form £295 | n/a Average | Er, we didn't build one; see assembled version below | 60W | | 44 |
| Hafner XL-600 £1145 | 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 |
| Harman Kardon Citation 25/22 £649/£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 |
| Harman Kardon HK6100 £159 | Good Good | Re-packaged version of the popular PM635. Still offers very up-beat and exciting sound | 47W, MM, 5 line inputs, tone controls | R | 80 |
| Harman Kardon HK6800 £600 | Good + Good | Smoother and more evenly paced than previous H/K superamps, this model sounded both confident and nimble. A fine result | 115W, 4 line + 2 tape i/p's + MM/MC | R | 85 |
| Heybrook C3/P3 £400/£500 | 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 |
| Jadis JP30/JA30 £4145/£4200 | 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 frequency extremes, in lab, and re cartridge matching | 30W 2-box pre-, monoblok power, MM-only, 4 line inputs | R | 60 |
| Jeff Rowland Coherence One/Model 7 £3950/£9900 | 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 variable loading options. Balanced topology | R | 72 |
| Kelvin Digital Integrated £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 |
| Kelvin Integrated £395 | Good + Very Good | A true 20W Class A amp with lush, detailed and very musical sound to match. Watch out for re-style | 18W, MM/MC, 4 line inputs | R | 80 |
| Kelvin Labs Absolute Zero/M30 £395 + £295/£595pr. | 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 |
| Kenwood KA-4010 £170 | Good Average + | A flexible design at moderate cost. Smooth and cultured sound if slightly lean in balance | 81W, MM/MC, 4 line inputs, source- direct | R | 80 |
| Kenwood KA-5010 £210 | Good Good | Offers a slightly bass-light but very smooth, fresh and alive sound. Well built and sensibly equipped | 101W, MM/MC, CD, tape, tuner, aux + direct | R | 74 |
| Kenwood KA-5500 £130 | Very Good Average | Having dropped its moving coil input, this latest version has British style dynamics and rhythm but is not first grade yet | 35W, MM, 4 inputs, hdph, tone controls | R | 62 |
| Kenwood KA-7010 £300 | Average + Average + | More powerful version of the 5010 but less successful in the listening tests. RF IMD is the likely cause. | 123W, as above plus -20dB mute facility | | 74 |
| Klyne SK5a £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 |
| Lectron JH50 £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 |
| Linn LK1/LK280 Pre/Power £545/£695 | 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. XLRs | | 68 |
| Linx Nebula £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 |
| Magnum MP150/MF150 £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 |
| Marantz PM-50 £230 | 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 |
| Marantz PM-75 £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 |
| Marantz PM-95 £1800 | Very Good Average + | Beautifully constructed, this amp was less convincing via its digital i/p than via line. Class A option best suited to sensitive speakers. Costly | 151W with 30W available in Class A. Opt + coax inputs | | 74 |
| Marantz PM80 £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 |
| Marantz PM94 £1200 | Very Good Good | At 23kg the PM94 is no lightweight in either physical or sonic respects. A very powerful and comprehensively equipped amplifier | 140W MM/MC tone controls (switchable) | | 60 |



STRAIGHT WIRE - TABRIZ - TANNAY - TEAC - THORENS - T.D.L. ELECTRONICS - AIWA - AKAI - ALLSON - ALPHASON - AUDIO INNOVATIONS - CASTLE ACOUSTICS - DCM - DNM - DUAL - EXPOSURE - FURUKAWA - HECO - INFINITY - JECKLIN - JPW - MANTICORE - MARANTZ - MICROMEGA - MISSION - MONITOR AUDIO - MOTI

Audition them now at:
NORTHWOOD AUDIO
126 PINNER ROAD
NORTHWOOD
MIDDX HA6 1BP
09274 20877



DUAL CV5600

Separate Demonstration Room Available.
ON PERMANENT DEMONSTRATION

 Licensed Credit Broker 

SOUNDORGANISATION - SUGDEN - TABRIZ - SNELL - SENNHEISER - S.D.ACOUSTICS - RUARK - REVOLVER - ROYD - ROTEL - QED - PROTON - PINK TRIANGLE - NAD - MUSICALFIDELITY

AMPLIFIERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|------------------------|---|---|-------|-------|
| Meridian 201/205 £599/£425 each | 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 |
| Mission Cyrus One II £200 | 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 |
| Mission Cyrus PSX £230 | 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 |
| Mission Cyrus Two £330 | Very Good Very Good | Also a top performer in its group with fine moving coil and compact disc sound. Since our review Mission has omitted the headphone socket on the Cyrus Two | 50W, MM/MC, 5 inputs, straight line | R | 62 |
| Musical Fidelity A1 £269 | Average + Average + | Just scraping a recommendation, this current A1 sounded lush but sleepy — lacking the bite and sparkle of old | 26W with 9W of Class A. 4 line + MM/MC inputs | R | 85 |
| Musical Fidelity A100 £459 | Good + Very Good | This is another one recommended for fine sound with which you could keep your Chinese carry-outs warm | 50W MM/mc 5 inputs straight line | R | 62 |
| Musical Fidelity B1 £200 | Average + Good + | The subject of much controversy, this 50W wonder offers a very deep, solid and powerful sound | 50W, MM/MC, 5 line inputs, tape monitor | R | 80 |
| Musical Fidelity B200* £349 | Very Good Good + | Running cooler than other MFs, the B200 delivered fine musical and dynamic sounds with plenty of power | 80W MM/mc 4 line inputs straight line | BB | 62 |
| Musical Fidelity MA-50 £875 pair | Good Excellent | An audiophile bargain. One of the best sounding power amplifiers made | 50W, monoblok | R | 62 |
| Musical Fidelity MVX/A370 £2399/£2399 | n/a Excellent | In its latest guise, the A370 confirms its status alongside the MVX as amongst the best indigenous components for both sound and presentation | MM – MM/MC/4 line/phase invert. A370 – 150W | R | 72 |
| Musical Fidelity P270 £1399 | Very Good Very Good | If the hot-box aspect is not a deterrent, this is something of a bargain. A big amplifier scale of sound which is just a little rough-edged | 135W | R | 50 |
| NAD 3020i £140 | 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 | R | 85 |
| NAD 3225PE £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 |
| Naim NAIT 2* £339 | Average + Average | Well built with good load tolerance, the NAIT delivered a fully competitive sound in spite of its modest measured power output. Recent modifications as yet unchecked | 15W pc MM 3 inputs | R | 50 |
| Naim Separates £560 - c£8000 | Very Good Good | A consistent and coherent series of 'building blocks'. Sound quality ignores conventional audiophile standards of presentation, but achieves fine musical communication | 40-70W, MM/MC etc | R | 60 |
| Nikko Beta 400/Alpha 800 £225/£800 | Very Good Good | Big, bold and gutsy, these are indestructible amps with a sound quality to satisfy all but the most demanding users | 358W(!) with every feature necessary | R | 85 |
| NVA P70MC/A60 £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 |
| Oakley S £499 | Good Very Good | Much improved version of the original Image preamp from Yugoslavia. This one won't disgrace itself even in top-notch systems. Image Six model (£150 more) is really fabulous | MM plus 3 line inputs | R | 78 |
| Onkyo A-8000 £140 | Good + Good + | A rare combination of style, features and very acceptable sound quality. Free of compression and 'grain' - undemanding | 64W, 5 line + MM disc i/p's + full tone cont. | R | 85 |
| Orell SA-040 £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 |
| Orell SA-040SE £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. Tweaky compnts. | | 71 |
| Philips DFA-888 £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 |
| Philips FA-880 £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 |
| Philips FA960 MkII £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 |
| Pink Triangle PIP £2670 | Excellent Excellent | This state-of-the-art preamp is one of the few truly high end products to come out of this country this year. It will most certainly worry the competition | MM/MC, 4 inputs, battery supply | R | 62 |
| Proton 520 £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 |
| Proton AP-1000/AA-1150 £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 |
| QED A240 CD II £199 | 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 |
| QED A240 SA II £259 | Very Good Good + | Redesigned 240SA has s significant improvements over its predecessor, and provides a good moving-coil disc input in a competitive price | 45W MM/MC 5 line inputs straight line | BB | 62 |
| QED A270 £299 | Good - Good + | Building on the strengths of the '240, the '270 sounds weighty, fast and dynamic. A bit 'lumpy' via MC | 51W, 5 line and 2 disc inputs, pre-out | R | 68 |
| QED C300/P300 £300/£300 | 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 |
| Quad 34 £299 | 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 |
| Quad 405 £389 | Very Good Average | Not an impressive power amp but easy on the ear if not pushed and very reliable | 100W | | 44 |
| Ray Lumley Model 75 £1995 pr | Average Good + | Monstrous valve monobloks which represent good value. What they lack in musical subtlety they make up for in sheer muscle. And these are Lumley's small monobloks! | 75W monoblok | | 78 |
| Revox B150 £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 |
| Revox B250 £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 |
| Rose RV-23 £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 the Rose given the competitive price | MM plus 3 line inputs | R | 77 |
| Rotel RA-810A £120 | Very Good Average | As a cut price RA820AII this is a very successful little amp that loses little in sound quality to its predecessor. Excellent value | 20W, MM, 5 inputs, hdph, tone controls | BB | 62 |
| Rotel RA-820AX £150 | Very Good Very Good | The spacious, detailed and very musical performance of this budget amp is almost too good! | 47W, MM, 4 line inputs | BB | 80 |
| Rotel RA-820BX4 £190 | Good + Good + | Very authoritative but creamy-smooth and delightfully musical. Spatially convincing too, yet not as open as RA-820AX | 39W, 4 line + MM/MC, dual-conc. volume. | R | 85 |
| Rotel RA-840BX4 £250 | Good Good + | Very sedate and controlled in presentation but check phasing for optimum stereo effect | 63W, MM/MC, 4 line inputs, tone controls | | 80 |
| Rotel RA-870BX £300 | Very Good Good + | A powerful blockbuster with solid and well focused sound, good versatility and fine load tolerance | 85W MM/mc 7 line inputs tone controls | R | 56 |

AMPLIFIERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|------------------------|---|--|-------|-----------|
| Rotel RC/RB-850 £160/£140 | Very Good Good + | Quality separate pre and power amplifiers at near budget integrated amplifier prices. A notable achievement | 60W MM/mc 4 line inputs tone controls | BB | 62 |
| Rotel RC/RB-870BX £219/£230 | Excellent Good + | Reduced price makes the 870 combo better value but, despite mods to the preamp, it is the power amp that must take the lion's share of credit | 128W or 208W bridged CD direct, 4 line, 2 tape and MM/MC | R | 68 |
| SAE P102/A202 £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 + CD tuner and 2 tape tone memory, spk switching | | 74 |
| Sansui AU-X911DG £480 | 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 |
| Sony TA-F410R £170 | Average + Average + | Over-zealous protection circuitry limits continuous power but sound is still agreeably focused despite being tonally lean | 84W, 2 tape, 3 line + MM i/p's. Tone + Rec-out | | 85 |
| Sony TA-F630ESD £350 | Good Average | Based on the '530 but equipped with PDM D/A convertor. Amp is competent but DAC sounds truly magnificent! | 130W, as above + opt. and coax digital inputs | R | 74 |
| Sony TA-F730ES £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 |
| Sumo Athena/Polaris £695/£695 | Very Good Very Good | Very good value US pre/power combo with transparent, detailed and gutsy sound via all inputs | 128W, MM/mc, 2 tape and 3 line inputs | R | 80 |
| Teac A-X400 £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 |
| Technics SE-M100 £550 | Very Good Good + | An unusual disc-less poweramp with volume control. Standard line input sounds very open and clean. Digital input is harsher and less convincing | 123W, coax and opt digital inputs, var and direct CD no disc input | R | 74 |
| Technics SU-810 £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 |
| Technics SU-V660 £250 | Good Average | Chunky build but integrated output stage infers a weak, insubstantial and rather monophonic sound | 107W, MM/MC, cd aux, tape + tuner + power amp-direct | | 74 |
| Threshold FET Ten/SA-4/Stasis £2500/£3200/£5900 | 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 pho stage, line pre, FET power amp 100w | | Coll. '90 |
| Yamaha AX-330e £130 | 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 |
| YBA 1 power amp £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 |
| YBA 1 preamp £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 |
| YBA 2 pre & pwr £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 |
| YBA Model 3 £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 |

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 | VALUE | ISSUE |
|---|------------------------|--|---|--------------------------|-------|-------|
| Acoustic Energy AE1 £696 | Good Very Good | To the author's knowledge, the most awesomely dynamic and articulate miniature ever made | 29.5 x 18 x 25cm semi-open space | 88dB/w 60Hz | R | 59 |
| Acoustic Energy AE2 £1138 | 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 in free space | 88.5dB/w 45Hz | R | 66 |
| Acoustic Energy AE3 £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 traditional monitoring virtues with the latest metal diaphragm technology | 63 x 26.5 x 37cm low stands in free space | 85dB/w 23Hz (in room) | R | 86 |
| Acoustic Energy AE4 £1800 (stands £552) | Good Good | Magnificent but also seriously flawed, the AE4 possesses tremendous dynamic realism but a very mid-dominant balance. Large rooms and wallets only need apply | 54 x 32.5 x 44cm own stands in free space | 90dB/w 40Hz | | 71 |
| Acoustic Research AR112 £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/w 75Hz | | 66 |
| Acoustic Research AR122 £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 wall | 87dB/w 68Hz | | 68 |
| Acoustic Research AR132 £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 wall | 87dB/w 50Hz | | 66 |
| Acoustic Research Red Box £100 | Average Average | Lively and balanced if a bit crude and uneven, this econobox succeeds partly because of its simplicity, and works well with some rear wall assistance | 32 x 19.5 x 17cm close to rear wall | 87dB/w 85Hz | R | 74 |
| Alexander SE11 £299 (stands £69) | Good Good | Clearly better than its cheaper stablemates, the metal jacket delivers a different – and in some respects superior – sound than the wood-based competition | 52 x 14 x 17.5cm stands close to wall | 86dB/w 25Hz (in room) | R | 82 |
| Alexander SE5 £199 | Average Average | The SE5 can give any miniature a run for its money on bass performance, though hardness and coloration mar good detail and clarity, and price is a little high | 40.5 x 12 x 15cm ALS stands near wall | 82dB/w 50Hz (in room) | | 78 |
| Allison AL105 £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/w 45Hz (in room) | | 78 |
| Allison CD6 £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 wall | 88dB/w 45Hz | R | 71 |

LOUDSPEAKERS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE PLACEMENT | SENSITIVITY | VALUE | ISSUE |
|--|------------------------|--|--|--------------------------------------|-------|-------|
| Alphason Amphion £680 | 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/w 47Hz (in room) | | 78 |
| Alphason Orpheus £1000 | 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 wall | 87dB/w 43Hz | R | 71 |
| Apogee Caliper Signature £3350 | 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/w 30Hz (in room) | R | 81 |
| Arcam Alpha £199 | 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/w 30Hz (in room) | BB | 82 |
| Arcam One £380 | Good Average | Provides a solid, weighty and rich sound, but is a little raw in the treble and indefinite in the midband | 22.3 x 28.1 x 37.8cm open space, on stands | 88.5dB/w 60Hz | | 59 |
| Arcam Three* £150 | Average + Average - | Arcam's baby speaker did not delight our listeners, but it might do better in less expensive systems | 34 x 18 x 23cm close to wall at head height | 88.5dB/w 95Hz | | 53 |
| Arcam Two* £280 | Good Average | Most things to most men this compact is unlikely to disappoint with its lively 'ballys' character though lacking weight . . . a bit | 38 x 23 x 28cm near wall shelf or 40cm stands | 88dB/w 55Hz | | 59 |
| Ariston Image £180 | Average - Average - | Despite a sweet treble character, the Image fails to impress with a 'lumpy' over-rich balance that has room integration problems | 42 x 22 x 27.5cm stands in free space | 89dB/w 28Hz (in room) | | 82 |
| Ariston Q £395 | Average + Average | The prettily shaped Q delivers a good impression of scale from a small box, but a rather laid back, ponderous and over-rich overall sound | 35 x 16.5-25 x 20-27cm high stands in free space | 85dB/w 30Hz (in room) | | 86 |
| ATC SCM20 £1320 | 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/w 28Hz (in room) | | 86 |
| Audio Electronics TC10 II £599 | Good - Good + | Oddball appearance is rescued by a respectable technical performance, interesting and impressive engineering and fine sound quality | 70 x 33.5 x 33.5cm low stands in free space | 87.5dB/w 40Hz | R | 68 |
| Audioplan Kontrapunkt £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 stands | 83dB/w 48Hz (in room) | R | 86 |
| B&W CM1 £345 | Good Average | Cleverly thought out luxury design package is also fundamentally well engineered, if a shade pricey on 'sound for pound' basis | 24.5 x 16 x 22cm close to rear wall | 84dB/w 90Hz | | 74 |
| B&W DM550 £149 | Good + Average - | Beautifully presented, well engineered near-miniature with precise sound but a distinct lack of 'wellig'. Ideal for considerate flat dwellers | 35 x 20.5 x 22.5cm stands in free space | 86dB/w 70Hz | | 71 |
| B&W DM560 £200 | Average + Average - | Fine cosmetic presentation and good engineering for the price; overload protection may be handy but listening panel was underwhelmed | 49 x 23.5 x 30cm stands in free space | 88dB/w 55Hz | | 66 |
| B&W Matrix 801 £2500 | 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 stereo | 77/99 x 56 x 43cm floor or stands, free imaging | 86dB/w below 20Hz (in room) space | R | 81 |
| B&W Vision DS1 £99 | Average Average - | Although significantly hampered by upper bass cabinet coloration, the DS1 cleverly combines high sensitivity with a rich and generous soundstage | 36 x 21 x 19cm stands quite close to wall | 91dB/w 40Hz (in room) | R | 82 |
| B&W Vision DS2 £150 | Average Average - | Although the box is generous for the price, the DS2 is a rather uneven performer, both on the measurement and listening. Careful stand selection and placement is needed to control the enthusiastic mid bass | 50 x 24 x 25cm stands in free space | 89dB/w 43Hz (in room) | | 86 |
| Bose 305 £350 | 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/w 40Hz (in room) | R | 78 |
| Bose 901 MK6 £1600 | Good Average | Still controversial after all these years, the pre-equalised multi-driver 901 is cleverly engineered to deliver exceptional loudness with a modest amplifier, but mid bass tends to dominate the sound and transparency is notably lacking | 33 x 54 x 32cm rigid stands in free space | (92dB/w midband) 28Hz (in ro | | 86 |
| Bose Interaudio 3000XL £150 | Average Average - | Lots of perceived value and well enough balanced, but low cost cabinet and driver engineering results in a crude and unsuitable sound | 46.5 x 29 x 23cm stands in free space | 89dB/w 45Hz | | 71 |
| Boston A120 £349 | Average + Good - | Ugly but cleverly engineered, the 120 combines a tiny main driver with much larger ABR to give a generous, bighearted and lively sound despite little genuine bass extension and a few rough edges | 62.5 x 31.5 x 25cm stands in free space | 89dB/w 48Hz | R | 86 |
| Boston A4011 £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 | 88.5dB/w 63Hz | | 41 |
| Boston Acoustics T830 £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 walls | 87dB/w 30Hz (in room) | R | 82 |
| Castle Clyde £159 | Average + Average | A tidy little performer packing punch, but beginning to show its age in the light of new competition | 37 x 21.5 x 22cm open space on stands | 89.5dB/w 64Hz | R | 46 |
| Castle Durham £209 | 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/w | R | 46 |
| Castle Pembroke £229 | Good Average + | Comfortably recommended, a sweet smooth sound with good overall balance of engineering-based performance | 55 x 37.5 x 30.5cm open space on stands | 88dB/w 46Hz | R | 31 |
| Castle Warwick £179 | 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 wall | 88dB/w 50Hz | | 66 |
| Castle Winchester £1250 | 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/w 25Hz | R | 90 |
| Celef CF2 Nimbus £230 | Good - Good - | Nicely balanced overall but a little uneven with it, this lively and dynamic largebookshelf model came close recommendation | 46 x 25.5 x 24cm stands in free space | 88dB/w 55Hz | | 71 |
| Celef Cirrus £180 | Average Good | It's nice to see Celef back in the UK, with this decent sounding small reflex box that seems unusually tolerant of siting | 39 x 20.5 x 23cm stands in free space | 84dB/w 60Hz | R | 66 |
| Celestion 3 £109 | 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/w 55Hz (in room) | R | 78 |
| Celestion 5 £149 | 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/w 30Hz | | 90 |
| Celestion 6000 £1470 | Very Good Very Good | A genuine full range audiophile quality speaker system - with Star Wars styling to suit a high tech environment | Complex, on floor in free space | 82.5dB/w | R | 60 |
| Celestion DL6 Series Two £159 | Good Average | Good tonal colouring and plenty of bass for the enclosure size; the metal dome tweeter is excellent, but bass and mid lack clarity and 'bite' | 45.4 x 24.5 x 26.2cm near wall, on stands | 87dB/w 65Hz | | 59 |
| Celestion DL8 Series Two £199 | 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 | 87.5dB/w 60Hz | R | 59 |
| Celestion SL12Si £579 | 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 clear of walls | 85dB/w 50Hz | | 66 |
| Celestion SL600Si £799 | 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/w 52Hz | | 68 |

LOUDSPEAKERS

| ■ MODEL ■ PRICE | ■ LAB ■ SOUND | ■ COMMENTS | ■ SIZE ■ PLACEMENT | ■ SENSITIVITY | ■ VALUE | ■ ISSUE |
|--|------------------------|---|---|--------------------------|---------|---------|
| Celestion SL700 £1349 inc stands | Good Good | Very sophisticated, mostly smooth and accurate transducer, with fast but not very deep bass and a rather bright treble | 37.5 x 20 x 23.5cm free air on tall stands | 83dB/w 45Hz | | 60 |
| Creek CLF20 £199 | 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 space | 88dB/W 30Hz | | 90 |
| Dali 700 £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/w 20Hz | | 90 |
| DCM Timeframe TF250 £350 | Average + Average | Neat and unusual floorstanding presentation, marred by indifferent build and cuddly but rather coloured sound, especially on spoken word | 86 x 32 x 16cm close to rear wall | 88dB/w 45Hz | | 90 |
| Doxa 5 - 2 £900 | Average Good | The high sensitivity and seductive midband makes an obvious partner for valve amplifiers, though obtaining a good room match may prove a little tricky | 98 x 21 x 28cm floor well away from walls | 91dB/w 30Hz (in room) | R | 82 |
| Duntech PCL1000 Crown Prince £6120 | n/a Excellent | Immensely 'listenable', refined sounding speaker capable of creating lifesize musical images. Not overly transparent to source, but very civilised nonetheless | 180 x 30.5 x 43.5 free standing away from walls | 90dB/w 42Hz | R | 72 |
| Duntech PCL500 Marquis £3998 | n/a Very Good | Better value for money than the Crown Prince - and arguably more dynamic, with real bass 'slam' but a little less refined in the higher registers | 147.5 x 27 x 40cm free standing away from walls | 92dB/w 48Hz | R | 65 |
| Equation 0 £1250 | Average + Very Good | Expensive but most attractive floorstanding miniature. Bass is limited and mid tends to shout but sound is fast and lively with fine dynamics and timing | 85 x 20 x 35.5cm floor, c1ft from wall | 85dB/w 45Hz | R | 90 |
| Goodmans B-Max/Maxim Two £90/£90 | 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/w 55Hz (in room) | | 78 |
| Goodmans HIM 440 £350 | Good Average - | Amazing perceived value, sensitivity and good bass extension, marred by serious cabinet coloration, a nasty tweeter and a difficult amplifier load | 87 x 38 x 40cm low stands clear of walls | 94dB/w 24Hz | | 90 |
| Goodmans M100 £79 | 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/w 50Hz (in room) | R | 86 |
| Goodmans M300 £99 | Average Average - | Conveying much of the charm and life which has made the Maxim 2 so popular, the M300 is sensitive, but hampered by upper bass cabinet coloration | 38.5 x 21.5 x 17cm stands close to rear wall | 89dB/w 50Hz (in room) | R | 82 |
| Goodmans Maxim Two £90 | Average + Average | More wham-bam-thank-you-mam sound that imitates much bigger speakers when you let these babies yell. (A well-controlled yell) | 26 x 17 x 19cm near wall on shelf or stand | 86dB/w 85Hz | BB | 59 |
| Harbeth HL Compact From £539 | Very Good Average | The clean and neutral sound lacks resolution and gives rather unobtrusive though well differentiated stereo. Can be bi-wired to advantage | 52 x 27.2 x 28.1cm open space, on high stands | 87.5dB/w 65Hz | | 59 |
| Harbeth LS3/5A £343 | 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/w 60Hz | | 66 |
| Heco Interior 120 £169 | Good Average | Drab appearance belies a lively enough character, though the balance is altogether a bit bright for UK tastes | 32 x 23 x 23cm high stands against wall | 88dB/w 50Hz (in room) | | 78 |
| Heco Interior 430s £429 | Good Good - | This tall floorstanding enclosure delivers an impressively even sound balance with good bass extension, if not the lively dynamics to satisfy enthusiasts | 85 x 24 x 27.5cm free space | 88dB/w 43Hz | R | 71 |
| Heco Interior 90S £159 | Good Average - | Neatly finished and engineered miniature, but the disappointingly 'lifeless' sound left the listening panel decidedly underwhelmed | 27 x 18 x 16cm on high stands | 87.5dB/w 90Hz | | 74 |
| Heco Superior 740 £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/w 30Hz (in room) | | 78 |
| Heco Superior 940 £1000 | Good Good | This large and beautifully finished floorstander has an impressively smooth and attractively transparent midband. Bass is well extended but follows rather than drives the music along. | 110 x 26 x 31.5cm free space | 88dB/w 20Hz | | 86 |
| Heybrook HB1 £199 | Good Average + | No longer an over-bright character, a strikingly clear sound and fine transient performance now merits recommendation | 47 x 29 x 23cm on stands near wall | 88dB/w 61Hz | R | 46 |
| Heybrook HB100 £255 | 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/w 50Hz | BB | 66 |
| Heybrook HB150 £319 | Average Good | Convincingly communicative but a bit coloured and congested, this lively compact wall-mount is nicely finished but a little costly for the content | 40.5 x 23 x 22cm stands close to rear wall | 89dB/w 42Hz (in room) | | 82 |
| Heybrook HB200 £399 | Average Average | This luxury successor to the HB2 is lively and informative, but sounded insufficiently balanced to convince our listening panel | 46 x 23 x 26cm stands against rear wall | 87dB/w 55Hz | | 66 |
| Heybrook Point 5 £139 | Average Average | 'Uncouth yet still satisfying', the Point 5 gives good dynamics and bass for a compact wall-mount, but is burdened by a somewhat unhappy treble | 37.5 x 23 x 24cm high stands against wall | 85dB/w 32Hz (in room) | | 78 |
| Heybrook Point 7 £185 | Average Average | Physically an attractive package, but not entirely convincing in lab or listening panel test; interesting for all that | 40.5 x 23 x 23cm stands against rear wall | 85dB/w 60Hz | | 68 |
| Heybrook Solo £149 | 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/w 28Hz | R | 90 |
| Infinity Kappa 6 £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/w 35Hz | | 66 |
| Infinity Kappa 8 £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 space | 89dB/w 33Hz | | 72 |
| Infinity Modulus £695 | Good Average + | Luxury high-tech miniature is carefully conceived and beautifully executed. Undeniably attractive in the midrange and treble, the Modulus failed to handle the bass end of the spectrum as successfully | 30 x 18 x 26cm high stands 1ft from wall | 84dB/w 45Hz (in room) | | 86 |
| Infinity RS2001 £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/w 50Hz (in room) | R | 78 |
| Jamo Concert 2 £230 | Good Average - | A thoroughly respectable 'bookshelf' performer that needs free space siting but includes attractive cabinetwork and a neat grille | 41 x 24 x 25cm stands in free space | 85dB/w 48Hz | | 66 |
| Jamo Cornet 40 £99 | Good Average | Prettily styled Danish miniature is good perceived value and delivers solid bass and midrange performance but is let down by an indifferent tweeter | 31.5 x 19.5 x 21.5cm about 1ft from wall | 87dB/w 48Hz | | 90 |
| JBL Control 1 Plus £229 | 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/w 50Hz | | 90 |
| JBL LX33 £259 | 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 performance | 80 x 25 x 21cm floor, 1ft from wall | 89dB/w 48Hz | R | 82 |
| JBL LX44 £340 | 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/w 40Hz | | 71 |
| JBL TLX12 £149 | Good - Average | This smart near-miniature has a 'boppy', lively bottom end, but beware of the fizz in its top | 37 x 23 x 23cm stands 0.5m from rear wall | 87dB/w 55Hz | R | 71 |
| JBL XPL 90 £699 | Good Average + | Though undoubtedly pretty and very expensively engineered, this elaborate near-miniature didn't really convince our listeners that it could deliver a sound quality to match its elevated price | 39.5 x 24 x 24cm stands in free space | 85dB/w 45Hz (in room) | | 86 |
| JPW AP2 £165 | Good Good | Few grounds for criticism but purchasers should check out the treble qualities to avoid hammering the ear anvils | 46 x 26 x 25cm 40cm from wall on 45cm stands | 89dB/w 65Hz | R | 53 |
| JPW AP3 £219 | 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/w 57Hz | R | 46 |

LOUDSPEAKERS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE PLACEMENT | SENSITIVITY | VALUE | ISSUE |
|---|------------------------|--|--|--------------------------------|-------|-------|
| JPW Minim £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/w 28Hz (in room) | R | 82 |
| JPW P1 £139 | Good Average + | Honest and basically articulate if not very sophisticated, resolution is good but it can sound a little wearing in bright systems or with rough sounding material | 44 x 25.9 x 26.1cm free space on stands | 89dB/w 60Hz | R | 59 |
| JPW Sonata £99 | 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/w 55Hz | BB | 71 |
| JPW Sonata Plus £129 | 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/w 30Hz | | 90 |
| JRT AD1 £500 (stands £100) | 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 that makes this beautifully finished and generously proportioned model so enjoyable. | 59.5 x 28 x 36cm own stands close to rear wall | 86dB/w 28Hz (in room) | R | 86 |
| KEF 103/3 £750 inc. stand | Good + Good | Technically impressive, excellent bass/power handling for size, but not for the audiophile system. Better among cheaper components, and good in a large room | 56 x 27 x 30cm free space | 90-95dB/w 35Hz | | 53 |
| KEF 104/2 £1,150 (£994) | 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 space | 92dB/w 50Hz | R | 60 |
| KEF C15 £115 | Good Average | One of the tiniest around delivers a surprisingly 'big' and well balanced sound, with excellent stereo from free space siting | 26.5 x 18 x 14cm stands in free space | 85dB/w 60Hz | R | 71 |
| KEF C25 £149 | Average + Average - | Very safe and competent, but rather short on inspiration, the '25 lacks the brio and flair of its smaller C15 brother | 34 x 20.5 x 17cm high stands near wall | 87dB/w 60Hz (in room) | | 78 |
| KEF C45 £219 | Good Average - | Conventional and competitively priced, C45 delivers an impressively consistent and competent sound. As one listener commented: 'Offensively inoffensive whether it be love or loathing, give me some emotion' | 47.5 x 28 x 24cm uncritical | 87dB/w 30Hz (in room) | | 86 |
| KEF C55 £249 | Good Average + | Similar to but less good value than C75, the '55 provides Uni-Q stereo stability but not real wood veneer or good low frequency room match | 48 x 24.5 x 25cm stands, free space | 91dB/w 30Hz (in room) | | 82 |
| KEF C75 £389 | Good Good | Compact floorstanding model's Uni-Q driver provides fine crossover integration, giving stable stereo and fine dynamic range within a slightly 'rich' balance | 72 x 24.5 x 25.5cm floor in free space | 90dB/w 45Hz | R | 71 |
| KEF C85 £549 | Good Good | Essentially a simplified vinyl finish version of C95, the 85 delivers a similarly coherent, neutral, rich and slightly lazy sound | 88 x 25 x 22cm well clear of walls | 89dB/w 27Hz | R | 90 |
| KEF C95 £649 | Good Good | Rich and lazy, but nonetheless very endearing in a cosy sort of a way, the '95 is a lot of speaker for the money, and delivers a big sound with grace and subtlety | 88.5 x 24.5 x 31cm floor in free space | 90dB/w 28Hz (in room) | R | 78 |
| Lindley New Age £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/w 25Hz | | 90 |
| Linn Helix £279 | Average + Good | Attractive presentation is coupled with an attractively lively sound which is more neutral if less committed than earlier Linn loudspeakers | 51 x 25.5 x 28cm Cyrus stands 1ft from rear wall | 88dB/w 53Hz | R | 66 |
| Linn Index II/KuStone £344 inc. stand | Good Good | Combination of stand and speaker looks and sounds very good for the price, with good bass extension, control, and dynamic range. Clean, clear if a shade slow | 44 x 21 x 23.5cm (box only) close to rear wall | 86dB/w 28Hz | BB | 90 |
| Linn Kaber £989 | Average Good + | Discreet wall-mount package trades sensitivity for fine bass extension and midbass performance; can be a little relentless but has prodigious dynamic capabilities | 93 x 19 x 28cm floor against rear wall | 86dB/w 28Hz (in room) | R | 82 |
| Linn Kan 2 £339 | 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 wall | 82dB/w 35Hz (in room) | | 78 |
| Linn Nexus £379 | 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/w 60Hz | | 59 |
| Magneplanar MG1.4 £1190 | Good + Good + | Replaces the stalwart MGlc 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/w 40Hz | R | 72 |
| Magneplanar MG2.5R £1998 | Good Good | Offers the low coloration and profound musical insight of better electrostatic loudspeakers but without loss of low frequency extension | 183 x 56 x 4.5cm Open space | 83-85dB/w 35Hz | R | 60 |
| Magneplanar MGIIla £2700 | Good Very Good | Another excellent true-audiophile loudspeaker this American panel speaker helps to convey much of the original character of the music | 180 x 62 x 38cm well clear of walls | 84-86dB/w 35Hz | R | 46 |
| Magneplanar SMGa £675 | 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/w 56Hz | | 46 |
| Marantz LD20 DMS £170 | Average Average | Recommended more for CD users than vinyl keepers, soundly engineered and built but should be heard before bought | 36 x 23 x 24cm free space on 45cm stands | 86,5dB/w 55Hz | | 53 |
| Marantz LD50DMS £200 | 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/w 30Hz (in room) | R | 71 |
| Martin Logan CLS II £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/w 45Hz | R | 72 |
| Meridian M30 £775 | Average + Average | Pricy 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 | Active 40Hz | | 46 |
| Mission 760 £99 | Good Average + | Smart presentation and an engaging sound, this sensitive budget miniature sounds notably more lively and less boxy than most of its peers | 29 x 18 x 20cm stands close to wall | 88dB/w 50Hz | BB | 90 |
| Mission 761 £130 | Average Good | One helluva speaker for the price, if a shade small and short of subtlety and refinement - should prove a worthy successor to the 70 and 700 | 38 x 21 x 21cm stands near rear wall | 87dB/w 60Hz | BB | 66 |
| Mission 762 £200 | 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/w 55Hz | | 66 |
| Mission 763 £300 | 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/w 40Hz | BB | 68 |
| Mission 764 £450 | Good Good - | Large floorstander has fine bass extension but limited dynamic range, and sounds 'lazier' than Best Buy 763 | 86 x 25 x 32cm 0.5m from rear wall | 86dB/w 43Hz | | 71 |
| Mission 767 From £2500 | Very Good Very Good | Magnificent and massive part-active monoliths have fine acoustic subtlety and impressive loudness capability, ultimately limited by partnering (Cyrus) electronics | 138 x 29 x 43cm floor, flexible | 91dB/w below 20Hz (in room) | R | 81 |
| Mission Cyrus 780 £169 | Good Average + | Pricy 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/w 50Hz | R | 90 |
| Mission Cyrus 781 £250 | Average + Good | Properly run in, the pretty little 781 delivers a fast, dynamic and informative sound which more than justifies its price. Take care to adjust placement to suit room and system | 43 x 22.5 x 28cm matching stands 1ft from wall | 88dB/w 28Hz (in room) | R | 86 |
| Mission Cyrus 782 £350 (stands £80) | 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/w 50Hz | | 71 |
| Monitor Audio 1200 Gold MD £799 | Average Average + | This smooth and civilised slimline floorstanding loudspeaker is well built and nicely presented. But it is also expensive | 94 x 20 x 26cm in free space | 85dB/w 48Hz | | 68 |
| Monitor Audio MA1800/Gold £1299 | 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/w 30Hz (in room) | | 81 |
| Monitor Audio MA700/Gold £349 | Good Average + | Lacks bass authority and timing, but could suit the smaller room, at the end of a CD-based system used primarily for classical music at modest levels | 35 x 21.5 x 25cm stands, free space | 87dB/w 48Hz (in room) | | 82 |



MUSICAL IMAGES

45 HIGH STREET, HOUNSLOW

MIDDLESEX TW3 1RH

TEL: (081) 569 5802

FAX: (081) 569 6353

| | | |
|------------|------------------------------|------|
| AMPLIFIERS | Rotel RA810A | £120 |
| | Pioneer A227 | £120 |
| | NAD 3225 PE | £160 |
| | Musical Fidelity B1 | £200 |
| | Pioneer A400 | £230 |
| | Marantz PM4CSE | £230 |
| | A+R Delta 9C.2 | £400 |
| | Musical Fidelity A200 | £700 |
| | Audio Innovations series 500 | £900 |

| | | |
|-----------------------|------------------------------------|-------|
| TURNTABLES | Dual 505.4 | £160 |
| | Rotel RP.855 | £160 |
| | Ariston QDeck | £165 |
| | Revolver Rebel | £190 |
| | Thorens TD320 II | £370 |
| | Michell Syncro/Syncro Arm | £380 |
| | Michell Gyrodec Bronze + RB300 Arm | £835 |
| | Roksan Xerxes Tabriz | £850 |
| | Alphason Sonata/Zenon MCS | £1020 |
| Roksan Xerxes/Artemiz | £1290 | |

| | | |
|------------|---------------------------|-------|
| TAPE DECKS | Aiwa ADF300 | £99 |
| | Pioneer CT447 | £170 |
| | Yamaha KX330 | £170 |
| | Yamaha KX530 | £230 |
| | Rotel RD865 | £230 |
| | Aiwa ADF800 | £250 |
| | Akai OX65 | £250 |
| | Kenwood KX5010 | £270 |
| | Nakamichi Cassette Deck 2 | £300 |
| | Nakamichi Cassette Deck 1 | £600 |
| | Marantz CP430 | £400 |
| | Nakamichi CR7E | £1500 |

| | | |
|----------|---------------------|------|
| TUNERS | Kenwood KT2020 | £130 |
| | NAD 4225 | £160 |
| | A+R Alpha Tuner | £180 |
| | Pioneer F656 | £200 |
| | Musical Fidelity T1 | £250 |
| | Pioneer F91 | £350 |
| | Arcam Delta 150 | £350 |
| Quad FM4 | £360 | |

SPECIAL OFFERS
DEMO MODELS
END OF LINE

PHILIPS
CD
610 II
Now
£150

MISC.
Yamaha DSR70 PRO £180
A+R Delta Box 3 £350
Yamaha DSP100 £400
Yamaha AST SCII £600
Lexicon CP2 £800
Revox B77 £1800

DEMONSTRATION ROOM FACILITY
PART EXCHANGE FACILITY
INSTANT CREDIT FACILITY

AIWA
XA006
AMP
NOW
£115

AIWA
XC333
CD
NOW
£130

KENWOOD
KA3020
AMP
NOW
£115

KENWOOD
KT2020
TUNER
NOW
£115

KENWOOD
KX3010
C/DECK
NOW
£160

KENWOOD
DP3020
CD
NOW
£150

| | | |
|------------|-----------------|------|
| CD PLAYERS | Philips CD.624 | £200 |
| | Marantz CD40 | £200 |
| | Yamaha CDX 730 | £230 |
| | Marantz CD41 | £250 |
| | Kenwood DP 5020 | £300 |
| | Rotel RCD 865 | £300 |
| | A+R Alpha CD | £400 |
| | Quad 66 | £490 |
| | Luxman D103U | £600 |
| | Pioneer PD91 | £900 |

| | | |
|----------------------|------------------------|------|
| SPEAKERS | JPW Sonata | £99 |
| | Celestion 3 | £110 |
| | Wharfedale Diamond IV | £110 |
| | Monitor Audio 7 | £170 |
| | Wharfedale 505.2 | £190 |
| | Castle Durhams B1 Wire | £260 |
| | Monitor Audio II | £300 |
| | Tannoy DC 2000 | £330 |
| | KEF C75 | £340 |
| | Mission 763 | £300 |
| Spendor SP2/2 | £500 | |
| Bose 601 | £800 | |
| Musical Fidelity MC6 | £1700 | |
| KEF 105.3 | £1850 | |

| | | |
|----------|---------------------------|-------|
| PRE AMPS | Rotel RC850 | £140 |
| | Quad 34 | £330 |
| | Musical Fidelity 3A | £380 |
| | Musical Fidelity P173 | £700 |
| | Carver C.T. Seven | £750 |
| | Quad 66 inc. Remote Panel | £713 |
| | Musical Fidelity MVX.2 | £2400 |

| | | |
|-------------------------|-------------------------|-------|
| POWER AMPS | Rotel RB850 | £160 |
| | Quad 306 | £290 |
| | Musical Fidelity P150 | £400 |
| | Quad 606 | £570 |
| | Carver TFM22 | £600 |
| | Musical Fidelity P270.2 | £1400 |
| Musical Fidelity P370.2 | £2400 | |

| | |
|----------------|--|
| SPEAKER CABLES | |
| Van Den Hul | |
| Monster | |
| Supra | |
| QED | |
| A&R Livewire | |
| Mission | |
| Furukawa | |

| | |
|--------------|--|
| HEADPHONES | |
| Stax | |
| Sennheiser | |
| Beyer | |
| AKG | |
| Quart | |
| Eurochannels | |

| | |
|----------------|--|
| CARTRIDGES | |
| A & R | |
| Audio Technica | |
| Goldring | |
| Nagaoka | |
| Ortofon | |
| Roksan | |
| Shure | |
| Stanton | |

| | |
|-------------------|--|
| ARMS | |
| Alphason | |
| Kuzma | |
| SME | |
| Zeta (vdii wired) | |
| Roksan | |

| | |
|---------------|--|
| INTERCONNECTS | |
| Monster | |
| Van Den Hul | |
| QED | |
| Chord CD | |
| A&R Livewire | |
| Roksan | |
| Furuwaka | |

BUYING EQUIPMENT FOR SCHOOLS AND COLLEGES?
 CALL AND ASK ABOUT THE GREAT DEAL WE OFFER EDUCATIONAL ESTABLISHMENTS

10 MINUTES FROM HEATHROW

EXPORT ENQUIRIES WELCOME
 Carriage is up to £8 per order and FREE (if total exceeds £300 (UK mainland). All goods are insured against loss or damage in transit. Please allow 28 days for delivery.

MAIL ORDER COUPON

Please send me the following _____

 Name _____
 Address _____

 _____ Telephone _____
 I enclose cheque £ _____
 Access/Barclaycard No. _____
 Signature _____

LOUDSPEAKERS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE PLACEMENT | SENSITIVITY | VALUE | ISSUE |
|---|------------------------|---|---|--------------------------|-------|-------|
| Monitor Audio Monitor 7 £150 | 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/w 70Hz | | 74 |
| Monitor Audio Monitor 9 £190 | 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 | 85dB/w 30Hz | | 78 |
| Monitor Audio R300/MD £250 | Average Average - | An attractive 'large bookshelf' model that's handicapped by poor crossover and integration between paper cone bass and metal dome tweeter | 47.5 x 25 x 30.5cm stands in free space | 88dB/w 50Hz | | 71 |
| Monitor Audio R352/MD £299 | Average + Good | A good value large box that sounds more engaging than subtle, providing a good compromise between bandwidth and sensitivity | 64 x 25 x 32cm stands in free space | 89dB/w 45Hz | R | 66 |
| Monitor Audio R852/Gold MD £449 | Good Good | Luxury build and 'high tech' tweeter or not, this compact model offers good refinement and detail on an open soundstage | 45 x 25 x 26cm stands in free space | 86dB/w 50Hz | R | 66 |
| Monitor Audio Studio 10 £1090 | Average Average + | Expensive, luxury build/finish and all-metal driver diaphragms provide engagingly transparent midrange and treble, spoiled by over-strong mid-bass. | 40 x 20 x 25cm heavy stands clear of walls | 87dB/w 45Hz | | 90 |
| Mordaunt-Short 442 £1150 | Good + Very Good | A resounding success with the listening panels. Make sure your room can accommodate the bass | 95 x 26 x 38cm floor standing in free space | 87.5dB/w 40Hz | R | 60 |
| Mordaunt-Short MS 3.10 £100 | Average Average + | Probably the liveliest and most communicative miniature around, this beautifully presented design is probably better suited to budget 'real hi-fi' than the blandness of the midi system | 28.5 x 17.5 x 20cm | 88.5dB/w 48Hz | BB | 78 |
| Mordaunt-Short MS 3.20 £130 | Average Average + | All the charm of its BB-rated £99 baby 3.10 brother, plus a smidgeon more bass for those in a suggestible frame of mind | 35.5 x 18 x 20cm open stands against wall | 85dB/w 50Hz (in room) | R | 82 |
| Mordaunt-Short MS 3.30 £180 | Average Average + | A little too mid-forward for neutrality or formal recommendation, this attractive, good-sized model nevertheless has more than enough appealing qualities to merit serious consideration | 46 x 23.5 x 27cm high stands 1-2ft from wall | 87dB/w 38Hz (in room) | | 78 |
| Mordaunt-Short MS 3.40 £230 | Average + Average | It looks pretty and sounds civilised, but the 3.40 failed to ignite any degree of enthusiasm amongst our listeners. Low frequency stand and room matching is a bit tricky | 57 x 23.5 x 27.5cm stands in free space | 87dB/w 30Hz (in room) | | 86 |
| Musical Fidelity MC-2 £299 | Very Good Very Good | This exceptionally clean and clear design offers real subtlety and finesse. Bass quality is light but exceptionally clear; the treble is smooth if slightly shallow | 48.5 x 25.5 x 16.5cm open space and stands | 87.5dB/w 65Hz | BB | 66 |
| Musical Fidelity MC-4 £499 | Excellent Very Good | Achieving a very high standard, the MC-4 sounds detailed and coherent like the MC-2, but with more bass depth and solidity, and large image scale | 56.5 x 26.9 x 29cm open space on stands | 87.5dB/w 60Hz | R | 59 |
| Musical Fidelity Reference 2 £199 | Good - Good - | This compact wall-mount design with advanced drivers has good dynamics, balance and stereo, plus flashy styling and some midband 'boxy' coloration | 38 x 25 x 20cm stands near rear wall | 88dB/w 50Hz | | 71 |
| NAD 8225 £150 | Good Average + | Notwithstanding lacklustre styling and an unprepossessing appearance, this NAD miniature has a smooth and even midband plus an appealing overall jauntiness. The whole turns out to be worth more than the sum of its parts | 34 x 20 x 18cm stands close to wall | 87dB/w 45Hz (in room) | R | 86 |
| NVA Cube 1 £600 (stands £200) | 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 wall | 85dB/w 52Hz | R | 71 |
| NVA Cube 2 £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/w 48Hz (in room) | R | 82 |
| NVA Cubix £1100 | Average Good | Too idiosyncratic for formal recommendation, the Cubix possesses remarkable bass extension for its size, but is tricky to optimise and has some aggressive tendencies | 60 x 32.5 x 32.5cm | 84dB/w 28Hz (in room) | | 78 |
| Opus 3 Capella £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 | 86.5dB/w 45Hz | | 66 |
| Opus 3 Credo £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/w 65Hz | | 74 |
| Pearl & Oakley Victoria 200 £1099 | Average - Average - | Extraordinary, and to many very attractive, 'ginger jar' presentation in Staffordshire ceramics, but let down by need for further acoustic and mechanical development | 93 x 33 x 33cm on floor in free space | 87dB/w 30Hz (in room) | | 78 |
| Philips FB815 £230 | Average Average | An impressively – indeed imposing – physical package for the price, clever engineering gives a very competent if slightly hard and brittle sound quality that somehow lacks genuine authority | 63 x 27 x 27cm low stands in free space | 85dB/w 30Hz | | 86 |
| Philips FB825 £650 | 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/w 25Hz | R | 90 |
| QLN Model One £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 pillars, free space | 85dB/w 28Hz (in room) | | 82 |
| QLN Signature £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/w 30Hz (in room) | | 78 |
| Quad ESL-63 £1690 | 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 wall | 84dB/w 34Hz | R | 60 |
| Richard Allan CD5 £184 | 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/w 80Hz | | 68 |
| Rogers LS2a £180 | Average Average | Provides very good engineering and stereo performance for the price, alongside some 'boxiness' and certain dynamic constraints | 36 x 23 x 21cm low stands 1ft from wall | 88dB/w 50Hz (in room) | | 82 |
| Rogers LS4a £219 | Good Good - | This artfully voiced and well balanced compact gives a fair flavour of the classical 'BBC sound' at a very reasonable price | 43 x 25.5 x 24.5cm stands 1ft from wall | 87dB/w 32Hz (in room) | R | 78 |
| Rogers LS6a £285 | Good Good | Stereotypically a Rogers model with impressively even balance, prospective purchasers will have to weigh the fine midband naturalness against slightly lazy dynamics and timing. | 51 x 27.5 x 28cm stands in free space | 86dB/w 25Hz (in room) | R | 86 |
| Rogers LS7t £399 | Good + Good + | A fine combination of classic qualities at reasonable price produces the 'R' tag, but try to get a pair home on approval to check for bass 'heaviness' | 56 x 27 x 28cm free space on 40cm stands | 88.5dB/w 48Hz | R | 59 |
| Rogers Studio 1a £579 | 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/w 36Hz | R | 66 |
| Roksan Darius £1395 (£345 integral stand) | Good Very Good | Now totally realigned, the current Darius provides an exceptionally impressive combination of transparency and delicacy with fine information retrieval and speed. The problem is affording the amplification to do it justice. | 47 x 27 x 40cm own stands angled in space | 82dB/w 20Hz | R | 86 |
| Rotel RL850 II £140 | Average + Average + | Strongly recommended. Well-balanced, clear, with decent focus and fine stereo, but tendency to 'heaviness' needs decent stands and space | 44 x 25 x 24cm free space on 40cm stands | 86.5dB/w 50Hz | BB | 59 |
| Royd A7 Series 11 £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 wall | 86dB/w 75Hz | R | 53 |
| Royd Apex £485 | 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/w 33Hz (in room) | R | 78 |
| Royd Eden £235 | 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 rear wall | 87dB/w 85Hz | R | 66 |

LOUDSPEAKERS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE PLACEMENT | SENSITIVITY | VALUE | ISSUE |
|--|------------------------|---|---|--------------------------|-------|----------|
| Royd Sintra £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/w 50Hz | R | 90 |
| Ruark Swordsman £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 wall | 84dB/w 50Hz | | 71 |
| Ruark Talisman £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 wall | 86dB/w 30Hz | R | 90 |
| SD Acoustics OBS £695 | 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 walls | 92dB/w 30Hz (in room) | R | 82 |
| SD Acoustics Ribbon £2000 | Average Good + | Entertaining but a little underdeveloped and rather amplifier sensitive, the 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 from walls | 91dB/w 30Hz (in room) | | 81 |
| SD Acoustics SD1 £1150 | 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/w 50Hz | R | 60 |
| SD Acoustics SD3 £500 | Average Good | Neither cheap nor perfect, this near miniature (using OBS' mid driver down into the bass) sounds unusually lively and dynamic within inevitable physical constraints, and is ultimately both engaging and entertaining | 38 x 19 x 29cm stands 10cm from wall | 83dB/w | R | 86 |
| Seventh Veil System IV £1290 (£340 integral stand) | Average Good + | Lacks welly and loudness but delivers astonishing results with female vocals in particular. Antithesis of the 'good allrounder', this oddball design has considerable charm that the committed enthusiast might find irresistible | 72 x 44 x 21 x 29cm own-stands close to wall | 84dB/w 28Hz (in room) | R | 86 |
| Shan Shimna £280 (stands £75) | Average + Good | Pretty little miniature in cast mineral/plastics has limited dynamic range and could sound smoother, but integration is good and box effects slight | 31 x 16 x 17cm stands near rear wall | 84dB/w 65Hz | R | 71 |
| Snell Type C £2350 | n/a Very Good | Pricy, yes, but an extremely capable loudspeaker. Musical and transparent; excellent bass extension which improves with the addition of a Pirate plinth | 112 x 38 x 33cm free standing, free space | 90dB/w 35Hz | R | 65 |
| Sony APM-101ES £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/w 52Hz | R | 71 |
| Sony APM-121ES £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/w 25Hz (in room) | | 86 |
| Sony APM-141ES £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 free space | 88dB/w 30Hz (in room) | R | 78 |
| Sony APM-181ES £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/w 40Hz | | 71 |
| Sony APM-66ES £700 | Average + Average + | Powerful heavyweight sound with a brilliant midband - clear articulate and transparent. But bass is on the boomy side and the treble can sound grainy | 66 x 38 x 36.5cm low stands, free space | 89dB/w 60Hz | | 59 |
| Spendor SP1 £800 | Very Good Good | A very subtle and musical performer that works particularly well with digital material. An exceptional allrounder | 63.5 x 29.5 x 30.5cm stands, free space | 87dB/w 41Hz | R | 60 |
| Spendor SP2/2* £500 | Very Good Good + | Conceding little to the SP1, this 30 litre model displayed good tonal balance with a highly articulate midrange, only slightly marred at frequency extremes | 50 x 25 x 30cm stands, free space | 87dB/w 45Hz | R | 59 |
| Spica Angelus £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 | 86.5dB/w 50Hz | | 60 |
| Spica TC50 £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/w 55Hz | | 71 |
| Spica TC50SE £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/w 55Hz | | 71 |
| Studio Power DMS100 £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/w 25Hz (in room) | R | 82 |
| Tannoy DC1000 £200 | Average Average - | The smaller of two DC models with dual concentric drivers, the '1000 is much less well balanced than the larger, floorstanding '2000 | 50 x 24 x 25cm | 91dB/w 53Hz | | 71 |
| Tannoy DC2000 £300 | Good Good | Remarkably high sensitivity from unique dual concentric driver that has an involving but characteristic sound. Bass could be better | 68.5 x 26 x 27cm floor in free space | 93dB/w 55Hz | R | 66 |
| Tannoy DC3000 £600 | Good Good | Giving new meaning to terms like dynamic range and headroom, the magnificent '3000 is a must for those who enjoy high-level monitoring. But spare a thought for the neighbours | 94 x 26 x 31cm Floor 1ft+ from wall | 94dB/w 30Hz (in room) | R | 78 |
| Tannoy E11 £129 | Average Average - | Fundamentally turgid and slow, thanks to leaden upper bass and 'shut in' treble, though stereo images are convincing, as are the reasonably uncoloured vocals | 39 x 21 x 22cm stands, free space | 87dB/w 45Hz (in room) | | 82 |
| Tannoy E11LE £149 | Average + Average | Limited luxury edition of E11 is a total contrast - sonically good in parts, but tricky to optimise in set-up, and rather presence forward. Good material value | 39 x 21 x 22cm stands quite close to wall | 87dB/w 30Hz | | 90 |
| Tannoy M15 £170 | Good Average + | Somehow lacking the magic of its predecessors, the M15 remains a fine value compact that needs careful set-up to give optimum results | 50 x 25 x 21cm Blu-tack to stands 1-2ft from wall | 88dB/w 40Hz (in room) | R | 78 |
| Tannoy M20 £250 | Good Good | Alongside fine build and presentation, the M20 provides an unusually clever combination of the 'traditional' virtues of transparency and low coloration with more trendy strengths of speed and pace | 50 x 25 x 22cm stands in free space | 87dB/w 25Hz (in room) | R | 86 |
| Tannoy Westminster £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 corners | 96dB/w (manuf.) | R | Coil '87 |
| TDL Monitor £1799 | 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/w 28Hz | R | 66 |
| TDL Studio 1 £549 | 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 | 84dB/w 25Hz (in room) | R | 78 |
| Technics SB-CS5 £70 | Average Average | Clearly fine material value for money, the CS5 nevertheless betrays its midi system heritage, the quest for size for its own sake compromising the performance of both enclosure and main driver | 42.5 x 25 x 24cm Stands in free space | 86dB/w 48Hz | R | 86 |
| Technics SB-RX50 £500 | 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/w 40Hz | R | 46 |
| Technics SBC 250 £140 | Average + Average - | Despite a fairly even tonal balance, the 250EK sounded muddled in the midrange and dull in character | 36.5 x 23.5 x 20.5cm free space, stands | 86dB/w 60Hz | | 46 |
| Toshiba SS33-M £100 | Average Average | Providing a benchmark for budget loudspeakers, this Toshiba-inspired but UK designed and manufactured model is a lot of loudspeaker for the money, if a shade on the cheap | 40 x 26 x 21.5cm stands in free space | 86dB/w 55Hz | BB | 68 |
| Townshend Glastonbury IIS* £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 soundstaging | 91.5 x 28 x 4 6 free standing in corners | 88dB 27Hz | R | 65 |
| Townshend Glastonbury Tor £1495 | Average - Very Good | Prodigious bass extension, stunning stereo focus and low cabinet coloration, but limited loudness from low sensitivity and power handling, and some imbalance coloration. | 99 x 26.5 x 33cm well clear of walls | 82dB/w below 20Hz | R | 90 |

LOUDSPEAKERS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE PLACEMENT | SENSITIVITY | VALUE | ISSUE |
|---|------------------------|--|---|--------------------------|-------|-------|
| Vandersteen Model One £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 in view of the additional mid forwardness and bass imprecision. | 100 x 30.7 x 25.6cm floor clear of walls | 87dB/w 23Hz (in room) | | 86 |
| Videotone Minimax 2 £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/w 90Hz | R | 74 |
| Visonik David 6001 £173 | Average - Poor | Sharp styling a classy looking miniature makes, but the complex grillework worsens a sound which starts off with too much top and not enough bottom | 20 x 12 x 13cm against rear wall | 87dB/w 130Hz | | 74 |
| Wharfedale 504/2 £150 | Average Average | Not strictly accurate, this musically involving miniature sounds unusually coherent and well integrated, if a shade dull in balance | 29 x 18.5 x 19cm stands against rear wall | 84dB/w 60Hz | R | 68 |
| Wharfedale 505/2 £180 | 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/w 55Hz | BB | 66 |
| Wharfedale 507 £220 | Average + Average - | Generous in size but uningratiating sonically, the 507 doesn't seem to gel in the way the smaller 505.2 does, finding a good in-room balance difficult to achieve | 49 x 25.5 x 29.5cm high stands 1ft from wall | 86dB/w 35Hz (in room) | | 78 |
| Wharfedale Coleridge £499 | Average Good | Compact, beautifully finished and extravagantly engineered box sacrifices bass extension in the cause of high midband sensitivity; communicative, but can be a little unforgiving | 48 x 26 x 26.5cm stands 1ft from wall | 91dB/w 48Hz (in room) | R | 82 |
| Wharfedale Delta 30 £80 | Good Average | Very clear and surprisingly neutral for the price, with good dynamics and stereo within limited volume ceiling | 37.9 x 20 x 16.9cm near wall, high stands | 88.5dB/w 80Hz | BB | 59 |
| Wharfedale Delta 50 £100 | Average + Average - | 'There's nothing obviously wrong, but it seems a bit mundane,' is what we said when the Delta 50 was £129. But reduced price makes it great value | 48 x 27 x 19cm near wall on 40cm stands | 88dB/w 55Hz | | 53 |
| Wharfedale Diamond IV £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/w 48Hz | R | 90 |
| Wharfedale Super Diamond £140 | Average Average - | Although there are improvements on the basic 'legendary' model, listening panellists did not get airborne about this upgrade | 24 x 19 x 19cm close to wall at head height | 88dB/w 57Hz | | 53 |
| Yamaha NS 1000M £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, stands | 90dB/w 40Hz | R | 46 |

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 |
|--|------------------------|--|--|-------|-------|
| Acoustic Research RD-06 £280 | 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 |
| Aiwa AD-F270 £90 | Average Average | An excellent budget machine, adequately equipped and satisfactorily built. Sound quality is in severe danger of transcending the price category | Dolby B/C, fine bias adjust | BB | 75 |
| Aiwa AD-F370 £130 | Average Average | Adequate but uninspiring recorder with detail shortcomings but good control layout and successful sounding with recorded musicassettes | Dolby B, C, HX Pro, bias adjust | | 63 |
| Aiwa AD-F700 £199 | Good Average | Somewhat less than the sum of the (most fine) individual parts, this deck has an artificial quality which spoiled the efforts of a fine transport | Dolby B/C/HX Pro, fine bias, CD Direct input | | 75 |
| Aiwa AD-F800 £249 | Good Very Good | Close to first class performance – and superb value. The Aiwa is purposeful and finely engineered. It provides a near irresistible blend of good mechanics and electronics | 3 head, dual capstan, Dolby B/C/HX Pro, tape calibration | BB | 75 |
| Aiwa AD-R470 £150 | Average Good | For once, an auto-reverse deck with the performance of a decent uni-directional one at a similar price. The Aiwa is modern in concept, and has good, transparent electronics | Dolby B/C/HX Pro, auto reverse, cue & review, bias adjust | BB | 69 |
| Aiwa AD-WX777 £179 | Very Good Very Good | Excellent, middle price dual deck with quick side change and a living, breathing sound – though prerecorded tapes sound bright | Twin auto-reverse, one records. Dolby B/C, fine bias | BB | 75 |
| Aiwa AD-WX888 £249 | Good Good | Inaccurate set-up spoils metal tape operation, but with other tapes the deck works well. This deck offers fine engineering, facilities and sound | Dual auto-reverse twin deck, Dolby B, C and HX Pro | R | 75 |
| Aiwa AD-WX909 £400 | Good Good | Convenience meets sound quality, and both win. An essentially clean, positive recorder which works alongside an auto-reverse player of lower standard – a sensible compromise | Dual deck, auto-reverse, track search, Dolby B/C/HX Pro, bias adjust, 3 Head | R | 57 |
| Aiwa XK-007 Excelia £400 | Good Good | Downmarket version of XK-009 with simplified bias/equalisation adjustment section and more forgiving but less informative sound. Still good, but less exciting than XK-009 | Dolby B, C, dbx, HX Pro, 3 Head, tape alignment | | 63 |
| Aiwa XK-009 Excelia £550 | Very Good Very Good | Excellent detail, stable articulate midband and slightly obvious treble. The most interesting Aiwa for yonks | Dolby B, C, dbx, HX Pro, 3 Head, tape alignment, CD direct | R | 63 |
| Akai GX-32 £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 |
| Akai GX-52 £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 |
| Akai GX-65 £300 | Average Average | Fine un gimmicky 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 |
| Akai GX-95 £400 | Good Very Good | Well designed and finished cassette deck with features well judged to please the audiophile – especially switchable Dolby HX Pro and switchable panel display. 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 |
| Denon DRM-400 £140 | Poor Poor | Messy, confused sound terminally lacking in detail and space under all conditions of use due to high mechanical flutter levels | Dolby B/C, memory stop, track search | | 81 |
| Denon DRM-500 £180 | Good Very Good | Powerful, refined and detailed sound, and an excellent transport are keys to the success of this cleanly styled addition to the range – but why no timer standby? | Dolby B/C/HX Pro, variable bias | BB | 75 |

CASSETTE DECKS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|--|---|-------|-------|
| Denon DRM-700 £250 | Good Very Good | Sloppily executed (though attractive) user interface contrasts with a high standard of music making belying its modest price | 3 head, Dolby B/C/HX Pro, record return | R | 81 |
| Denon DRM-800 £330 | Good Very Good | There are some niggling faults and limitations (no timer standby is particularly annoying), but as a means of recording music it sets a very high standard | Dolby B/C/HX Pro, off tape monitoring, dual capstan | R | 75 |
| Denon DRW-750 £250 | Good Good | Polished and articulate, the only significant shortcoming is poor performance with prerecorded material | Dolby B/C/HX Pro, twin unidirectional, one records | R | 69 |
| Dual 5850RC £269 | Poor Average | Average-to-middling deck which does most things well and skates over the more subtle things. Control system is uninspired but easy to master. Overpriced | Dolby C/HX Pro, bias adjust | | 87 |
| Goodmans GSW-5200 £90 | Poor Poor | Musically unimpressive but at least it's cheap! | Dolby B, twin, one records | | 69 |
| Marantz CP230 £300 | Average Average | This is a competitively priced portable recorder though not suited to replay of musicassettes | Dolby B, bias adjust | R | 52 |
| Marantz CP430 £399 | 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 |
| Marantz SD-50 £220 | 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 |
| Marantz SD-60 £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 |
| Marantz SD585 £300 | Average Average | Sound quality is a little sat upon, and control ergonomics are somewhat opaque, though the twin auto-reverse/recording capability makes this a powerful machine | Dolby B/C, twin auto-reverse & record, parallel recording etc | | 69 |
| Memorex SCT-5 £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 |
| Memorex SCT-84 £200 | Average Average | The playback only transport is a little disappointing, but the record one is a quality item and the deck works well. Ergonomics are good, but styling and control feel are decidedly tacky. | Dolby B/C, fine bias, twin deck with auto-reverse record, unidirectional play | R | 69 |
| NAD 6300 £550 | Very Good Very Good | Solid and homogeneous sound quality and very good replay compatibility thanks to 'play trim'. Distinctive, musical – and costly | Dolby B, C, HX Pro, 3 Head, bias adjust | R | 63 |
| Nakamichi CR-1E £345 | Very Good Good | Modestly equipped by any standards, the CR-1E stands or falls by its build quality, which is high, and sound which is highly competent | Dolby B & C | | 57 |
| Nakamichi CR-2E £395 | Very Good Good | Ordinary to look at, in some respects rather awkward to use (tape switching especially), the CR-2E sounds very slightly better than the CR-1E, and therefore ranks well. But it doesn't come cheap | Dolby B & C, bias adjust, remote control | R | 57 |
| Nakamichi RX-202E £545 | 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 |
| Philips FC566 £179 | Average Average | Mostly well equipped, though some tape search facilities fail to exploit the auto-reverse capability. Sounds clean and stable – with prerecorded tapes too | Auto reverse, track search, Dolby B & C | | 57 |
| Philips FC567 £279 | Average Poor | Well equipped but ergonomically substandard; sound quality is messy and lacking in clarity and dynamics | Dual deck, auto reverse, track search, Dolby B & C | | 57 |
| Philips FC870 £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 |
| Pioneer CT-337 £130 | Average Average + | Simple but well made machine with a slightly soft but consistent standard of reproduction | Dolby C/HX Pro, CD synchro, mic inputs | R | 87 |
| Pioneer CT-447 £170 | Good Good | An excellent and affordable package, decidedly OTT in the display area but capable of genuinely fine musical reproduction | Dolby C/HX Pro, auto tape alignment, track search | BB | 87 |
| Pioneer CT-656 £250 | Good Good | Well conceived and executed low cost 3-head recorder. It benefits from and makes good use of metal tapes, but is never less than couth and stable sounding – even with ferrics | 3 heads, off tape monitoring, fine bias, Dolby B/C/HX Pro | R | 75 |
| Pioneer CT-737 Mk II £350 | Good Average + | Easy to use and sensibly equipped, the CT-737 is much improved, but sound quality is still a tad lacklustre | 3-head, Dolby B/C/HX Pro, manual record bias/sensitivity | | 75 |
| Pioneer CT-91a £500 | 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 |
| Pioneer CT-959 £450 | Very Good Very Good | Near state of the art for £450. Engineering is of a high order. An open window sound quality, but playback response is very bright (being corrected by manufacturer) | 3-head, var bias & eq, multi-mode meters. Dolby HX Pro | R | 87 |
| Revox B215 £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 |
| Revox B215-S £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 |
| Rotel RD-845 £130 | Average - Average + | Extremely fine transport and clean sounding electronics for the price. Bass lacks weight, but deck works remarkably effectively with chrome tapes. | Dolby B/C, manual tape selector | R | 81 |
| Rotel RD-855 £180 | Average Good | The transport is OK and the various frequency responses are erratic, but good basic electronics help the Rotel deliver. Coherent, enjoyable and informative | Dolby C memory stop & repeat, track search | R | 87 |
| Rotel RD-865 £200 | Good Very Good | Fine, architecturally solid sound quality in a package with a low gimmick count and strong audiophile appeal | Dolby B/C/HX Pro, fine bias | BB | 75 |
| SAE C102 £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 |
| Sansui D-X301i £180 | Average Good | Lively, informative and well equipped basic deck, if rather obscure operationally | Dolby B/C/HX Pro, variable bias, track search | R | 69 |
| Sansui D-X501 £230 | Poor Poor | Unhappy mixture of good looks, excellent ergonomics and mediocre, sometimes poor sound | Dolby B/C, random track search | | 81 |
| Sansui D-X701 £340 | Average Average | A little flat and smeared under some conditions, this design is at its best with metal and prerecorded tapes | Dolby B/C, 3-head, variable bias & output, track search | | 81 |
| Sherwood DS-1135C £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 |
| Sherwood DS-7000R £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 |
| Sony (WMD6C) ProWalkman £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 | | 60 |
| Sony TC-K520 £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 |
| Sony TC-K730ES £500 | Very Good Very Good | First rate cassette deck that scarcely betrays it is a cassette deck on audition. Features and control wise, it feels a little dated | Dolby B, C, bias and equalisation adjust | R | 81 |
| Sony TC-K850ES £400 | Very Good Very Good | Near state of the art recorder with excellent recording quality, and even better playback performance. Sounds — and looks — best with the display turned off | 3-head, Dolby HX Pro, bias/level adjust, dual capstans | R | 87 |
| Sony TC-RX110B £90 | Poor Poor | Woolly bass and scrappy treble combine to make a meal of many music types, despite accurate response shapes with most types of tape. Prerecorded material sounds dull | Dolby B/C | | 75 |

CASSETTE DECKS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|----------------------------------|--------------|---|--|-------|-------|
| Sony TC-TX55 £150 | Average | The sound quality ranking is a good one for an auto reverse machine at this price level. | Auto reverse, Dolby B, C & HX Pro | R | 75 |
| Teac V-270C £89 | Average | Clean, sharp sound, only slightly let down in the deep bass. | Dolby B & C, bias adjust | | 63 |
| Teac V-480 £129 | Average | Not quite cheap enough to compete solely on price, the V-270C is a rather messy and unstable sounding deck | Dolby B/C/HX Pro, fine bias | R | 75 |
| Teac V-870 £349 | Average | A rather utilitarian model, the V-480 just makes it on to our recommended list by virtue of a clean, open sound that to an extent transcends the measurements | Dolby B, C, HX Pro, 3 Head, manual tape calibration | R | 63 |
| Teac V-970X £449 | Good | Cut-down V-970X for the proletariat. Expensive and carefully engineered with mostly very good but slightly cold sound quality | Real-time counter, track search, Dolby B/C/dbx & Dolby HX Pro, bias adjust, remote control, 3 Head | R | 57 |
| Teac W-470 £129 | Very Good | An excellent sounding cassette deck with useful features (tape calibration etc) that fully justifies the price | Twin deck, one records, Dolby B/C, intro-search | | 75 |
| Teac W-990RX £445 | Average | A low grade transport is allied to respectable electronics to give sound quality ranging between acceptable and good. Prerecorded tapes sound bright | Dolby B/C 9 dbx, dual auto-reverse/record, parallel & sequential recording, remote | R | 69 |
| Technics RS-B905 £350 | Good | A mess with dbx, but taut and articulate otherwise. The 990, though expensive, has a powerful range of features, making it one of the few really ambitious decks to successfully straddle both sets of requirements | Dolby B, C, HX Pro, dbx, bias adjust, 3 Head | | 57 |
| Technics RS-TR355 £200 | Good | Good, well set up cassette deck with a clean, accurate sound but some compression. dbx circuit sounds poor | Twin auto-reverse, one records, Dolby B/C/HX Pro | | 75 |
| Technics RS-TR555 £300 | Average | Serviceable middle market dual deck without serious fault but with some annoying inadequacies, notably an inability to play side A and B and then stop | Dual auto-reverse/dual record/Dolby B/C/HX Pro & dbx | R | 81 |
| Yamaha KX-1200 £500 | Average | Sound quality varies with mode of use, but is rarely less than competent, and is often highly enjoyable. dbx is best avoided | Real-time counter, track search, Dolby B, C, dbx, HX Pro, bias adjust, remote control | | 52 |
| Yamaha KX-230 £140 | Excellent | A veritable rats' nest of buttons and dials, albeit well laid-out. This is nearly a great recorder, but lacks simplicity of sound | Dolby B/C/HX Pro, variable bias | R | 75 |
| Yamaha KX-330 £170 | Average | A strong near-budget performer, the strengths include good overall sound, excellent search aids. Weaknesses: ergonomics, soggy bass with prerecorded material | Dolby C/HX Pro, optional remote control | R | 87 |
| Yamaha KX-530 £230 | Good | Cramped control panel but a strong, dynamic and comparatively stable performance distinguish this strong middle-price deck | Dolby C/HX Pro, 3 motors, optional remote control | BB | 87 |
| Yamaha KX-630 £300 | Good | Excellent all-rounder that does most things at least competently and many things well. One of the best middle price decks | 3 head, Dolby B/C/HX Pro, optional remote | R | 81 |
| Yamaha KX-800 £330 | Very Good | Well equipped and immaculately presented, offers fine, articulate music making with a bias towards high bias tapes, especially metals | Real-time counter, track search, Dolby B, C, HX Pro with play trim, bias adjust, 3 Head | | 57 |
| Yamaha KX-930 £400 | Good | The present Yamaha range seems oddly inconsistent. This sophisticated model sounds fine (almost) but came a clear second best to the KX-500 | 3 heads, dual capstans, Dolby C/HX Pro, remote control | | 87 |

DAT RECORDERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|--------------|---|---|-------|-------|
| Aiwa Excelia XD-001 £1300 | Very Good | Clear and very listenable recorder, roughly comparable to, but slightly sweeter sounding than Sony DCT-1000ES - but with an inferior front panel design | Track ID and search, remote | R | 63 |
| Grundig Fine Arts DAT-9000 N/a | Very Good | Conventional DAT recorder offering standard facilities. The deck is well made and equipped, and is engineered to a satisfactory quality standard. It performs to an acceptable standard, though it is not state of the art. | 2/4 hour recording, mic inputs, digital in/out | | 69 |
| Luxman KD-117 £1499 | Good | Slightly soggy, earth-bound sound quality, this model trails the other DAT decks tested so far | Two analogue inputs, remote twin address | | 63 |
| Sony DTC-1000ES £1299 | Good | Good | Standard track ID and search, remote | R | 63 |
| Sony DTC-M100 £799 | Very Good | Fine, consistent performer with accomplished tape handling and good build quality | Midi-width, alpha-numeric display, remote, optical interfaces | R | 63 |

CD PLAYERS

Now entering its second decade, 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 |
|----------------------------|---------------------|---|--|-------|-------|
| Aiwa XC-007 £499 | Very Good | Creditable sound despite inverted output, high tech engineering with very good lab performance. A worthy contender but not cheap | Remote, keypad, timer, digital output, pseudo 20 bit, dual DAC | | 64 |
| Aiwa XC-333 £149 | Average - Average | Looks costly, well featured, well balanced technical performance and sound for money | multi bit, keypad remote, hdph (fixed) | R | 88 |
| Akai CD-52 £249 | 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 |
| Akai CD-55 £230 | Good | Budget model which fails to compare with the CD52 | Remote, hdph, Good programming | | 83 |
| Akai CD-62 £330 | Average - Very Good | Looks, build quality and the technical specification are right up to date. As it stands it sounds very good but if the indifferent lab performance could be improved, it would probably sound even better | Remote, programme, hdph, comprehensive display etc | BB | 70 |

ACIDDHARTHA

O R Z E N A N D T H E A R T O F H I - F I

In Tottenham Court Road, a pleasant leafy glade in the West End of London, is **Kamla Electronics** - heavily disguised to blend in easily with the more, ahem, traditional hi-fi shops in the area (we don't want to attract *too* much attention).

Within the depths of this emporium of electro-sonic wonderment, you will find products supplied by this lot:

AIR TIGHT : AIWA : AKAI : ALLISON : ALPHASON :
AUDIO INNOVATIONS : AUDIO NOTE : AUDIO
TECHNICA : CERWIN VEGA : CONRAD JOHNSON :
DCM : FURUKAWA : GOLDRING : HECO : INFINITY :
JBL : JEFF ROWLAND : JPW : JVC : KENWOOD :
KUZMA : LINDLEY : LINX : LUXMAN : MAXELL :
MICROMEGA : MITSUBISHI : MONSTER : MORDAUNT
SHORT : MOTH : NIKKO : ORACLE : ORTOFON :
PANASONIC : PHILIPS : PIONEER : QED : REVOLVER :
RUARK : SD ACOUSTICS : SENNHEISER : SHARP :
SNELL : STANDESIGN : SUPRA : SYSTEMDEK :
TARGET : TDK : TEAC : TECHNICS : THATS :
THORENS : TOSHIBA : TOWNSHEND : VDH :
WHARFEDALE.

You will also find one of the most sensitive, intelligent, caring, children-loving human beings you have ever met.

He will listen to your needs, dreams and aspirations.

He will demonstrate the sonic possibilities.

You will listen to music.

And you will see the light.

SMALL

PRINT:

10% off with a copy of this magazine

KAMLA ELECTRONICS

251 Tottenham Court Road, W1

T e l : 0 7 1 - 3 2 3 - 2 7 4 7

ALMOST A RELIGIOUS EXPERIENCE

The Directory

CD PLAYERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|------------------------|---|--|-------|-------|
| Akai CD-73 £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 |
| Akai CD-93 £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 black lacquer wood finish | Track entry remote, menu display etc. | | 58 |
| Arcam Alpha £375 | Very Good Very Good | Arcam's new star, its best CD player yet and great value | Remote, hdph, etc, coax dig. out | BB | 83 |
| Arcam Black Box 2 £300 | Very Good Very Good | An addition to the BB 1, it also offers improved sound and more inputs | Optical and wired input digital decoder | BB | 76 |
| Arcam Black Box 3 £350 | 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, optical & coax | R | 88 |
| Arcam Delta 170 II transport £600 | 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 |
| Arcam Delta 70 II £600 | Very Good Good | Now in Mk II form a further improvement is seen in features, performance and sound quality. Solidly built and British | Now adds simple remote vol + std features; also display off | R | 76 |
| Arcam Delta Black Box £260 | n/a Very Good | This rich, powerful and articulate sounding DAC transforms the majority of medium price CD players | Needs D-out CD players | R | 60 |
| Ariston CD1 £345 | Good Good | Easy on the ear compact disc for those who like their music Radio 2 flavoured. And it looks good | digital output, remote control | R | 87 |
| Cambridge Audio CD3 £649 | Poor Good + | Unique internal configuration gives the CD3 a fluid and detailed sound falling off at the frequency extremes. The controls and displays are primitive | Optical/electrical digital out, remote control | | 87 |
| Carver TL-3100 £340 | Average Average - | The sound quality did not live up to the excellent fascia. Carver's DTL did not aid the indifferent sound | DTL sound shaping, usual facilities, remote, memory | | 76 |
| Carver TL-3300 £700 | 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 |
| Conrad -johnson DFI £1995 | Average - Good + | Setting a decent standard and including an FET line preamplifier, the unusual DFI is worth investigating | Line preamp built-in, simple remote facilities | | 76 |
| Deltec PDM-One £500 | Average Very Good | A no frills audiophile bitstream converter at an affordable price | Coax-in, special cable and mains filter options | R | 83 |
| Denon DCD 3520 £1000 | Very Good Good + | Built like a battleship, this new model takes its place at the top of the Denon range with a smooth and powerful sound, quite free of graininess | Composite 20-bit DACs, full prog. features | R | 72 |
| Denon DCD 620 £180 | Average + Average - | Not competitive on performance though feature pack is good | Hdph + vol, edit, remote | | 83 |
| Denon DCD 920 £320 | Good Average + | Highly featured and well presented but unexceptional performance | Everything! inc remote volume | | 83 |
| Denon DCD 960 £300 | Good + Average | A fine feature package with good lab results, but unfortunately an unexceptional sound quality | Remote inc vol, hdph, keypad, well featured | | 88 |
| Denon DCD-1520 £550 | Very Good Very Good | High tech, high profile, high gadget content, good sounding player at an almost affordable price. | Programme, hdph socket, remote, track entry, optical dig. output | R | 70 |
| Denon DCD1420 £400 | Very Good Average | Superbly equipped with a fine lab performance, this modern player needs a touch more sonic spice to get recommended | 20-bit, very comprehensive, remote, power volume etc | | 76 |
| Denon DCD820 £270 | Average + Average - | A powerful combination of features and build for the money ensures recommendation. The sound is just good enough | Well equipped, power vol, edit etc, digital out | R | 76 |
| Dual CD5150 £280 | Very Good Good + | In a real sense cloned from the rave Rotel RCD-855, this is also a great value all rounder: multi bit rules OK! | keypad remote, hdph (fixed), Philips based | BB | 88 |
| Ferguson CD007 £130 | Good Average | The cheapest recommendation in the test group; don't expect the earth but the value is good | Manual, digital output, headphone socket | R | 64 |
| Ferguson CD008 £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 |
| Goodmans GCD-435 £140 | Poor Average - | Goodmans has the power to source with more care than this, music centre quality! | multibit, remote, basic facilities | | 88 |
| Grundig CD9000 £1000 | Good Good | Aimed at a market which puts external styling above sound quality. Although this player is of slightly above average competence, in most departments it is expensive | Remote, programme, hdph socket, calendar display etc | | 70 |
| Harman Kardon HK7300 £199 | Average Average - | Budget low bit technology, does not deliver enough for a recommendation | No remote, no digital out; basic control features | | 83 |
| Harman Kardon HK7500 £299 | Average + Average | Decided improvement over 7300 in all respects. Still fairly unimpressive sound | Remote, hdph + vol, good programming | | 83 |
| JVC XL-V231 £149 | Excellent Average - | Text book lab result but below par sound, nice and boring. Must be some potential here | Remote, hdph (fixed), JVC 1-bit PFM | | 88 |
| JVC XL-Z1010 £499 | Good Average - | Despite some high tech design and a good lab result, this model did not deliver good sound quality | 32 track prog., disp. off, auto fade, 2 digital op | | 76 |
| Kenwood DP-8020 £500 | Excellent Very Good | Fine build and finish, a fine performer in the lab, and in sound quality | Comp. remote, opt & coax dig. output, versatile | R | 83 |

**Improve Your CD Sound -
NOW!
Try The British ZYP CD Enhancer -
only £49**

Write For Our Amazing Accessories List or Tel: (0403) 891777

*Presence Audio,
The Old Posthouse, Plummers Plain, Horsham, RH13 6NU.*

Please send full details

Name _____

Address _____

Postcode _____

HFC1

The Directory

CD PLAYERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|---|---|-------|-------|
| Luxman D105u £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 |
| Marantz CD12LE £2800 | Very Good Excellent | This top of the range two-box player may be very expensive but it is very well made. Technical performance is very good and the sound is the best from Marantz yet | FTS, optical connection, hdph socket, balanced output etc | R | 70 |
| Marantz CD40 £200 | Very Good Good + | Like the Philips CD620 equivalent, this is the Philips/Marantz performance/value equation at its best | Multi bit, remote, hdph (fixed) | BB | 88 |
| Marantz CD50SE £330 | Very Good Very Good | Souped up CD50 delivers reference performance in its class. Worthy successor to the '65SE legend | Full remote, power volume. Hdph, (fixed). FTS. Good programming | BB | 83 |
| Marantz CD60 £330 | Very Good Very Good | Lacking the SE flair, the 0 remains a fine player by market standards. Second best is more than good enough | Multi bit, remote inc. vol., hdph, FTS etc | BB | 88 |
| Marantz CD60SE £380 | Very Good Very Good | Luxury '50SE with superior remote volume and variable headphone socket; a fine performance all round | Optical digital output, full remote, power vol. FTS, hdph | BB | 83 |
| Memorex CD1650 £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 |
| Meridian 203 £495 | Very Good Excellent | Exceptionally lucid, transparent and solid sound 'bitstream' converter. Always tidy and easy on the ear, but doesn't bulldoze the craggy bits | Stand alone converter, 32-48kHz, optical/electrical i/p | BB | 87 |
| Meridian 206B £899 | Excellent Excellent | What a stunner! Audiophile quality from the reference one box CD player, and at a most realistic price | Differential bitstream, keypad remote, prgming | R | 88 |
| Meridian 208 £1490 | Excellent Excellent | State of the art CD sound combined with a decent preamp and full remote control | Hdph + remote level. Programming, phase invert, various outputs | R | 83 |
| Micro Seiki CDM100 £3850 | 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 |
| Micromega CDF1 Classic £1400 | n/a Very Good | A very well made and stylish player from France, the CDF1 is a CD player for analogue lovers or as close as we've come across | Multi bit basic remote, dig.output | R | 72 |
| Micromega Duo BS £499 | Good Excellent | With a good transport it delivers a sweet musical sound at a high quality level | Bitsream D/A convertor, auto input switching | R | 88 |
| Micromega Optic BS £695 | Average Good + | A bitstream rebuild of a Philips chassis, this player shows promise for the future | Bitstream, remote, hdph (fixed) | | 88 |
| Mission Cyrus PCM II £400 | Very Good Good + | Improvements in price and performance keep this classic remote player in the running | Remote vol, phase inv, dig op. PSX option | R | 83 |
| NAD 5320 £169 | Average - Average - | A low cost player devoid of features but at this low price it should still offer better sound | Budget facilities, 20 track program | | 76 |
| Nakamichi CDP-2E £495 | Very Good Good | It's ergonomically superior and has above average sound, but it isn't cheap. The standard of build quality and finish is first class which isn't quite matched by the sound quality | Programming, hdph, remote track entry, digital output | | 70 |
| Nakamichi OMS-1E £395 | Good Good | This neat enough player doesn't really follow the Nakamichi tradition of providing exceptional sound quality while at the same time perpetuates that of selling at an above average price | Simple remote etc. | | 58 |
| Nakamichi OMS-5EII £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. | | 51 |
| Nakamichi OMS-7EII £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 |
| Philips CD 850 £400 | Very Good Very Good | An upgrade of the 840, Philips has got bitstream to work well here. A fine allrounder | Bitstream, keypad remote, FTS etc, etc | BB | 88 |
| Philips CD610 £160 | Average + Average | Built down to the price, the sound is OK while the package performance and features constitute fine value | Remote, hdph, programming etc | BB | 76 |
| Philips CD630 £250 | Very Good Good | Large clear display with an international flavour. Strong Philips style, high value CD player | FTS, digital op, versatile programming, remote, | R | 83 |
| Philips CDC875 £300 | Average + Average - | The changer works well and this machine is very well equipped. The sound quality is below par but may not matter too much in 'muzak' application | 6 disc changer/dig op remote, hdph, memory, | | 76 |
| Philips CDV185 £350 | Average + Average | Hard to value with the video singles facility but it all works well enough for a recommendation | Video singles + CD scart + digital out etc | R | 76 |
| Pioneer PD-7500 £280 | Very Good Average | Has potential but has not brought it off on sound. Good aspects of earlier models have been lost with the new technology | Low bit dual DAC, full remote, hdph | | 88 |
| Pioneer PD-91 £899 | 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 |
| Pioneer PD-9300 £499 | Excellent Average | A mid price flagship of excellent build and lab performance but only average sound - interesting though | Remote, 24 track programming, 2 dig. op | | 76 |
| Proton AC-120 £180 | Average Average - | Fine styling, low price but barely average performance | 15 track memory, simple design, remote, hdph | | 76 |
| Radford DAC1 £895 | Good Good | Fine but slightly dated and costly package in performance terms - but flexible, musical and well built | DAC with 2 electrical + optical i/p, tape out | | 87 |
| Radford WS2 £1095 | Good Good | This player fails only in subtle ways. It is not the most engaging of players, but it is strong, forceful and dynamic, and it remains one of the better Philips 16-bit clones | Programming, intro scan etc | R | 87 |
| Revox B126 £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 |
| Revox B226S £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 |
| Rotel RCD-855 £250 | Good Good + | Stripped for action, this well built Philips technology player delivers fine performance and sound. First rate value | Remote, 20 track prog, 1 audio op, 1 digital op | BB | 76 |
| Rotel RCD-865 £300 | Average Good | Curious mixture of bold musical presentation and foreshortened imagery. Grows on you though. One to audition with care | 'bitstream', remote control | R | 87 |
| SAE D102 £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, though styling is unusual | Remote (inc volume), skip, scan etc. | | 58 |
| Sansui CD-X711 £550 | Excellent Very Good | Luxury features, finish and sound from this classy Sansui; no excuses required here | Hdph + vol, remote full programming | R | 83 |
| Sharp DX150 £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 |
| Sharp DX750 £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 |
| Sherwood 1060C £130 | Average Average - | Very cheap but performance is not too bad. No remote unless matched to a Sherwood system | Multi bit, basic facilities, hdph (fixed) | | 88 |

The Directory

CD PLAYERS

| ■ MODEL ■ PRICE | ■ LAB ■ SOUND | ■ COMMENTS | ■ FEATURES | ■ VALUE | ■ ISSUE |
|---|------------------------|---|--|---------|-----------|
| Sonographe SD1 (by CJ) £799 | Good Very Good | Distinctive with oak end-cheeks, using Philips based 14 bit x 4 oversampling, Conrad Johnson electronics make this a musically rewarding player | Full search programme and timing | R | Coll. '87 |
| Sony CDP-228ESD £400 | Very Good Average + | Good value, this is Sony's best mid price design and comes superbly equipped | Hdph, remote, rem vol, custom file | R | 76 |
| Sony CDP-338ESD £600 | Excellent Good | Only a bit better than the 228, the 338 is a good machine, but not quite good enough for formal recommendation at the price | Custom file, remote, rem vol, hdph, shuffle etc | | 76 |
| Sony CDP-790 £200 | Good Average | Great on the test bench but new tech sounds worse than its predecessor. Who does the listening? | Low bit, full remote, comprehensive facilities | | 88 |
| Sony CDP-R1/DAS-R1 £5000 | Very Good Excellent | Sony has aimed high with the R1 and in some ways has created the reference player. Build quality is amazing and it offers a high level of facilities. One or two faults were revealed in both the lab and the listening, but it's generally excellent | Two box, dual optical connection, digital processor, FTS, remote | | 72 |
| Sony CDP-X7ESD £1300 | Good + Average | A Sony flagship, build and finish is exemplary, styling is unusual but the sound is just average | Custom file, remote, 2 digital op. | | 76 |
| Stax Quattro £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 |
| Teac CDP-400 £249 | Good Average | Fine in the lab, but good build quality is not reflected in the rather average sound | Low bit, keypad remote, hdph, versatile prgm'ing | | 88 |
| Technics SL-P277A £160 | Very Good Average + | High value, budget priced, yet well equipped and finished, a strong example in its group | Remote, programming, hdph + level. No d. op. | BB | 83 |
| Technics SL-P550 £220 | Very Good Average | Superb, slick presentation, well equipped, average sound, fine build | Hdph, rem. prog., edit/fade, dig. optical | | 83 |
| Wadia WT-2000/Digimaster 2000 £5495/£7300 | 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. '90 |
| Yamaha CDX-1030 £500 | Good + Average | New tech but Yamaha hasn't managed to get this one sounding right. Otherwise its fine | Low bit, remote with vol, very versatile | | 88 |
| Yamaha CDX-530E £180 | Average + Average | A well balanced example using established DAC technology - worthy of consideration if not recommendation | Multi bit, keypad remote, hdph (fixed) | | 88 |

CD MIDI SYSTEMS

So you want a hi-fi, but you don't want to make a fuss about it. A pre-packaged system with everything matching up and no aggravation may not rank with carefully chosen separates on sound quality, but there's no denying the attractiveness or popularity of this approach – the market for pre-packaged component hi-fi systems is considerably bigger than that for separate items, even ignoring the vast numbers of low-cost single unit stacker systems.

The arrival of compact disc led to a new

fashion for shelf-standing compact systems, or 'midis' as they are known in the trade, as a replacement for earlier floor-standing rack systems (themselves the upmarket development from music centres). Only some 330mm wide, midis can more or less match full-size (430mm) rack components for performance, and are certainly cheaper to make, ship, sell and buy.

Whereas specialist hi-fi is moving steadily towards ultra-simple 'no frills' components, midis tend to be sold on a feature count at a

price point, usually with little opportunity for demonstration and comparison. Our test programme includes extensive auditioning and lab testing, while making allowance for the different aspirations of designers and expectations of users. Key features valued highly by customers include system remote control, automatic switching, and double 'dubbing' cassette decks. The top end of the market is developing with surround sound audio/video-ready packages.

| ■ MODEL ■ PRICE | ■ LAB ■ SOUND | ■ COMMENTS | ■ FEATURES | ■ VALUE | ■ ISSUE |
|---|------------------------|---|---|---------|---------|
| Aiwa NSX-800 £550 | Average Poor | Undetailed, undynamic and largely unmusical system which throws it all away for an excessive range of tape related features | One box miniature plus remote control & speakers with dual auto reverse cassette mechanisms, mic mixing etc | | 89 |
| Aiwa X-D100 £1000 | Average - Average | Very fully equipped with wide ranging in and outputs but poor upgradeability. Sound quality is reasonable on the whole | Digital & optical in/outputs, dual auto reverse, disc file CD | | 77 |
| Aiwa X-D80K £550 | Poor Poor | Congested and harsh sound quality, the cassette deck, amp and loudspeakers being well below par. The built-in timer adds some operational flexibility | Auto-reverse, CD synchro record, remote, timer | | 77 |
| Akai FX-800CD £700 | Very Good Very Good | Well thought through as a functioning system. Lacks the usual surfeit of controls, and sound quality is of an unusually high order. An excellent buy even at this price | Twin record & auto reverse cassette etc with 'intelligent' remote | BB | 89 |
| Ferguson HFD28 £300 | Poor Poor | Similar to Goodmans 5000 system but with greater power and marginally superior sound | One-piece, semi-remote | | 77 |
| Grundig Studio Line 1 £330 | Poor Average + | Intriguing package with warm, woolly but attractive sound let down by poor attention to detail and suspect cassette deck. Amplifier appears to be inadequately protected | CD/cassette tuner plus preset equaliser | | 77 |
| Hinari DK200 Disc Deck £300 | Poor Poor | Confused user interface is matched to inadequate electronics. Poor – and poor value | Single unit, two cassettes, CD, tuner, remote | | 77 |
| JVC Midi-W53 £500 | Average Average | A potentially excellent middle price system spoilt by the loudspeakers and – to a lesser extent – the record player | Midi system with SEA equaliser | | 89 |
| JVC Midi-W900CD £1111 | Good Good + | A competent allrounder, with important convenience related features, and powerful linked recording facilities. Less strident speakers would be appreciated | Separates system, equaliser, auto-reverse cassette | R | 65 |
| JVC Midi-W91CDM £1111 | Good - Average | Very well equipped (viz: multi-disc player, powerful tape related features) with acceptable but rather nondescript sound | Multi-disc player, twin auto-reverse cassette, equaliser | | 77 |
| Kenwood M-54CD/CDS £600 | Average + Average + | The M-54CD is the version without speakers and is the one to buy. The control system is A1 and the range of facilities offered is dazzling, but the amp and CD player are crude | Dual auto-reverse cassette, tuner/timer, CD, turntable with or without speakers | R | 89 |
| Memorex System-550 £500 | Average Average + | Above average electronics let down by very poor loudspeakers. Worth considering if the latter are replaced | Dual CD & cassette deck, tuner/timer, semi-auto turntable | | 89 |
| Pioneer P500 £400 | Good Very Good | Costly but high grade compact with excellent consistency between sources and plenty of presence | Compact system, remote control, dual auto-reverse cassette | BB | 89 |
| Pioneer S-11 £510 | Average - Average - | Fine lower middle market system, with one useful extra – the built in timer. Only the record deck is disappointing | Twin auto reverse cassette, built in timers, one piece amp/cassette | | 77 |
| Pioneer S-330D £1080 | Very Good Very Good | High standard of reproduction on all sources, though mistracking with Dolby C was a limitation. There are few gimmicks and plenty of fine engineering | Dolby C/hx pro, multi-disc, amp with DAC etc | R | 77 |
| Pioneer S-555 £800 | Good Good | Confusingly well equipped, in some respects rather gimmicky system, weak on record performance (surprise!) but quite or very good elsewhere | Full feature midi system with graphic equaliser, dual disc CD player | R | 89 |
| Proton AI-3000II £650 w/o spkrs | Average Very Good | Simple facilities and good, no-nonsense engineering combine to produce a system with genuine class. It's as easy to listen to as it is on the eye | Single box amp/tuner/CD/cassette with remote control; no speakers | R | 89 |

CD MIDI SYSTEMS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|----------------------------------|------------------------|---|---|-------|-------|
| Sanyo 39CD £260 | Poor Average - | Acceptably compromised basic low end system, offers broadly respectable if unambitious music making for those on a tight budget | One piece + CD, non-remote, manual tuner | | 77 |
| Sanyo 49CD £300 | Poor Average - | Similar to 39CD, but with Dolby B, preset tuning, remote control and more power. Audio wise, it's more of the same, but there's greater stature when loud and cassettes are helped by Dolby B | One piece + CD, partial remote control, digital tuner | R | 77 |
| Sanyo 59CD £380 | Average - Average - | Adequate performance overall, though endemic lack of pitch integrity takes edge from tape and records. Some inconsistencies in control system too | As 49CD, + full remote, auto source select, separate turntable | | 89 |
| Sanyo SYS-801CD £360 | Poor Poor | Typical low end midi system: simple controls, adequate CD and tuner, poor turntable and cassette, awful loudspeakers | Remote control midi system | | 89 |
| Sharp 320E £500 | Poor Poor | Poor quality system featuring tacky styling, a lack of sophistication – and overpriced | One box midi & turntable with surround matrix | | 89 |
| Sharp CD-X17E £500 | Average Average + | Highly specified miniature with detachable speakers. AC mains power only. Good sound let down by crude upper midband and treble. Expensive for what it is | CD luggable with dual cassette & tuner, detachable speakers | | 77 |
| Sony Compact 302D £400 | Average Average + | Fine low to middle price system whose only significant weaknesses are the poor tuner behaviour with weak signals and the turntable | Auto-reverse record, unidirectional play cassette, graphic equaliser etc. | R | 89 |
| Sony LBT-V702D £700 | Average + Good | Creditable up-market system with reasonable speakers and excellent cassette deck, amplifier, and a relative absence of superfluous gadgetry | Twin auto-reverse cassette deck, tuner/timer, video in/out circuitry | R | 89 |
| Technics CDC30 £600 | Good Good | A fine record player-less system whose electronics are well made and of moderately good performance, it's rescued from anonymity by excellent loudspeakers | 5 disc multiplay top loading CD player, twin auto-reverse cassette, tuner | R | 89 |
| Technics CDX50 £750 | Very Good Very Good | Conventional, well built but button bound sound system with a nearly adequate turntable and excellent loudspeakers etc. | Dual auto-reverse cassette system (tested with optional equaliser) | R | 89 |
| Yamaha AST-C10 £530 | Average + Very Good | Brilliant if flawed luggable with weighty, powerful bass, and a rare combination of expressiveness and clarity unprecedented from such a small package. Good features. | Mains portable twin cassette/CD/radio system detachable speakers, remote | R | 77 |
| Yamaha YST-C11 £600 | Average + Good | The cassette deck is a little wobbly in tone, but CD and FM are excellent, and bass depth is unusually prodigious from such small loudspeakers, though paid for with some loss of subtlety | 'Astarie', dual auto reverse cassette, luggable, with remote | | 89 |

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.

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.)

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|--|---|-------|-------|
| Akai AT-52L £150 | Very Good Very Good | Holds its own on FM against many much more expensive tuners, but AM is very poor | All bands | BB | 65 |
| Akai AT-93L £250 | Good + Good + | By AM standards presentable (good) while FM delivers the goods | All bands, aerial switch | R | 65 |
| Arcam Alpha £120 | Good Average + | Attractively classic British analogue tuner with sound quality comfortably better than most | FM/AM analogue | BB | 50 |
| Arcam Delta 80 £300 | 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 |
| Harman Kardon Citation 23 £559 | 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 |
| Harman Kardon TU920 £299 | Good Average | Rather weak sound quality for the price despite good lab test results | 16 presets, AM/FM, digital auto scan | | 55 |
| Linx Theta £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 |
| Magnum Dynalab FT101 £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 |
| Marantz ST35L £125 | Good + Average - | It works well enough but the sound could be better for the money | 16 presets, AM/FM, digital auto scan | | 55 |
| Meridian 204 £525 | 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 |
| Musical Fidelity TI £300 | Good + Very Good | Top class FM stereo sound on good signal strengths from this audiophile model. Watch out for local CB! | FM only, analogue box dial, signal meter | R | 55 |
| Naim NAT 01 £1294 | Very Good Very Good | 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 |
| Nakamichi ST-7E £750 | Good + Good + | Exceptionally good for weak-signal areas, and good all round | 16 AM/FM presets, auto time digital | | 55 |
| Onkyo T9090 II £590 | Very Good Very Good | It has most of the facilities you could possibly want and more besides. Lab performance and sound quality are both good enough to ensure recommendation even at this price | FM only, digital, 20 presets, auto scan etc. | R | 72 |
| Pioneer F91 £350 | 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 |
| Proton AT-300 £199 | Good Good | The AT-300 is pretty on the outside, orthodox on the inside and rather dear. AM – poor | FM/MW only | R | 65 |
| Quad FM4 £329 | 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 |
| Revox B260 £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 |
| Rotel RT-830AL £110 | Good + Good | Fine sounding budget audiophile material, no frills, no fuss | Manual dial analogue, FM, MW, LW | BB | 55 |

The Directory

TUNERS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|-------------------------------|------------------|---|----------------|-------|-------|
| Rotel RT-850AL £160 | Good + Good + | Scoring well on listening tests and one of the best sounding tuners at its price level, it was a bit let down on AM but RF performance was good | FM/AM, digital | BB | 50 |
| SAE T-102 £449 | Good + Good + | Expensive for all the radio you get, but sounds interesting. AM – poor | FM/MW only | R | 65 |

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.

| MODEL PRICE | LAB SOUND | COMMENTS | TYPE | VALUE | ISSUE |
|--|------------------------|---|---|-------|-------|
| Aiwa HP-V99 £50 | Good - Average + | Horn loaded in-ear miniatures with plenty of guts but not enough transparency or bass to compete with the headbanded competition | Intra-aural, closed-back, dynamic | | 75 |
| Aiwa HP-X30 £30 | 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 |
| Aiwa HP-X80 £50 | Good Good | A headphone that's highly suited to non acoustic music and portable sources, nicely made and slickly finished. Sound quality doesn't quite match the price | Supra-aural, closed-back, dynamic | | 75 |
| Aiwa HPEX-200 £90 | Good Good | Modern looking and well finished, the Excelias, as they are dubbed, had meaty bass and sounded reasonably open for the type | Circumaural, closed-back, dynamic | | 63 |
| AKG K135 £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 |
| AKG K145/S £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 |
| AKG K240 Monitor £65 | 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 |
| AKG K280 Parabolic £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 |
| AKG K340 £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 |
| Audio Technica ATH 909 £55 | Average Average | Quite impressive in the treble though a bit bass shy, the 909s worked well at high levels | Circumaural, semi-open, dynamic | | 55 |
| Audio Technica ATH 910 £65 | 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 |
| Audio Technica ATH-911 £75 | 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 |
| Beyer DT 325 £30 | 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 |
| Beyer DT330 Mk II £45 | Good Poor | Not the most revealing 'phones encountered, the 330s were nevertheless enjoyable and rarely offended | Circumaural, semi-open, dynamic | | 55 |
| Beyer DT550 £69 | 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 |
| Beyer DT880 £90 | 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 |
| Beyer DT990 £119 | 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 |
| Beyer IRS690 £200 | 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 |
| Jecklin Float Electrostatic £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 |
| Jecklin Float Model One £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 |
| Jecklin Float Model Two £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 |
| JVC HA-D990 £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 |
| Koss K/6X Plus £30 | Average Poor | 'Sixties-style' phones from the good ole US of A, their sonic style is unique and can make a system sound quite different | Supra-aural, closed-backed, dynamic | | 63 |
| Koss TD/60 £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 |
| Pioneer SE-72 £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 |
| Quart Phone 30 £40 | Good Average | Whilst not as seductive as their PMB25 predecessor, the 30s are reasonably neutral and do improve on some of the competition – though not stunning | Circumaural, semi-open, dynamic | | 63 |
| Quart Phone 70 £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 |
| Quart PMB 25II £40 | Good Good | Despite a somewhat unconventional suspension system, the 25s put in a convincing and enjoyable performance with warm yet lively balance | Circumaural, open-back, dynamic | BB | 55 |
| Quart PMB 65 £70 | Good Good | Quite revealing and neutral albeit with the usual closed back sound, this competes well with more established models | Circumaural, closed-back, dynamic | R | 55 |
| Quart PMB 85 £90 | Average Very Good | These more expensive Quarts bear a striking resemblance to the Jecklin Float models and use two drivers per ear. Sound is a bit bass heavy but not bad overall | Circumaural, open-backed, dynamic | | 63 |
| Realistic Pro-X £25 | Poor Average - | Robust, unanimously uncomfortable and heavily veiled in sonic terms – not a great success | Supra-aural, closed-back, dynamic | | 75 |

The Directory

HEADPHONES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|--|---|-------|-------|
| Ross RE-2760 £35 | Poor Average | Stylish white cans from the only British firm in the business. Unfortunately sound quality is not up to par in this price range | Supra-aural, closed-back, dynamic | | 63 |
| Ross RE2530 CD £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 |
| Ross RE2560 CD £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 |
| Sennheiser HD40 £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 |
| Sennheiser HD450 £35 | Good Average | Modern, simple and lightweight phones that are remarkably robust and which turned in a relaxed if weighty performance that was at worst pleasant | Supra-aural, semi-open, dynamic | R | 63 |
| Sennheiser HD480 £45 | Good Average | Using the same shell as the 450s, the 480s were a little softened and unrevealing by comparison with their competitors | Supra-aural, semi-open, dynamic | | 63 |
| Sennheiser HD520 £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 |
| Sennheiser HD530 £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 |
| Sennheiser HD540 Ref Gold £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 |
| Sony A21L £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 |
| Sony MDR V3 £30 | Average Good | Portable stereo oriented phones that are very nicely made and combine clarity with a pleasant lack of distortion | Supra-aural, closed-back, dynamic | BB | 63 |
| Sony MDR V7 £70 | Very Good Very Good | Classy sounding cans that are very slick and work well with all types of music, setting the standard in their price range | Circumaural, closed-back, dynamic | R | 63 |
| Sony MDR-CD999 £120 | Good + Very Good | A very nice headphone in all respects, the 999s are worthy of the best headphone outputs and high quality sources | Supra-aural, semi-open, dynamic | R | 75 |
| Sony MDR-R10 £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 |
| Stax Gamma pro/SRD-X pro £296/£230 | 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 |
| Stax Lambda Signature/SRM-T1 £470/£895 | 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 |
| Stax SR Gamma £299 (inc. SRD-6 Adaptor) £100 | 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 |
| Stax SR Lambda Pro/SRD-7SB 2 Adaptor £360/£185 | 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 |
| Stax SR Lambda Pro/SRM-1 Energiser £360/£635 | 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 |
| Stax SR34 £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 |
| Stax SR84 £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 |
| Yamaha YHL-006 £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 |

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 still relatively expensive, although prices have come down a lot, and 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.

Most models come with a mains adaptor and some include 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. 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 | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|----------------------------------|------------------|---|---|-------|-------|
| Aiwa HS-PL300 £110 | n/a Average | Good looking, simply laid out player with a sensible selection of features and reasonable sound quality for a small player of this price | Dolby NR, chrome/metal eq, remote | | 78 |
| Aiwa HS-PX303 £150 | n/a Good | Chunky and macho styling combines with comprehensive features and a half decent transport to make a powerful personal | Dolby BC, chrome/metal EQ, remote | R | 78 |
| Panasonic RQ-P505 £100 | n/a Poor | Very attractive and neat little player with nicely designed controls and XBS bass boost, but sonically it's limited by distinct wow and flutter | Dolby, chrome/metal eq, remote | | 78 |
| Panasonic RQ-P525 £120 | n/a Average + | Fitted with what is effectively a bass only tone control and harbouring all the necessary features, the 525 also has a knack with tape replay | Dolby B & C, chrome/metal eq, remote | R | 78 |
| Philips D6658 £30 | Poor Poor | The low price limits sound quality, and this is not a spectacular machine, but it does a reasonable job, nonetheless | Graphic EQ, AM/FM | | 56 |
| Saisho PS90R £40 | Poor Poor | A bit of a jumble of features and gadgets, the PS90R has on-board speakers, an extending aerial and even records, but sound quality is dubious | Graphic EQ, types I, II & IV, AM/fm, recorder | | 56 |
| Sharp JC-270E £130 | n/a Average - | Slightly old fashioned design combines with a basic feature count and mediocre sound quality to make an apparently uncompetitive player | Dolby, chrome/metal eq, remote | | 78 |

The Directory

PERSONAL CASSETTES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---------------------------------|---------------------|---|--|-------|-------|
| Sony Walkman Pro £249 | Good + 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 |
| Sony WM-701C £200 | n/a Good - | Beautiful little machine with all the necessary buttons'n'switches and a fundamentally exceptional sound quality, marred unfortunately by wow and flutter | Dolby B & C, chrome/metal eq, remote, folding phones | | 78 |
| Sony WM-BF65 £90 | n/a Average + | Regular size radio/clock/cassette player with a bright even open balance and Sony's forward facing phones. Not as glamorous as slightly more expensive models but sonically not bad | Dolby, chrome/metal eq, radio, alarm clock | R | 78 |

PERSONAL CDS

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--------------------------------|----------------------|---|--|-------|-------|
| Goodmans GCD-10 £120 | Average - Poor | 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 | 13.5 x 3.7 x 18cm, 478g, mains adaptor | | 66 |
| Kenwood DPC-77 £270 | Good + Very Good | Very chunky and well made, the DPC-77 is the only player to include a digital output and sounds very good through its analogue output - a suitable domestic alternative | 12.8 x 3.5 x 14.5cm, 750g, digital output, mains & in-car adaptors | R | 66 |
| Philips D6800 £130 | Average Average - | A competitively priced and reasonably attractive looking player whose sonic performance is somewhat marred by a rather grainy top end | 13 x 4 x 17.5cm, 516g, 3G.008 ready, twin hdph sockets | | 66 |
| Sony CP-12 £260 | Average Good + | Sonically amongst the more enjoyable personal CD players and capable of revealing the musical aspects of a disc in an interesting and entertaining fashion | 12.5 x 2 x 12.7cm, 380g, wired remote, mains adaptor | R | 66 |

CD PORTABLES

CD Portables or Yuppie Blasters as we classified them are basically portable stereos gone digital, ie a compact disc player is included alongside the usual AM/FM radio and single or double cassette deck. Compact disc is a novelty that seems to add a fairly hefty premium onto the price of the standard ghetto blaster, but the improved sound quality over standard cassettes may justify this for some.

In virtually every case a CD output socket is fitted which means that it's possible to play silver discs through a domestic amplifier and loudspeakers, thus they are some sort of substitute for standalone mains machines (as are the personal CD players). One drawback with having a CD player on board is that batteries are gobbled up even quicker than usual, up to ten batteries being required in some cases. Neither are the units

particularly light, the heaviest weighing eight kilos! However they do all run off the mains too, and come with an appropriate lead for this purpose. Other useful features common to most are spare input sockets to record from an external line source, and microphone sockets for recording live events (although the usual lack of record level adjustment is a nuisance).

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|-----------------------------------|--------------|---|---|-------|-------|
| Aiwa CSD-XL25 £150 | Poor | It's cheap, cheerful and not too low on features but sound quality from disc is frankly uninspiring | Twin headphone sockets | | 73 |
| Bose Acoustic Wave £750 | Very Good | Not exactly a CD portable as it doesn't play discs, but a highly versatile and stylish radio cassette player that has bass | Input sockets, Dolby NR, PA capable etc | R | 73 |
| Grundig RR9000CD £300 | Average | Relatively slick machine with full CD function and volume remote control, low on features for price and unspectacular sounding | Remote, motorised volume pot, condenser mic | | 73 |
| Philips AZ8394 £200 | Average - | Stylish in a wasp like fashion, unfortunately, the disc playing lets it down somewhat but otherwise it's OK | Twin decks, graphic eq., bass boost, condenser mic | | 73 |
| Sharp QT-CD43 £280 | Average | Quite a beefy box that comes complete with remote control for volume and CD functions. It even has a surround sound option which enhances imaging | Clock, speaker outputs, powered volume pot | | 73 |
| Sony CFD-D73 £280 | Good | The model we received was intended for the Japanese market and thus may not be entirely representative but it made reasonable sounds and has novel features | UHF bandwidth, input sockets, graphic eq., Megabass | R | 73 |
| Sony CFD-DW83 £300 | Average | A macho looking beast capable of highish levels, but unimpressive sound for the price. Nice styling and good for scratching | Clock, timer, balance, input sockets, graphic eq. | | 73 |
| Toshiba RT-8089 £200 | Poor | Square and long but rather drab on the sound quality front, as well equipped as most but rather tinny in many respects | Clock, twin decks | | 73 |

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.

INTERCONNECT CABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|----------------------|--|--------------------------------|-------|-------|
| Audio Technica AT6115 £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 |
| Audionote Copper ANC £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 |
| Audionote Flexible Silver ANS £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 |
| Audionote Silver ANV £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 |
| Audioquest Livewire Ruby £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 |
| Audioquest Livewire Topaz £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 |

The Directory

INTERCONNECT CABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|---|--|-------|----------|
| Budget OFC Circa £7 | Average Average | Subjectively, this cable did lift much of the aural fog experienced with scrawny standard hook-up leads. | OFC | | 59 |
| Budget Patch Cords (see text) | Average Poor | As thrown in gratis with cassette decks and the like – frequency extremes were restricted and performances were veiled | Thin coaxial | | 59 |
| Chord Mono-t £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 | | 83 Supp. |
| Deltec Black Slink £152 | Excellent Excellent | Inherently neutral, the cable faithfully reproduced broad and deep stereo soundstages with precise focus and a sense of tautility | 8 silver plated OFC strands PTFE dielectric | R | 59 |
| Deltec Gortex Black Slink £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. |
| Deltec Slink £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 |
| Denon LC-OFC N/a separately | Very Good Average | Supplied with Denon's dearer CD players, this cable introduced a peculiar 'twangy' coloration at high frequencies, and a slightly soft bass | LC-OFC, non-magnetic gold plated plugs | | 59 |
| DNM Solid-core £23 | Average Good | Transparent in the midband and full of sparkling detail in the treble, low bass was slightly curtailed (unterminated price £2.30 per m.) | Single strand nickel-plated copper. Unshielded | R | 59 |
| Isoda Electric HC-05-PSR £54 | Good Good | A pleasantly lively and fluid sounding cable though softens some subtle, midband detail | Aluminium + brass multistrand cable | R | 83 Supp. |
| Kimber Kable KC-1 £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 |
| Kimber Kable PSB £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 |
| Monster Interlink 300 £24 | Average + Average | A big, larger-than-life sound but with some emphasis of midband detail and loss of bass | Screened, symmetrical cable | | 83 Supp. |
| Monster Interlink 400 £34 | 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 |
| Origin Live Soli-Core Super £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 |
| QED Incon Graphite GP1 Gold £18.95 | 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 |
| QED Incon P1-Gold £15.95 | 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 |
| Sterling £250 | Average Good | Possessing a neutral if faintly rich overall balance, it supplies a pleasantly open and transparent perspective. (Reviewed in pre-production form.) | 2 silver strands per conductor | | 59 |
| Supra EFF-1 £60/0.75m | Average Average | A new, costly and mildly disappointing addition to the range. Edgy, smeared sound | Screeded, symmetrical dir. cable | | 83 Supp. |
| Thorens SAC 100 £50 | Good Average | Performance is undermined by a slightly coarse and splashy treble, not necessarily bright, simply rather confused – and fine detail lacks resolution | Silver-plated OFC, coaxial | | 59 |
| van den Hul MC-D300II £45 | Poor Good | It tended to highlight some upper mid detail, but a generally open and spacious acoustic proved its saving grace. Slightly soft at LF | Silver plated single strand VdH plugs | R | 59 |
| van den Hul MC-Gold £250 | 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 |
| van den Hul MC-Silver £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 |
| van den Hul MCD-1021II £69 | 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 |
| van den Hul Thunderline £150 | Good Average | Thunderline essentially parallels the sonic performance of the cheaper D102. HF is occasionally tainted by a 'tizzy' coarseness, bass is tight and dry | Silver plated 'matched copper' | | 59 |
| Vecteur 8045 £49 | Very Good Good | Sounding solid and forthright it might seem slightly cold in some systems but the treble 'edge' is mercifully clean. Very low frequencies were a little lacking in 'slam' | LC-OFC signal & screen | R | 59 |
| Yfere LC-OFC Quad £85 | Very Good Very Good | New cable with a very refined sound. Very transparent with good sense of focus and space | Symmetrical, star-quad with screening | R | 83 Supp. |

LOUDSPEAKER CABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|---|------------------------|--|--|-------|----------|
| Absolute Wire Force 4 £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 |
| Audio Innovations OR-200 £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 |
| Audio Technica AT6120 £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 |
| Audionote AN-SP £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 |
| Audioquest Livewire Black £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 |
| Audiospec Latitude L4 £3 per metre | Average + Average + | Warm, ruddy but also mildly muddy sound with some slight emphasis of bass notes | Fig.-of-eight multi-strand, PVC diel. | R | 83 Supp. |
| Bellwire 12p per metre | Poor Average - | Broadly speaking it delivered a bright and tizzy sounding treble with a fairly open and detailed mid with little or no bass resolution | 0.5mm single strand, PVC dielectric | | 64 |
| Deltec 8S £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 |
| Deltec Gortex Black 16 £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. |
| DNM Solid core £3 per metre | Average Average | A good general-purpose solid-core, though too bandwidth limited for high-end applications. Sounds great in some systems | 0.65mm single strand, webbed PVC dielectric | R | 64 |
| Exposure £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 |
| Furukawa FS-2F09 £6 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. |
| Furukawa FS-2T15S £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 strands R | | 83 Supp. |

The Directory

INTERCONNECT CABLES

| MODEL PRICE | LAB SOUND | COMMENTS | FEATURES | VALUE | ISSUE |
|--|------------------------|--|---|-------|----------|
| Kimber 4VS £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. |
| Kimber Kable 4PR £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 |
| Kimber Kable 4TC £17.65 per metre | Good Good + | 4TC made a great impression in the listening tests with an open midband, a smooth and unlatiguing treble with slightly rich but suitably weighty bass | OF copper, PTFE dielectric | R | 64 |
| Linn K20 £2.20 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 |
| Marantz ML-55S £30 – 10m | Average Average | Subjectively, this cable offered a loose and splashy treble which, though not overtly bright, did compromise both tonal and timbral accuracy | 30 OFC strands, 3 conductors PVC diel. | | 64 |
| Mission Cyrus £2.50 per metre | Average + Good | Because of its impedance characteristic this cable will deliver a smooth and unlatiguing treble balance with loudspeakers offering an easy load | 0.8mm single strand, PVC dielectric | BB | 64 |
| Monitor PC Silverline PC4 £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 |
| Monster Original £4.50 per metre | Good Average + | Original sounded relatively congested and murky at higher frequencies but possessed weight and conviction in the bass | Multistrand | | 64 |
| Monster SCI 16-4 £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. |
| NVA LS1 £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 |
| Origen Live Soli-Core Ordinary £1.80 per metre | Good Average + | Subjectively it bettered the performance of the costlier Super version, affording a pleasantly detailed and spacious soundstage with firm bass but slightly coarse treble | 1.8mm and 0.5mm single strands | R | 64 |
| QED 79-Strand £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 |
| QED Flat 200 £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 |
| QED Incon Graphite £2 per metre | Average + Average + | This graphite version of Incon sounded cruder and generally more heavy handed than the unshielded type. Overall presentation was mildly restricted and cloaked in a faint aural fog | OFHC, polymeric screen | | 64 |
| Rotel Supra 10 £6.91 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 |
| Rotel Supra 4 £2.57 per metre | Good + Good | Ideal for both long and short runs, it furnishes a big sound that benefits further from a smooth, unlatiguing treble | 1,036 OFC strands, webbed PVC dielectric | R | 64 |
| Solid core mains cable 36p per metre | Average + Good | It enjoys much of the smooth treble and articulate midrange usually associated with the better solid core derivatives. Lean but taut and rhythmically coherent | 1.5mm square, 3 cores, PVC dielectric | BB | 64 |
| Sterling £99 per metre | Average Average | This pre-production sample possessed a strangely muddled and reserved sound quality. It suffered from a progressive instrument modulation | Pure Silver, PTFE dielectric | | 64 |
| Townshend Isolda £400 – 5m pair | Average + Good | Isolda possessed a truly dark background out of which rose a very solid and extended bass together with an excellent sense of transparency through the upper octaves | 8 coax cables per conductor – very thick | R | 64 |
| van den Hul CS-122 £5.95 per metre | Average + Good - | Characterised by a driving and powerful bass, CS-122 proved to be a heavy sounding cable. Mid treble detail was refreshingly clear but there was a slightly muted air about the extreme treble | Mid 19 x 0.45mm silver plated strands, webbed rubberised dielectric | R | 64 |
| van den Hul CS-352 £12.95 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 |
| van den Hul SCS-12 £29.95 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 |
| van den Hul SCS-2 £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 |
| Vecteur R-CV30 £4.99 per metre | Average Good | Subjectively the better of Vecteur's cable line-up offering a neutral overall perspective but slight loss of detail resolution at both frequency extremes | 4 x 0.8mm LC-OFC PTFE insulated strands | BB | 64 |
| Vecteur S-CV90 £69 per metre | Average + Average + | It seemed both less transparent and integrated throughout the midband than R-CV30, though both frequency extremes were spruced up with a tighter sharper delivery | 6 x 0.7mm LC-OFC strands | | 64 |

STANDS AND 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.

LOUDSPEAKER STANDS

| MODEL PRICE | LAB SOUND | COMMENTS | TOP PLATE SIZE, HEIGHT | VALUE | ISSUE |
|---|---------------------|--|------------------------|-------|----------|
| Appolo A10 £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 |
| Appolo A820 £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 |
| Audio Dimensions Classic 2 £110 | 4 leg Average | Built in the heavyweight tradition and damped with chalk. Solid, stable, tactile sound | 20.3 x 20.3cm, 52cm | R | 83 Supp. |
| Foundation Fred £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 |
| Foundation Maggi £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 |

LOUDSPEAKER STANDS

| MODEL PRICE | LAB SOUND | COMMENTS | TOP PLATE SIZE, HEIGHT | VALUE | ISSUE |
|--|--------------------|--|----------------------------------|-------|----------|
| Foundation Pi £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 |
| Foundation Sir Fred £80 | 2 leg Good | Upgraded 'Fred' with special in-fills. Sweet sound but one that also lacks bite and edge | 19 x 19cm, 46.5cm | | 83 Supp. |
| Goldring Black Satin £65 | 1 leg Very Good | Screw together stand tastefully hewn from medite. Some loss of bass but still pleasantly rhythmic | 18 x 20cm, 46cm | R | 83 Supp. |
| Heybrook HBS1 £99 | 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 |
| Heybrook Point 5 £55 | 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 |
| Linn Kan II £79 | 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 |
| Linn Sara £85 | 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 |
| Monotrak Engineering M1 £58 | 1 leg Good | The M1 gave the mid and treble a commendably smooth and detailed presentation but bass sounded rather lacklustre and muddy. | 19 x 18.5cm, 48cm | | 58 |
| Monotrak Engineering M4 £58 | 4 leg Very Good | Begging comparison with Heybrook's HBS1 the M4 maintained much of the openness and forthright detail of that model. | 23 x 21.5cm, 53cm | R | 58 |
| Monotrak Engineering M4S £58 | 4 leg Very Good | Its stature and stability would seem to mark it out as most suitable for smaller, lighter cabinets. The M4S possessed an open midband and clear treble. | 20 x 17.5cm, 53cm | | 58 |
| Origin Live Advanced £145 | 3 leg Good | One of three related tripod-like stands. Stable sound with good sense of depth and power | 22 x 20.6cm, 44cm | | 58 |
| Origin Live Three Leg £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 |
| Partington PP4 £60 | 1 leg Good | The PP4 offers a rather mixed performance, though when damped with sand infill it was less ready to embellish the overall sound and low frequencies became tauter and quicker. | 18 x 16.5cm, 48cm | | 83 Supp. |
| QED TS22 Tristand £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 |
| Stand Design Z20 £70 | 1 leg Excellent | Well built and finished with optional sand in-fill. Ideally suited to Wharfedale 505.2's | 16.5 x 19cm, 50cm | R | 83 Supp. |
| Target HJ15/3 £100 | 3 leg Very Good | Sound quality was basically very good though without the sand infill some loudspeakers may sound a little unbalanced as both bass and treble regions are subjectively exaggerated. | 28 x 28cm, 40cm | R | 58 |
| Target HS20 £60 | 1 leg Excellent | This monopod stand can be used either filled or unfilled and encourages different characteristics in the sound accordingly. | 19 x 16.5cm, 53cm | | 58 |
| Target T-40 £48 | 2 leg Very Good | Not very stable, tends to infer a slightly forward, ragged sound with diluted pitch | 19 x 19cm, 40cm | | 83 Supp. |

EQUIPMENT SUPPORTS

| MODEL PRICE | LAB SOUND | COMMENTS | SIZE (H x W x D) | VALUE | ISSUE |
|--|--------------------|---|------------------------|-------|----------|
| Alphason R444 £120 | Rack Good | A heavyweight structure with stressed MDF shelves, ideally suited to the Sonata turntable | 82 x 60 x 39.5cm | R | 83 |
| Audioquest Sorbothane Feet £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 |
| Cornflake TCS6 £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. |
| Foundation Stable Table £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 |
| Origin Live Skyline Super £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 |
| Roksan Equipment Table £169 | Rack Good | An upgradable/expandable system suited to Roksan's Xerxes if not other competing turntables | 65 x 52 x 38cm | | 58 |
| Sound Organisation Table £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 |
| Sound Organisation Wall Stand £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 |
| Sound Organisation Z022 £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 |
| Stand Design Duplex £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 |
| Target TT1 £46 | Shelf Excellent | This rigidly braced shelf offers both good sound quality and material value for money. | 26 x 46.5 x 35.5cm | BB | 57 |
| Target TT2 £55 | Table Very Good | Standing up to the best in most areas, the TT2's only real foible concerns a slight loss of bass 'slam'. | 52 x 46.5 x 35.5cm | BB | 57 |

TO ORDER BACK ISSUES OF
HI-FI CHOICE SEE PAGE 101

TELEVISIONS

The standalone television set is rapidly evolving into a key component in integrated home entertainment systems.

NICAM digital stereo sound is now being broadcast for many hours every week, although you will have to check to see what is available in your area. The IBA are quite open about it, but the BBC tend to be more secretive.

Most up-market stereo CTVs are now equipped with NICAM decoding and rather more attention is being paid to the built-in amplifier

and speakers.

NICAM is also available on Hi-fi stereo videorecorders (see above), and this is usually the more practical route for hi-fi system integration, as well as allowing favourite musical events to be saved on tape. To both watch and record with stereo sound will require NICAM on each of course, but the decision to update one or the other first will probably have as much to do with the age of the respective components than the convenience of the interconnections.

The ten CTVs tested so far are all luxury stereo models with 'flatter squarer' 59cms tubes of various kinds. Best suited to a viewing distance of about 7ft, these are one size up from the most popular 51cms size sets and take about 23 per cent of the top 30 per cent of the market.

All have remote control as well as Fastext (enhanced teletext), and many have on-screen graphics and flexible in/out socketry.

| MODEL PRICE | LAB SOUND | COMMENTS | SCREEN SIZE, FEATURES | VALUE | ISSUE |
|---|------------------------|--|---|-------|----------|
| Ferguson 51L5 £499 | Average Good | This nicely (monitor) styled set delivers a fine all round performance at a very competitive price. Ergonomics are better than most thanks to good on-screen graphics | 51cm MP FST, NICAM, Fastext, OSG | R | 86 Supp. |
| Grundig ST-63-460TT £649 | Average - Average + | Bulky set's shape resembles a square-rigged sail; screen tilts back slightly, so might suit floor mounting, though beware room reflections. Picture quality is good, if a touch bland, but ergonomics are fairly impenetrable – no on-screen graphics either. Halfway respectable sound quality is over-enriched by cabinet drone. | 59cm FST, NICAM, Fastext | | 76 |
| ITT Nokia £629 | Average + Average - | Bulky square-rigged shape helps deliver a respectable standalone sound quality at a modest enough price. A versatile set with good handset but no on-screen graphics, the picture quality of our sample lacked fine detail resolution, lending a 'soft focus' effect | 59cm FST, NICAM, Fastext | | 76 |
| JVC AVS250 £500 | Average + Average - | This compact and delightfully versatile non-NICAM set has respectable on-board stereo sound and lovely screen graphics, along with an internal handset. Our sample suffered a tuner problem which marred a picture quality which was pretty good when monitoring baseband signals off tape. | 59cm FST, Fastext, o/s graphics | | 76 |
| Panasonic Prism TK-24 W1 £699 | Average + Average - | Handsome but bulky set delivers serious standalone sound quality. Lovely ergonomics but off-air picture quality marred by tuner section noise on our sample (works fine as a monitor.) Good NICAM (SCART) output. | 59cm FST, NICAM, Fastext, o/s graphics | | 76 |
| Philips 21GR 2752 £530 | Average Average + | Detachable speakers ought to be an asset, but those supplied are too cheap'n'cheerful. Picture quality is nicely balanced, if a shade 'soft', the handset is nice, but the on-screen graphics are a bad joke | 51cm FST, NICAM, Fastext, OSG* | | 86 Supp. |
| Pioneer SD-21AV1 £599 | Average + Good + | The set that can do anything if you've the patience to find out how to drive it: fine picture, decent sound and good flexibility in a neat compact monitor package, plus a handset that deserves its own instruction manual | 51cm FST, NICAM, Fastext, OSG/LED | R | 86 Supp. |
| Sony KVXU 2132 £530 | Average - Average + | This is an attractive, ergonomic and competitive package, trading picture resolution in favour of stability. The on-set sound is naff, so Trinitron fanciers should use it as a monitor alongside a hi-fi system | 51cm Trinitron FST, NICAM, Fastext, OSG | R | 86 Supp. |
| Toshiba 217D9B £480 | Average Average - | A superficially impressive looking package for the price, picture quality was disappointing on our sample | 51cm FST, NICAM, text, OSG | | 86 Supp. |

VIDEO RECORDERS

For some time there's been a move to improve both the video and the audio quality of video recorders and TV sets alike as a necessary prelude to a proper integration between the two. Hi-fi video is obviously an important element in the story, and so is Dolby Stereo, the ambient 'surround sound' system.

The weak link of course is on the broadcast side. Although TV sound is well up to normal hi-fi standards, it has always been in mono and unjustly or otherwise has rarely attracted much audiophile interest. But TV sound is – or shortly will be – freed of the shackles of mono by the introduction of NICAM stereo. NICAM – an

acronym for Near Instantaneous Companding and Modulating – is the missing link that will help facilitate the much feted integration of video with audio. And then we have S-VHS, a system which does for picture quality what the other developments promise to do for the sound.

| MODEL PRICE | LAB SOUND | COMMENTS | SCREEN SIZE, FEATURES | VALUE | ISSUE |
|----------------------------------|----------------------|--|---|-------|-------|
| Akai VS-75EK £550 | Average Good | Excellent performance and a slick set of controls make this recorder a pleasure to use. Good price is a bonus | Hi-fi, NICAM, programmable remote | BB | 71 |
| Akai VS-967EK £500 | Average | Many well implemented facilities, but unsuitable for dedicated audio use due to lack of LP mode, manual record levels or audio input | Hi-fi, NICAM, on-screen programming | R | 71 |
| Grundig VS680 £1250 | Very Good Average | State of the art technology gives top notch sound with tremendous flexibility but somewhat disappointing picture quality. It's also very hard to drive | Hi-fi, NICAM, LP/SP, teletext programming, on-screen titling & graphics | | 71 |
| Nordmende V4405K £549 | Good Good | Fine basic sound and picture quality, but the RF converter introduced significant losses. An excellent model, but configured for German home market. The recorder lacks NICAM | Hi-fi, transmitter handset, digital FX | BB | 71 |
| Panasonic NV-F65 £500 | Good Average | Uninspired but competent and well made deck. Plenty of features, decent sound and reasonable video ensure recommendation | Hi-fi, NICAM, LP audio only, bar code programming | R | 71 |
| Panasonic NV-FS1 £1000 | Poor Good | The control system is poorly organised, with cramped legends and some strange machine logic. Bar code programming is hardly a great achievement either. Picture and sound quality are good, but not state of the art | S-VHS, Hi-fi, NICAM, bar code programming | R | 71 |
| Philips VR-6585 £530 | Average | Fine middle-ranking deck with full LP operation and easy controls and displays | Hi-fi, NICAM, transmitter LCD remote, LP/SP | | 71 |
| Sanyo VHR-D4890E £1000 | Poor Excellent | High grade S-VHS recorder with digital effects which gives first rate screen-based results but relatively poor sound recording | Hi-fi, NICAM, S-VHS, PIP etc | | 71 |
| Sharp VC-S1000H £1000 | Good Poor | Clean, accurate and stable off air and from tape, and LP modes are satisfactory — but on-screen S-VHS results are well below par | Hi-fi, NICAM, LP, S-VHS, titling | | 71 |

Personal Messages

Paul Messenger recalls a year of hi-fi frustration and sings the praise of the annual spring clean.

A recent reader's letter suggested that I've been getting the priorities of my means and my ends mixed up. In other words, I'm spending too much time playing around with my system, and too little simply enjoying the music.

This is certainly one of the key symptoms of the more virulent strains of the hi-fi bug. Tragic victims may be encountered most winter weekends stalking the corridors of hi-fi shows in search of the antidote that will relieve the obsession.

Even though I doubt that any sufferer ever becomes totally cured, I can put hand on heart and say that I successfully shrugged off the most serious symptoms a number of years ago. Certainly I thought I'd found a cure, when I first purchased most of the components of my existing system around ten years ago.

I was very satisfied with the results at the time, and regular (about once a year) booster inoculations of the latest upgrades to individual components seemed quite sufficient to keep my condition latent and myself in equanimity - if not complacency.

Year of angst

Ironically, that has turned out to be the root source of most of my recent troubles. Although I'm happy to report that 1990 ended on a high note, it was a year in which the system caused more than its fair share of angst, and led to me spending much more time than I like tweaking and fiddling about with the damn thing.

The problem, as always, was inconsistency. Sometimes it would sound glorious, magic, absolutely worth the time and money invested over the years. Other times it sounded just plain ordinary, even mildly offensive, lacking speed, coherence and focus.

I enjoyed big

improvements when incorporating Mana support furniture and applying Kontak contact cleaning fluid, though I still wasn't achieving the long term consistency that is essential to continuing satisfaction.

Indeed, I got a bit of stick from two colleagues for whom I have great respect, for my column which described the introduction of the Linn *Lingo* power supply. In this episode of the saga (*Dec 1990*) Kontak cleaning came to the rescue of the *Lingo*, which represents a wanton flouting of the link between cause and effect.

The juxtaposition was quite deliberate, if mischievous. Obviously, Kontak cleaning didn't affect the performance of the *Lingo* itself, though it certainly affected the perceived sound in the system context. However, it draws attention to the fact that hi-fi often seems inexplicable by simple cause and effect. In my experience the new chaos theories of physics seem much more appropriate to the hi-fi condition, though I don't propose to spend the rest of this column attempting to make the links.

But my subsequent discovery (*Feb '91*) of loose contacts *inside* my mains plugs must call into question to what extent the improvement wrought by Kontak was due to the application of the fluids themselves, rather than the mere process of unplugging, replugging and jiggling about the cables (the latter presumably causing sufficient disturbance to improve temporarily the electrical contact inside the mains plugs). And the same disturbance factor must put a question mark over my findings earlier in the year with the Mana tables.

Although I still rate both as thoroughly worthwhile improvements, I must nevertheless acknowledge with some embarrassment that I may well have overstated

the performance improvements which Mana and Kontak offer. To what extent it's impossible to say, since it's not possible to 'unjiggle' mains plugs or reverse the cleaning process.

Cause and effect

At the end of the day, cause and effect still pertains, of course. The trouble is that ascribing the former to the latter in a top quality hi-fi system - especially one as complex as mine - is often far from easy. The chaotic view somehow seems more appropriate, especially since the system is inevitably evolving as time passes.

The tightening of the mains contacts seems to have brought back consistency, though I've been and gone and mucked up my perspectives yet again. My ancient Naim *NAP250* power amplifiers have been updated and realigned, and I've finally found the wherewithal to buy a *NAC52* preamplifier (to replace an old, non standard configuration from the same manufacturer).

I'm not going to rabbit on about the delights of this hideously expensive device. Malcolm Steward has already covered it for *Choice* - indeed, hearing one at his house was the prime stimulus for finding the funds for the most expensive (even at trade price) piece of gear I have ever purchased.

I've no regrets, and am more impressed than I expected to be, but I'm not even going to attempt to assess the value for money of a £4,000+ preamplifier. (If you've got that sort of money, you should give it a try; since you probably haven't, you're probably better off pretending it doesn't exist.)

Instead I shall return to the moral behind this whole tale, which is that the better the hi-fi system, the more susceptible it is to the condition of the set-up. Get one little bit wrong, and the whole thing can slip slightly

out of balance, with a relatively dramatic drop off in performance.

Said loss of listenability brings in its wake a return to the hi-fi madness/frustration that I thought buying the odd new bit of gear was capable of holding at bay. With some regret I'm forced to concede that there's no escaping the irritating ritual of regular careful maintenance (cleaning, tightening), carried out systematically from end to end to end of signal and mains lines, leaving no contact untightened.

The trouble is, those who aren't hi-fi nuts don't want to become hi-fi nuts, so will probably never get around to doing this, or will do it half-heartedly and miss something important.

Spring clean

The obvious solution, surely, is for serious hi-fi dealers to offer their 'high end' customers a regular 'spring cleaning' or 'home tune' service, sending a skilled technician to visit the client at home and carry out these various chores, on a regular annual basis.

I put this to a leading specialist dealer, who acknowledged that he knew of no such arrangement currently practised, but thought it an interesting idea which deserved further discussion. Furthermore, he estimated that about 80 per cent of his 'high-end' customers were unlikely to carry out their own regular maintenance, and would therefore probably derive considerable benefit from such a scheme.

Hopefully, I may have managed to get some sort of ball rolling here. Certainly if you're the sort of reader that enjoys listening to a high quality hi-fi system but has no wish to mess around tuning and tweaking it into shape every year or two, I'd advise you to call your dealer and discuss the possibility of a 'home tune-up'.

SO WHAT? AND STYLISH



REACH FOR THE BEST



RCD855 COMPACT DISC PLAYER DUAL D/A CONVERTER



At a time when others are becoming lost in the bit war Rotel's no nonsense approach to quality engineering sets new standards for this Classic 16 bit 4 times oversampling system with a product which will offer lasting value. This new model from Rotel incorporates the very latest in understanding of circuit board layout and component selection resulting in very high levels of performance and musical involvement together with outstanding build quality.

WINNER OF WHAT HI-FI's PRESTIGIOUS AWARD
FOR BEST C.D. PLAYER OF THE YEAR 1991.



RCD865 COMPACT DISC PLAYER PULSE DENSITY MODULATION



Rotel are proud to be one of the first companies to introduce a high performance C.D. player utilising the new bit stream PDM conversion system. Our research has shown that PDM, in conjunction with high quality circuitry and components, can produce outstanding sound quality with a level of musical involvement hitherto not available from compact discs. We strongly urge you to audition this fine product at the earliest opportunity.

These fine components are but a small selection from Rotel's award winning range of performance Hi-Fi Products which offer very high standards of technical excellence and musical enjoyment. The RCD855 and RCD865 are supplied with a numeric remote control handset and are fully remote compatible with Rotel's new RTC850L Tuner-Preamplifier. Phone or fax Rotel UK for further information and nationwide dealerlist.

UK DESIGN AND DEVELOPMENT

ROTEL UK, Gamepath Ltd.,
25 Heathfield, Stacey Bushes,
Milton Keynes, MK12 6HR
Tel.(0908)317707 Fax.(0908)322704

ROTEL *hi-fi*

Ask someone who knows...



MISSION
ELECTRONICS

because people like music

MISSION-CYRUS GROUP HUNTINGDON PE 18 6ED ENGLAND PHONE (0480)52777 TELEX 32333 FAX (0480)432777