

HI-FI WORLD

Hi-Fi

WORLD

FEBRUARY 1999 £2.50

For the love of music

THE FINAL ANALYSIS
Music-5 and Music-6
battery amps from Final

SUPPLEMENT No43
(Overseas inside)
free with this issue

CRYSTAL CLEAR
Solution turntable
from Clearaudio

MOOSICAL BOX
Midiman's Flying Calf
D/A convertor



£2000
COMPETITION
SIX PAGES OF CLASSIFIED AD BARGAINS

WIN A SONNETER PHONO STAGE,
BLACK BOX STANDS, MIDIMAN DAC
OR MUSICAL FIDELITY CD PLAYER

ISSN 0961-7663



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LISTEN AND YOU'LL SEE

Hi-fi brings a lot of enjoyment into a lot of people's lives, but it isn't an industry generally known for coming up with startling or innovative products on a regular basis. The bulk of companies have a sheep-like tendency to follow the flock and stick to pretty much the same designs as everyone else, whether it be in amplifiers, sources or loudspeakers. That's no bad thing if the reasoning runs: tried and tested means reliable and easily repairable. However, on many an occasion the explanation seems to be more a slightly blinkered outlook than anything else.

Take amplifiers as an example. Almost all use the same basic circuitry and parts - look under the lid and you'll see a single toroidal transformer, 10000uF smoothing caps and a sprinkling of discrete components across a PCB. Given their common internals, it's no surprise most of these amps sound similar apart from some variations in tonal balance.

When the majority of designers are toeing the same line, advances



JON MARKS

in sound quality tend to be few and far between. It takes lateral thinking, an open mind and a hefty dose of imagination to come up with amps that push the sonic boundaries, amps like Final's Music-5 and Music-6 pre and power.

The first distinguishing feature of these slim-line Japanese components is their power source - dry batteries. Two boxes full of non-rechargeable cells aren't going to win any awards for environmental friendliness, but according to Final they sound better than the NiCads or Lead/Acids normally chosen.

Second is what makes them tick electronically. In the power, one

chip amp per channel drives the loudspeakers; in the pre, two ICs aside do the business. To proponents of the discrete approach, this is heresy, but it's a heresy that pays dividends sonically. It also allows hard-wiring which, as any valve fan will know, again benefits the sound.

Third is the high-grade passive parts inside. Not having to develop a complex PCB to house typically hundreds of components means more of the budget can be allocated to the few capacitors and resistors op amps need. Its these, as well as all the effort which goes into listening to chip after chip to pin down the top performer, that put the Finals ahead of the competition when their 10watts is being fed into sensitive loudspeakers.

The Music-5 and Music-6 run contrary to much current received wisdom and sound superior as a result. That's not to say every amp should be built this way - that would only take us back to square one - but I believe there's a lesson in imaginative hi-fi to be learned here.

HOW WE TEST THE PRODUCTS

- *Hi-Fi World* has its own advanced test laboratory and acoustically treated listening room. No other hi-fi magazine has the benefit of such facilities.
- *Hi-Fi World* has a dedicated in-house team of experienced listeners, and uses selected freelance professionals. We review thoroughly by extensive auditioning, rather than by quick-fire group listening tests.
- *Hi-Fi World's* engineering team designs a wide range of products in-house. No other hi-fi magazine is so expert and dedicated.



WORLD VERDICT



OUTSTANDING - Superb sound, something we'd use ourselves.



GOOD - Has strong merit. Well worth an audition.



ADEQUATE - Mediocre in several areas. May be worth auditioning.



POOR - Seriously flawed. Not worth considering.

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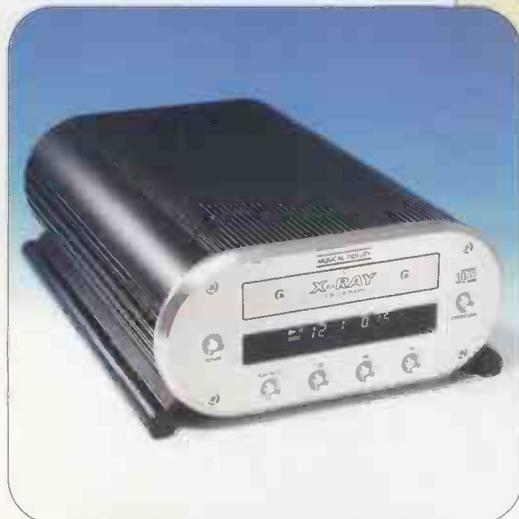
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Hi-Fi WORLD

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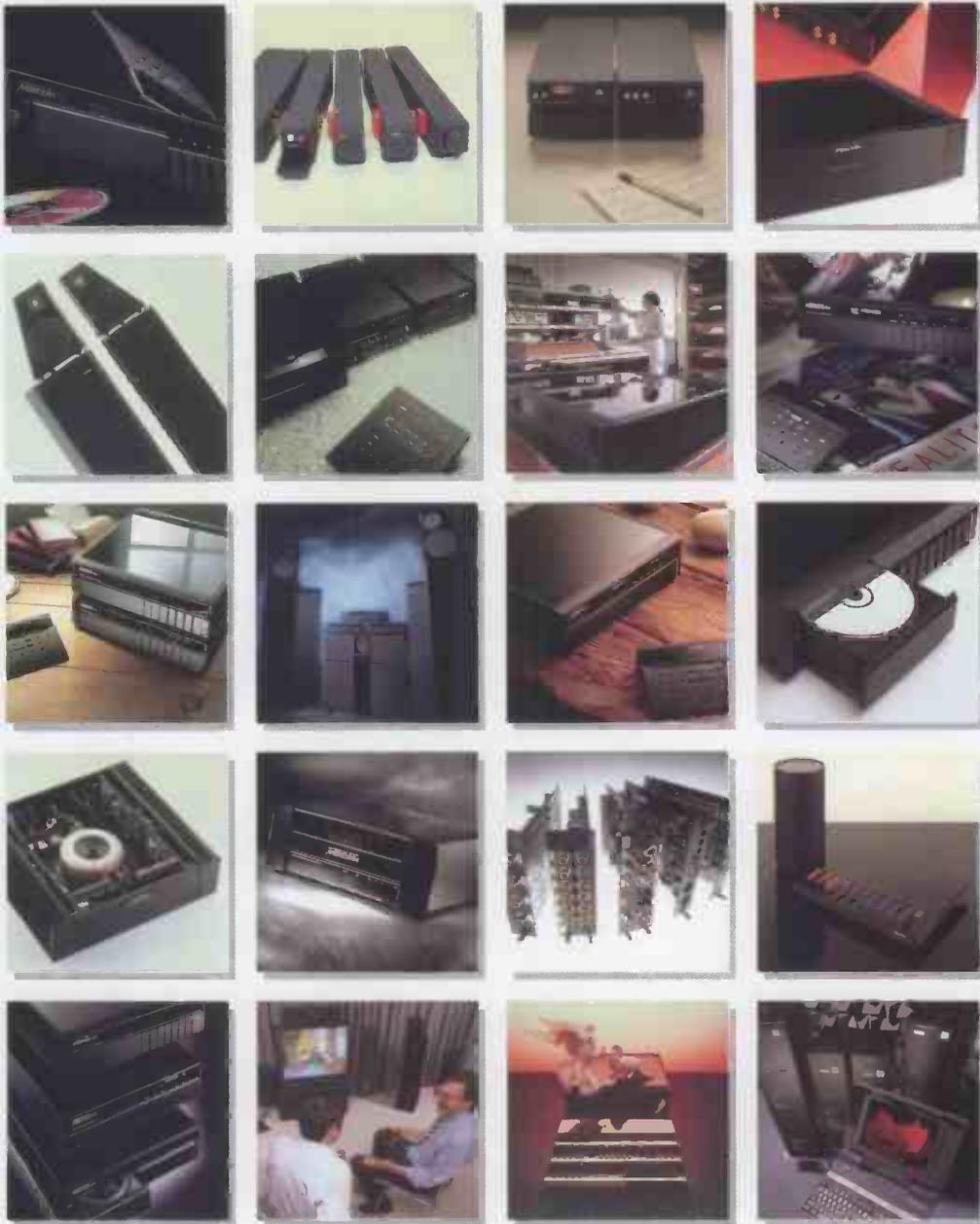
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It was 20 years ago today....



In November '77, the design team of Bob Stuart and Allen Boothroyd launched their first Meridian product, an active loudspeaker of course!

Since then, Meridian Audio has continued to pioneer advanced audio design in products such as the first high end CD player, the first CD transport, the first DSP domestic loudspeaker, the first digital home theatre and now, high end DVD.

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LEAD THE WAY

Fitting in as Technics' flagship pre and power amplifiers are the new SU-C and SE-A3000. To provide amplification which can match the high signal-to-noise ratios offered by the forthcoming 24-bit 96kHz DVD-Audio standard, Technics chose to operate the SU-C3000 from lead/acid batteries.

These are connected with OFC cabling and a gold-plated plug to circuitry which the company claims offers "exceptionally low noise at normal gain" thanks to its Variable Gain Control Amplifier.

The larger of the two brushed aluminium boxes with high-gloss wooden side-cheeks, the SE-A3000 is a 100watt stereo



power amplifier. Whereas the pre features controls for five line inputs and an MM cartridge, the only switches on the power are On/Off (next to the headphone socket), Mute and loudspeaker selection. The price for the pair, including the battery pack, is £2997.

Technics
Willoughby Road,
Bracknell,
Berks. RG12 8FP
Tel: 0990 357357

A FOND FAREWELL

Sad news for audiophiles who have been following the course of loudspeaker design over the last 30 years is the demise of two respected companies, Rogers International (UK) Ltd, which went into receivership on October 12th, and Mordaunt-Short.

According to Tim Roberts, managing director of M-S, "trading conditions have been tough for some time, with a crowded market, the onset of a high-street recession and cut-

backs in the international demand for our products." 50 employees at the factory in Hordean, Hampshire, will be affected by the closure.

Apparently, no buyer has yet been found for the company, although a number of parties have expressed an interest. In the meantime, manufacture of existing and new M-S models will continue until the current demand is met, with spares and servicing available for the foreseeable future.



BABY, IT'S THE REL THING

REL Acoustics, famous for their subwoofers, have found pastures new in the audio world after turning their design skills to amplification. The Edmund stereo integrated amplifier is a limited-edition 85watt, class AB design. The majority of the resistors within are 1% metal-film types and the volume control and selector are made by Alps. Although fundamentally a line-level amp with five inputs, the Edmund can be ordered with an MM or MC input at no addition to its £400 price.

Edmund Audio
North Road,
Bridgend Industrial Estate,
Bridgend,
Mid-Glamorgan CF31 3TP
Tel: 01656 768777

Jamo loudspeakers are No. 1 in Europe

**- and this is the story
of a loudspeaker
that wanted to be a
grand piano**



Jamo

30th ANNIVERSARY

Ever since it was created, the Concert 8 has been content to retire behind the music. It is specifically designed not to dominate, but to stand unobtrusively in the background. This enables you to concentrate on the music rather than on the loudspeaker itself. It has won numerous awards for this quality, and was voted loudspeaker of the year 1997-1998 by European Imaging and Sound Association (EISA).

At JAMO, we have chosen to do something special for the Concert 8 to celebrate our 30th anniversary - we have decided for the first time further to grace its appearance with a beautiful piano finish. We have given it up to 10 coats of black varnish - each finely prepared by hand before the application of the final laquer. So now it stands proud in its anniversary colour, blacker than black, and shining beautifully in its surroundings.

However, the sound is still as pure and unobtrusive as ever, creating an image of the real thing - the live performance - in the mind of the listener.

There are only 1,000 sets - consecutively numbered - of the Concert 8 Jubilee, and these are available to the first 1,000 music lovers to place an order.

Millions of people around the world have chosen Jamo products. To find out why you should be choosing Jamo, call free on 0321 300316 for a free information pack. Lines are open 24 hours a day every day of the week. All callers will be entered for our free draw to win one of ten exclusive leather CD wallets every month. Don't forget to mention Hi-Fi WORLD when you call.

Call Free 0321 300316 and WIN

<http://www.jamo.co.uk>

LEANER HORN

Designs built around the famed Lowther full-range drivers seem to be proliferating at the moment - witness another fresh face on the scene, jT Horn Loudspeakers.

Their flagship quarter-wave design retails at £2200 and is finished in a choice of wood veneers. Lest you think that the veneer hides a construction of the usual MDF, it should be noted that the jTs are built in 18mm and 24mm birch ply, a material which seems to be finding increasing favour in enclosures.

Claiming a punchy 96dB per watt and



a frequency range of 40Hz to 20kHz, the jT horn is packed in a relatively modest backward-firing cabinet of around 48in. by 11in. by 20in. (hwd). The ease of accommodation found in these dimensions doesn't quite extend to the weight - each jT Horn weighs in at 145lbs!

jT Horn Loudspeakers

4 Datchet Close,
Littleover,
Derby DE23 7SQ
Tel: 01332 512510

WINDS OF CHANGE

An expansion of their range of loudspeaker cables brings DBF Acoustics up to a total of three types. Their original and for some time only cable, the Fathom, is to continue but with a drop in price from £4.50/m to £2.50/m, ready-terminated only. The old bi-wire version has been discontinued to make room for the new arrivals, Tornado and Typhoon.

The Tornado cable range (£4/m) is made from .9mm solid-core, silver-plated copper sheathed with a double-layer of silver-plated copper braid. Construction is rounded off by a black PVC sheath bringing the overall diameter to 6mm. DBF claim that this co-ax topology gives better noise and interference protection than other configurations.

The Typhoon (£9/m) is also arranged co-axially but with seven strands of .75mm silver-plated copper making up the centre conductor.

Because both cables could be tricky to terminate at home, DBF recommend that you buy them 'factory assembled' for a surcharge

of £20 for nickel spades or £30 for gold-plated.

DBF have been busy on the digital side too, with a pair of new interconnects. In

similar fashion to the Tornado, the Phantom has a solid-core conductor and a 100% copper shield sheathed in black PVC. On the other hand, the Algorithm, DBF's premium DAC-to-transport link, is a multi-strand design. Its silver-plated copper innards are sheathed in fluorinated ethylene propylene (FEP).

Both of these cables are available now at a price of £15.99/m for the Phantom and £34.99/m for the Algorithm.

DBF Acoustics

11 Fishers Mead,
Puckeridge,
Ware,
Herts. SG11 1SP
Tel: 01920 823208

CR LATEST ISSUE

Boston Acoustics are expanding their CR range of budget compact loudspeakers with the new CR4 at £99.99 and CR5 at £129.99.

Intended for true bookshelf applications, both types are only 9.25in. tall and 5.5in. square.

The 4.5in. main drive unit (which is Boston's own) features a large magnet assembly to achieve decent efficiency and power handling in such a small 'speaker'. The curvilinear mid-bass cone partners a 0.75in. dome tweeter,



configured in what the makers intend to give a virtual point-source effect.

Finished in black, the CR4 and CR5 boast the familiar Boston child-proof grille on the front and gold-plated binding posts on the rear.

Portfolio Marketing
PO Box 88,
Hedge End,
Hants. SO32 2XN
Tel: 01489 785519

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Miniature Bookshelf Monitors,
and several budget models
which offer outstanding
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quality' music as well as a refined and
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WHEN HI-FI IS NOT HI-FI

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vast difference between state-of-the-art hi-fi and
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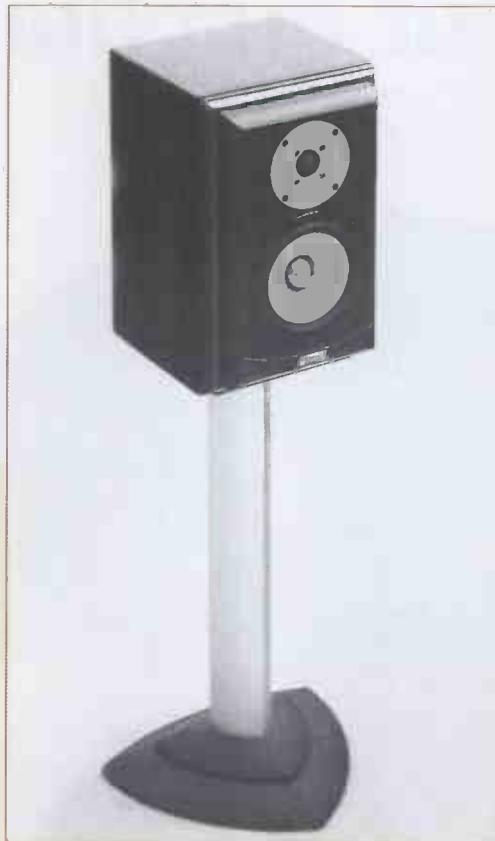
THE HI-FI SPECIALISTS

32 GOLD STREET NORTHAMPTON NN1 1RS
TEL: (01604) 637871 FAX: (01604) 601430

JAMO GO PIANO

To mark the 30th anniversary of the formation of the company, Jamo are treating the world to a special edition of the Concert 8 loudspeakers.

A long-time World Favourite, the Special Edition 8s are finished in black piano lacquer. To make things even more exclusive, production has been limited to 1000 pairs only. The modified Seas



Excel drivers which brought Jamo's Concert series to the fore have been retained but the price has risen slightly to £1500.

Jamo
5 Faraday Close,
Drayton Fields,
Daventry,
Northants. NN11 5RD
Tel: 01327 301300

DENON'S DIGITALIA

Denon, Japan's oldest manufacturer of audio components, has unveiled its first HDCD merchandise. The two very different products are a 100-disc CD changer and a DVD player.

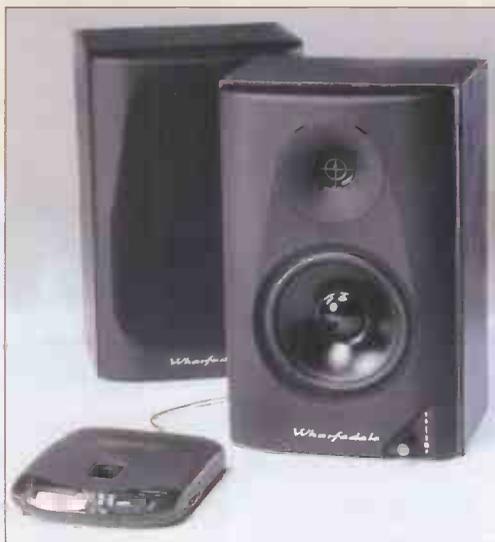
The "Audiophile CD Mega-Changer" boasts dual transports for continuous playback with 24-bit Alpha 2.0 processing together with built-in HDCD decoding. A cross-fader enables 'mixing' of the two transports and the whole set-up is compatible with the Escient Tune-Base PC CD management system.

The DVD machine, one of the first to receive a THX Ultra certificate, includes features such as 10-bit video D/A conversion and DTS compatibility as well as the usual 24-bit/96kHz audio converter. Prices have yet to be confirmed for either.

Denon
Hayden Laboratories,
Chiltern Hill,
Chalfont St Peter,
Bucks. SL9 9UG
Tel: 01753 888447

ACTIVE AGAIN AT LAST

Wharfedale's eagerly-awaited Active Diamond is now heading towards High Streets everywhere. This dinky two-way, based on the passive Diamond 7.1, hides within the diminutive enclosure of the 'Master' loudspeaker an amplifier with 20watts per channel on tap. Thanks to the volume control, all the £179.95 Active



Diamonds require to form a system is a line-level source and a set of interconnects.

Wharfedale
30 St Peters Road,
Huntingdon,
Cams. PE18 7DG
Tel: 01480 431737

NEXT MONTH'S ISSUE

PRE/POWER AMP GROUP TEST

We round up five two-box hopefuls, all under £500. Candidates from Technics, Moth and Rotel to name but three line up for the shoot out.

VPI RECORD CLEANER

It isn't only charity-shop bargains sprinkled with brick dust that need a

good cleanse. Even new pressings can benefit from a spin on a record cleaning machine.

PROAC STUDIO 150 LOUDSPEAKERS

These attractive floor standers sport a soft-dome tweeter flanked by twin mid/bass units in a D'Appolito arrangement. Can they seize the £1500

'speaker crown from Jamo and BKS?

WAVAC 811 MUSIC DANDY INTEGRATED

The valve revival continues apace with this fetchingly-named integrated from Japan. £3000 buys you a single-ended where luscious champagne-gold aluminium meets perspex.

PURITY of form

PURITY of function



ARIA S2

Combining styling of classic elegance with a sound both pure and natural, ARIA S2 has an unbeatable pedigree. Electronic design to reference standard is by Giovanni Sacchetti, and includes pure silver circuitry throughout. Appearance design is by Italy's top audio stylist Claudio Chiarello. Made for the serious music-lover, the S2 gives you the enchanting sound of a fine single-ended valve amplifier in a sensibly-powered and sensibly-priced package. Check it out soon at your nearest UKD stockist. You'll be enthralled.

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from
UKD

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Tel: 07000-853443 (UKD HIFI) Tel: 01753-652669: Fax: 01753-654531

or visit our website: www.ukd.co.uk

THE FINAL FRONTIER

Battery fiend Jon Marks goes all the way with mains-free pre and power amplifiers from Final.



The goal of every audiophile is to assemble a system which is hard to turn off after a listening session, a system which plucks at the heart strings and lifts the spirit. Unfortunately, the road to hi-fi heaven is littered with obstacles like poor room acoustics, the veto of the domestic authorities, incompatible components and bad electricity.

"Bad electricity?" Has this journalist lost his mind? Surely, as is the case with digital where numbers are just numbers, electricity is just electricity? Would that it were so in either case, for as CD proves, the sound of numbers down a wire can change with different cabling and clocking arrangements. What you plug your hi-fi into is usually anything but clean power thanks to contributions from domestic appliances, lighting, telecommunications et al, and household wiring isn't what you'd normally call audio-grade.

There's a range of treatments which can improve the mains to

a certain extent - cables like those from Kimber, an earth spike in the garden or even a specialist power supply which generates a clean, stable 50Hz wave. Of course, if you have sensitive loudspeakers, you could simply take the easy route and opt for battery power, as Final do in the Music-5 pre and Music-6 power amps.

Battery-powered pre-amps may be thin on the ground, but we're not talking hens' teeth. That honour goes to battery power amps. Roland manufacture one such, although its price puts it beyond the reach of many. That makes the £1500 Music-6 10watter a true rarity.

THE TECHNOLOGY

Remove the base-plate of the power amplifier and you'll be greeted by an intriguing sight. In spite of it being solid-state, tag strips fill the Music-6's innards. The only time this is a practical construction method for silicon is when the circuitry is very, very simple (as it is here).

There are just two powered devices in the circuit, one in each channel. After some initial head-scratching and a number of fruitless calls to component suppliers, we finally managed to



Both the pre and power are housed in classy aluminium extrusions with perspex top plates.

track down the elusive identity of this device, and extremely surprising it was too - it's a power op-amp, available from the likes of Farnell for less than £5! Given the price of the Music-6, everyone at World Towers had been wondering what exotic mystery device was hidden within the confines of that five-pin package.

This Pentawatt IC has a maximum dissipation of 30watts, which explains Final's claimed output figure. What endows it with the sort of clarity normally heard in mortgage-money gear are some very pricey parts. The main resistors (which are named Skelton and often feature in DIY amps in Japanese magazines like MJ) are apparently pure, uncoated carbon, their value dictated by a track cut into their surface. Brass end-caps bear the lead outs for soldering to the outside world. The 0.1uF box caps are by Rhoederstein.

Another area where the Final goes its own way is the Damping Control; "This is to adapt to the character of various speaker system" according to the minimal but occasionally amusing manual. The potentiometer in question is fitted in the IC's feedback loop. Although Final say their application is the first in the world, it doesn't appear to differ vastly from similar controls espoused in old valve designs.

On the outside the Music-6 appears slightly ("slightly" being the operative word) more mundane. Next to the gold-plated phono inputs you'll find two pairs of beautifully-made loudspeaker terminals separated by 3A 'speaker-protection fuses. Power flows from the battery box to the IC via a five-pin XLR socket.

On top are the Power switch, Muting (which prevents on/off thumps getting to the 'speakers) and the battery test button with matching voltage meter. This last also does a good job as a power meter, the needle flicking in time to basslines.

Judging from the socket labels printed on the Music-5 pre-amp, Final's sonic allegiances seem to lie with vinyl - the three pairs of gold-plated RCA inputs are labelled From Phono Amp, Aux 1 and Aux 2. On top are the Voltage Check, Power and Muting switches which also crop up on the power amp, as well as source selectors and volume. This and the output level attenuators aren't the typical Alps but come from a Tokyo-based company called Cosmos.

The Music-5's circuitry isn't soldered to tag strips, but it's not



In the top left corner is the board on which the op amps and transistors are mounted.

far off. Prototyping board with unlinked solder pads is used, the parts connected by runs of multi-strand cable and solder bridges. The active devices hidden away on the other side of the board amount to a pair of op-amps and a transistor in each channel.

There is a vocal group of audiophiles which backs the idea that the only place for an op-amp is either in a CD player or the rubbish bin. They rate discrete components over anything the world of the Integrated Circuit can muster. However, amplifiers from companies like Audio Analogue, LFD and Final prove that, if used in the right way and in the right places, op-amps can sound superb.

BOXING CLEVER

Getting the Finals ready for audio action was a strange experience. Not having to hook electronics, especially a power amp, up to a mains socket goes against the grain when so much equipment reproduces the sound of silence if it isn't plugged into the wall. After connecting up the battery boxes with their locking XLR plugs and quickly checking that the cells within weren't doing an electrical impression of a pancake, I decided on the sort of load battery amps dread - the BKS 107 MkIIs.

With the harsh 1ohm impedance at high frequencies of their ribbon midrange/tweeter and a lowish overall sensitivity for a floor stander of 85dB, the 107s demand a fair dose of power and current. Driven by the Finals, the ribbon and mid/bass cone both lost out at extremes, the bottom-end lacking oomph and grip, the top-end rolling off early. What shone out in road-to-Damascus style, however, was the gorgeous, crystalline clarity and wholly natural tonal colour provided by the Musics.

SWEET CLARITY

On sparse acoustic recordings, there was a startling transparency and three-dimensionality to imaging and sound staging. With large-scale Classical works this meant an orchestral spread and depth well beyond what you'd find in mains-powered equipment at the money. These amps lived up to their names too - the emotion in whatever signals they were handling blossomed forth. Where Classical can be uninvolved and solely cerebral through a lot of amplification, the Music-5 and 6 could make converts out of all bar the heaviest of



On the left side of the power amp are the damping control and power input.



It might look like a bit of a rat's nest, but the Music-6's hardwiring boosts sound quality.

Rockers and deafest of Dance music fans.

Dipping back into the world of AC, comparisons between more mundane gear and the Finals were revealing to say the least. Mains components which had sounded balanced and uncoloured thus far began to look surprisingly uneven next to the four-box battery outfit. A host of minor tonal aberrations popped out of the woodwork - a touch of chesty boom to upper bass, a fine layer of grit to treble, a certain quackiness on the midrange.

Becoming acclimatised to the Music-5 and 6 takes an album or two. Next to anything with a transformer inside it, they can appear dry and lean on first acquaintance. Give their presentation an hour or so to sink in, however, and you'll wonder where all those colorations daubed onto music by your previously-preferred pre/power were hidden.

EASY RIDER

Beguiling clarity and delicacy are but two of the ingredients that go into great hi-fi. Scale, pace and meaty lower octaves also make for a tasty recipe. Into the 107s, these last three were in short supply. More sensitive partners were obviously called for. Out went the granite Danes and in came some native talent, with our own KLS9 floor standers.

With their smooth 8ohm load and 90dB sensitivity the 9s allowed the Music-6's bass more of an opportunity to show what it could do. With just 10watts on tap, to be frank even into a friendly loudspeaker I hadn't been expecting any real pyrotechnics from the power amp below 100Hz. Well, it just goes to show how wrong hi-fi pre-conceptions can be. With a mix of Sly and Robbie, DJ Cher, Blues Union and Skunk Hour that classy little box put out some monster bass.

To make sure I wasn't imagining what I was hearing, I employed the services of some respected mains power amps at around £1000. Linked to a Kimber distribution block and leads, both were slipped into the same system as the Final.

DEPTH CHARGE

In a nutshell, next to the Music-6 the AC alternatives sounded thin, bass-light, coloured, compressed and shut-in. 10watts doesn't tend to go very far in a set-up whose main aim is to blast out Reggae tunes, but into 90dB+ loudspeakers this Japanese duo is capable of flapping trouser legs like the best of high-end gear. With Sly and Robbie's *The Punishers*, the speed, insight and sheer depth to basslines came as quite a shock, especially in view of the clean, unflustered midrange and treble that went with it. Playing a small but important role here was the damping control. Its influence on mid/bass drivers was subtle but certainly audible. The choice boiled down to greater overall grip and a marginally more even tonal balance against more spacious sound staging, bigger dynamic swings and extra slam.

Unlike some expensive components, the Music-5 and Music-6 are relatively unfussy in operation - you don't need to spend long evenings tweaking them to obtain a half-decent sound. Caveats amount to keeping short the pre-to-power interconnects (two-metre lengths suffered a slight loss of sparkle) and loudspeaker cable, and boosting the output potentiometers on the Music-5 to maximum if possible. This can make volume adjustment a precision business, but the sonic degradation introduced by these controls was easily noticeable.

AURAL ASSAULT AND BATTERY

If your living room already enjoys the company of efficient loudspeakers and a source worthy of a £3000 pre/power combo, Final's Music-5 and Music-6 should be right at the top of your list. They have a natural musicality, delicacy and impact which leave plug-in-the-wall competitors for dead. Their idiosyncratic but effective circuitry and bomb-proof build make a persuasive argument against conventional amplifiers. If you can afford to keep the Finals in batteries (they use UM2 dry cells instead of rechargeables on sonic grounds), your ears will thank you for it.

Final Music-5 £1500
Final Music-6 £1500

Final
Walrus Systems,
11 New Quebec Street,
London
W1H 7DD
Tel: 0171 724 7224

WORLD VERDICT

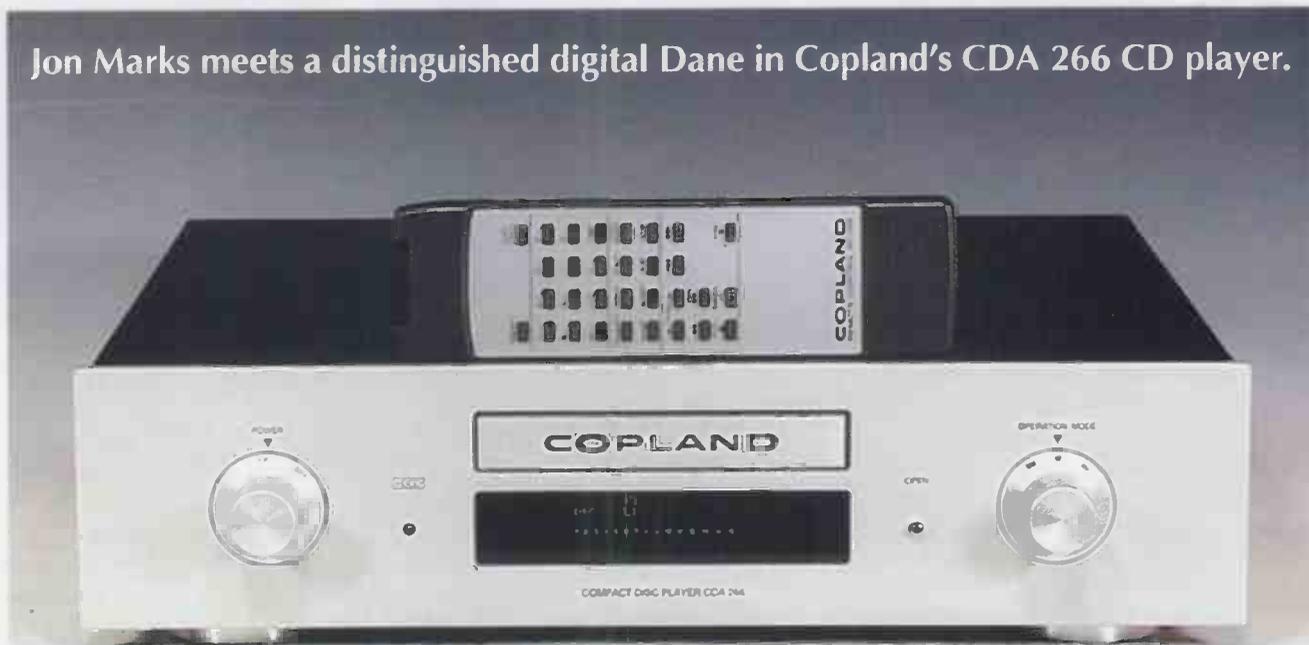


The power shares the pre's convincing three-dimensionality and scale into sensitive 'speakers.

Measured Performance
see p111

COPPING IN

Jon Marks meets a distinguished digital Dane in Copland's CDA 266 CD player.



Form following function is a concept which a disappointingly large proportion of hi-fi manufacturers seem to misconstrue. For anybody who's going to give over valuable space in their living room, those "f" words should add up to a box of tricks which is unobtrusive visually as well as sonically. More often the case is a piece of equipment that resembles something you'd find in the 'attachments' section of a combine-harvester catalogue. OK, perhaps that's being a little too hard on stylistically-challenged components, but all you have to do is glance at Copland's CDA 266 to see how a plain box can be turned into something more.

What lends this player its air of class and finesse are that spartan silver fascia adorned by only two knobs, On/Off to the left, Play/Pause and Track Skip to the right. These aluminium top hats join an Open button and HDCD indicator in a display (no pun intended) of real ergonomic restraint. All the remaining commands are spread out across a remote mercifully larger than the customary fare, which attempts to squeeze the annual output of a button factory into an area little larger than a book of stamps.

COOL, CALM AND COMMANDING

The Copland was in fine company as far as partnering components went. The amplifier list boasted Musical Fidelity's X-A1 integrated at one end of the spectrum, Final's Music-5 and Music-6 battery pre/power at the other. The loudspeakers were BKS's 107s for the former and our KLS9s for the latter. Cabling was van den Hul, DNM and Purist Audio Design.

The MF might not occupy the same elevated price position as the Copland, but driving the 107s it was easily transparent

enough to allow the player to show off its skills. One of the most welcome of these was to be found in the bass. The CDA 266 countered the X-A1's slightly tubby bottom end with a speed and power that are still conspicuously absent from the replay of a lot of £1000+ one-box machines. This trait was at its most obvious on heavy Dance tracks and Blues numbers, where double-bass (which can sound like a damp tea chest being thumped through electronics which fail to cut the mustard) had a pungency and twang that came as breaths of fresh aural air.

FREE FROM ARTIFICE

There are two fairly distinct schools of thought on 'voicing' hi-fi, one that says "do" and one that says "don't". Some companies endow their products with an instantly recognisable character to get the most from certain genres like Rock or Pop. Others decide to let the music, any music, do the talking by making sure their equipment maintains as low a sonic profile as possible.

Copland have evidently decided to follow the second of these two roads - the CDA 266 could almost be renamed 'The Invisible' for the minimal signature it stamps on the signal. In this way it resembles the Final amps and the BKS floor standers - all three have a tonal neutrality and a glare-free clarity which just go to prove how coloured much of the competition can be.

The benefits above are audible on any disc which slips into the Copland's drawer, but none more so than simple, acoustic recordings like those from Opus 3 which, coincidentally of course, also happen to be HDCD-encoded. With that green, front-panel LED glowing, the CDA 266 rubbed on another coat of vanishing cream and faded even further out of sight.



Unlike many CD players these days, the Copland draws its power from a single E/I core transformer.

TOP 100

One word which is oft-used to describe digits which have flowed through Pacific Microsonic's PMD-100 HDCD filter is "natural". No change there then with the Copland. Travelling via the Finals to the KLS9s, Eric Bibb and Stravinsky shared delicacy and tonal colour married to scale and power. Sound staging had depth in addition to breadth, and the thwack of timpani and rich harmonics to strings were the tasty icing on the cake.

The roster of HDCD titles may be swelling, but the likelihood of walking into your local purveyor of audio discs and being able to pick one off the shelves at random is fairly slim. Fear not - on standard CDs it might have dropped a few points on the invisibility meter, but the CDA 266 was still playing hard to get with my ears. Billy Idol and Björk discovered as much, their vocals as idiosyncratic as ever whether it was Mr Idol's snarl and yell or the diminutive Icelander's child-like yodellings.

So far, so good. However, it was these two CDs which wheedled out one of the Copland's slight weaknesses. We're not talking Achilles' heel here - this was more a tinge of tennis elbow. Where the pedal should have been

firmly to the metal rhythmically speaking, this player tended to take a slightly more mellow view of pace. The tracks in question were never short on involvement, it was simply a matter of them not quite hitting the mark as far as excitement and energy were concerned. If 95% of your music collection consists of Dance, Techno, Hard Rock or Heavy Metal, that puts the CDA 266 at a disadvantage. If your tastes are more catholic and you prefer a presentation that stays even-handed and engaging across the musical categories, then this foible isn't going to be a problem.

Back in April 1996, Eric Braithwaite reviewed the CSA 14 integrated from Copland. There he opined that, thanks to its dry bass and silky smoothness, the CSA 14 was "still an amplifier equivalent of a Range Rover rather than a Subaru." For my money, the CDA 266 narrows the vehicular gap (although it doesn't close it) and better mixes the strengths of both. Its bass has real extension and grip, there's not a hint of nasties to taint the midrange, and the treble is clean, clear and highly detailed. Throw in a flare for rendering tonal colour and filling out three-dimensional images and sound stages, and you have a persuasive argument in favour of the CDA 266.

Copland CDA 266

£1199

Richard I. Allan
Associates
Myrtle Cottage,
117 Station Road,
Burgess Hill,
West Sussex RH15 9ED
Tel: 0444 248873

WORLD VERDICT



Apart from lacking the last ounce of 'hell for leather' on Rock, the CDA 266 has a winning all-round ability.

Measured Performance
see p111

from a company best known for high

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CLEAR THE WAY

It's fitted with an outboard motor but it's not a speed boat. Jon Marks introduces Clearaudio's Solution turntable.



Guess The Price is an easy game to play with your average component - if it's an amplifier, just measure the thickness of the aluminium front panel and multiply the figure in millimetres by £300 and you shouldn't be too wide of the mark. As far as turntables go, it's either weight or finish that provide the gauge of pedigree.

These rules of thumb come a cropper when it's Clearaudio's Solution turntable on the podium, though. The skeletal construction yields a relatively low-mass deck, while the polished perspex wouldn't be out of place on a £2000 record player. Bereft of arm and cartridge, however, the Solution will set your wallet back £750.

Germany, Clearaudio's country of origin, provides a clue as to how cost and looks can be reconciled in this instance. Intelligent use of material that might otherwise have been classed as off-cut is what brought the three-legged unsprung chassis into being. Slip the solid perspex platter from its bearing and nudge it up against one of the curves where legs join and you'll get an exact fit.

Returning to the bearing, this is a predominantly brass affair

bolted through the chassis. Short designs like this one demand very tight tolerances if play is to be eliminated - the Solution's passed the 'rocking-platter' test with reassuring ease. Following the lead of another manufacturer whose preferred building block is perspex, Clearaudio have also adopted a Pink Triangle-style inverted bearing.

Brass puts in another appearance in the motor housing, a hefty machined cylinder that feels as if it should soak up a fair amount of vibration. A long, round-section rubber belt takes the drive from the stepped pulley to the rim of the platter. Such an arrangement certainly reduces the motor noise that reaches the record, but it can make placement tougher than usual as it increases the effective footprint of the Clearaudio slightly.

ALL DECKED OUT

Pink Triangle isn't the only company brought to mind by the Solution. Microseiki is another brand lurking in the clean lines of the armboard. Up to three arms can be bolted on above the brass support cones and then aligned by swivelling the boards to obtain



With little mass to the Solution's chassis, energy storage and coloration should be kept to a minimum.

the correct arm-pivot to centre-spindle distance. The one attached to our single outrigger was a Rega RB300 sporting Clearaudio's own Sigma MC at £600. This was backed up by an Ortofon MC 30 Supreme. Amplification was a Sonic Frontiers Phono 1 working into the Final battery amps alongside a Musical Fidelity X-A1, loudspeakers our KLS9s and Opera's Primas.

DELTA SIGMA

Spinning one of our favourite setting-up records (Heaven 17's *The Luxury Gap*), the Solution showed that it had promise with an airy, open sound and meaty bass, an area where the Finals were certainly helping. However, a slight fizz to the Sigma's treble and lack of speed in the bottom-end hinted at the need for a few tweaks.

Positioning the motor so that it was almost opposite the cartridge as it tracked across the record helped, tightening the lower octaves and cleaning up the treble a touch. The smoothing process continued when the deck's spikes were located in the large copper cups that usually support Teac's P-30 transport. This rise in height also meant the motor could be moved in a touch closer to reduce belt tension, further sweetening the sound. The last change was a move from an MDF shelf to a heavy marble one from Elemental Audio.

With all the positioning shenanigans complete, the Solution sounded much more comfortable than it initially had. This, unfortunately, is an inevitable part of the process any owner of a non-suspended turntable has to go through to get the most from their new purchase.

Having lowered the Sigma onto Lou Reed's *Transformer*, I was able to sit back and bask in the glory of an all-analogue pressing, its funky rhythms, vocal clarity and natural detailing unpolluted by their passage from groove to loudspeaker. Tracks like 'Vicious' and 'Walk On The Wild Side' had a weight and imaging

precision that made for some very convincing replay.

One of the hardest tests you can give a cartridge and deck is female vocals, and none more so than the piercing, nasal whine of early Kate Bush. Her *Kick Inside* album went under the needle without any undue hiccups apart from that treble brightness added by the Sigma and RB300 together. A swap to an Ortofon MC 30 Supreme brought with it a loss of fine detailing but smoothed the top-end and midrange.

With the turntable's complement finalised, a spot of Classical took up residence on the Clearaudio's platter. Britten's *A Young Person's Guide To The Orchestra* wafted out of the Primas. A trait which seems to be shared by almost all of the perspex persuasion is a tonal neutrality and richness that suits orchestral work to a tee. Strings and brass were both incisive and crisp, set within a sound stage of commendable size. In this respect, the Solution was on a par with both the Pink Triangle *Tarantella* and the Wilson Benesch *Circle*.

These three have different strengths in spite of construction similarities. The *Tarantella* pulls ahead when it comes to subtlety, delicacy and musical poise. The *Circle* leads in the sheer detail stakes, although it can sound slightly 'cool' and lean at times. The Solution majors more on rhythms and beefy basslines at the expense of a little overall control and insight. Its motor may be fixed to a hefty brass cylinder, but hold it in your hand and you soon realise there's a fair amount of vibration escaping from it. By comparison, PT's DC alternative is far quieter.

Long after the prophets of doom predicted the demise of vinyl, sub-£1000 record players that sound as good as they look are still being made. Clearaudio's Solution is a worthy addition to names like the *Tarantella*, *Circle* and *VPI Junior*. Set it up on a solid platform with a decent arm and cartridge and you won't be disappointed.

Clearaudio Solution

£750

Absolute Analogue
PO Box 1532,
Fordingbridge,
Hants. SP6 1SB
Tel: 01425 654488

WORLD VERDICT



If you seek a powerful presentation where musicality takes precedence over absolute finesse, the Solution could well live up to its name.



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ARMED AND DANGEROUS

David Price shows how to get the best from Rega's budget giant killers, the RB250 and RB300 tone-arms.



HISTORY

Until August 1983, the best budget tone-arm in the world was the Rega R200. An S-shaped, Japanese sourced variant of the mid-price Lustre GST-1, it gave excellent results for its £46 selling price. But then along came an arm with such an amazing price/performance ratio that the poor S-shaped Rega was never bothered with again. The RB300 had arrived.

Radically different from almost anything that had gone before, it practically rewrote the book. With a tapered, one-piece cast-aluminium arm tube, with no joints between the headshell and pivot, it was the ultimate exponent of Linn's 'maximum rigidity' rule. The bearing gimbal was a substantial casting employing a threaded stem and locknut, and the bearings themselves were excellent quality - the same as those now fitted to Linn's Ekos. Friction was extremely low, and the arm could track the very best cartridges. Even the counterweight was unusual, machined from dense tungsten alloy for the smallest possible diameter, and hence the lowest moment of inertia.

The new £90 arm was a stunner, matching or bettering expensive super-arms of the time in a number of ways. Its biggest strength was its neutrality, especially in the mid-band, which made Linn's Ittok (at £253) seem coloured. Press reception was ecstatic, the general feeling being that it was one of the best arms at any price. But, as the media buzz died down over the ensuing years, one or two dissenters emerged. A few people began to realise the arm could be cold and rhythmically rather frigid at times. Its bass wasn't the best in the business either, nor was its treble the most extended. Still, the arm's loudest critics were rival arm manufacturers whose sales it was stealing!

The RB250 followed soon after. Essentially a simplified RB300, it enabled Rega to offer a modern tone-arm at a cut-

throat price. The most obvious change was the deletion of the RB300's tracking force spring, meaning stylus force had to be set by rotating the counterweight. The new arrival featured brass instead of stainless steel in its base, a plastic, rather than stainless steel, rear end stub and a cheaper mild steel counterweight. The bearing assembly also differed - the RB250's yoke was a one-piece affair, where the RB300's had a plate which screwed onto the right-hand side over the tracking weight spring. Finally, the bearings themselves were toleranced slightly lower.

TWEAKING

1) ARM WIRING

The biggest problem is the internal wiring rather than the arm lead itself, which can be replaced by silver Litz to good effect. Changing the arm to pre-amp lead will help. Also, try a separate earth lead, rather than the standard arrangement where it's earthed down one of the signal return leads. Proper earthing improves low-level detail, depth and space.

A word of warning, though. Disassembling the arm without the correct tooling from Rega is extremely likely to damage the bearings. Silver wire also tends to cause higher levels of friction, which affects cartridge bias and tracking. Worst offender here is solid-core, which is far too springy for tone-arm use and will cause excessive record wear due to incorrect bias.

2) TRACKING FORCE ADJUSTMENT

The RB300, unlike its cheaper RB250 brother, has a carefully designed coil spring to apply a minus force of 3gms when set to 0. Unfortunately, this can degrade the sound by transmitting resonances from the arm base into the armtube. If you remove the spring, or disable it by setting the adjuster to 3gms (i.e. so



The unmodified RB300 has a screw-in rear stub along which slides the counterweight, decoupled by rubber rings.

it isn't applying any force) and set the tracking weight by the counterweight and a stylus balance, you'll get more clarity and focus to the sound. However, you may find the counterweight is no longer heavy enough to balance the cartridge. If so, either fit the heavier RB250 counterweight or superglue metal washers to the back of your existing weight to add mass.

3) HEADSHELL

If you can bear to live without manual cueing and suffer the vagaries of the lift/lower device a popular tweak is to file off the finger lift. This is because it's slightly microphonic, and as well as picking up external vibrations and transmitting them to the cartridge, it adds resonance of its own. (It's no coincidence that the SME V's lift is detachable). Another mod is to file the paint off the inside of the headshell, so the cartridge has the flattest possible surface to mate with.

4) COUNTERWEIGHT

As counterweights are easily the highest moving mass on a tonearm, it's vital they're properly coupled to the armtube. Unfortunately, the Regas' aren't. Instead they rely on floppy rubber rings between the end stub and counterweight, and in the case of the RB250, a plastic rear end stub. Origin Live (01703 442183) offer a £75 structural modification which involves removing the stub (normally just screwed into the back of the armtube) and replacing it with a new one torqued onto the arm by a high tensile bolt. The counterweight is then drilled and threaded with an Allen bolt, which can be screwed into the rear stub rigidly. This couples the counterweight to the arm tube, meaning it doesn't muddy the sound. Although this is major surgery, just bolting the counterweight onto a standard end stub isn't enough, and can degrade the sound.

However, Roy Gandy at Rega feels that coupling the counterweight to the end stub can cause problems with arm

ringing excited by cartridge vibrations, otherwise obviated with decoupling.

5) MOUNTING

Fortunately, the Rega is a light arm that doesn't disturb the suspension on suspended sub-chassis decks. It still needs careful installation. It sounds best when fairly loosely tightened to the armboard, which decouples it from its noisy surroundings. It's also important to dress the arm lead with the deck's P-clip so the suspension can float freely. Ideally the cable between the P-clip and the pre-amp should just hang in mid-air, so it can't pick up (and thus transmit) vibrations into the arm and the deck.

LISTENING

Installed on a Michell Orbe turntable and tracking an Ortofon MC 30 Supreme, the standard RB300 is an impressive if not flawless performer. Compared to a cooking RB250 it's quite an improvement, but against an SME V it has a light, lumpy and at times semi-detached bass. Midrange is fairly uncoloured with good detail retrieval and imaging. Treble isn't bad but ultimately a bit coarse and rolled off, losing air and space compared to the SME reference.

With the tracking force spring disabled the standard RB300 gains clarity in the midband and treble, but it isn't until surgery is performed that it begins to sing. A silver-Litz rewired Rega gains fluidity as well as a smoother, more spacious treble. Contrary to Rega's claims, it is worth rewiring the arm as long as it's done properly. However, rewired arms are Rega's main service return.

The most interesting Rega tweak on audition though is Origin Live's counterweight modification, which catapults it into super-arm territory. Compared to a standard RB300, the OL/RB300 gains deeper, more extended bass with improved grip. Mid-band is clearer and more detailed, and treble beautifully open and sweet. Most significant are rhythms and dynamics. No longer



Above, you can see the hollow rear stub bolted to the end of the arm tube and the threaded counterweight.

cold and frigid, the arm becomes as fluid and beguiling as a good unipivot.

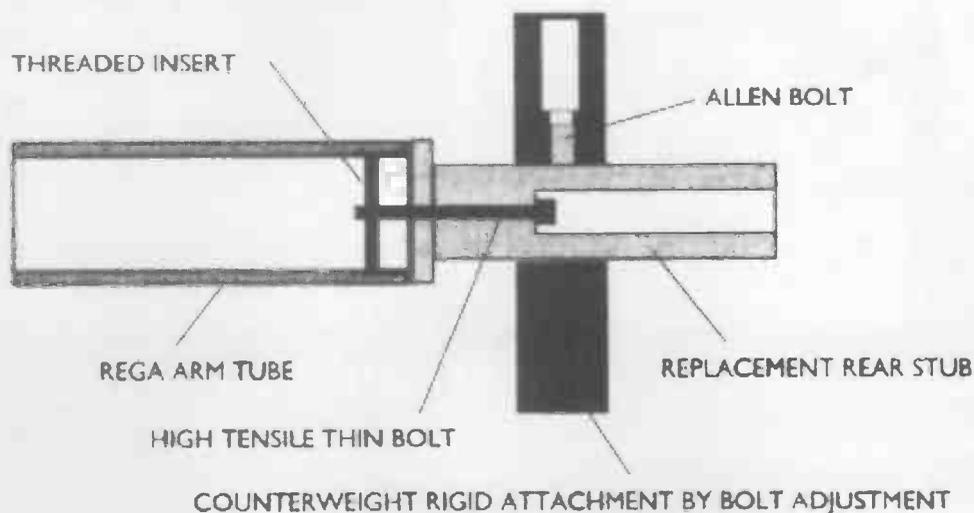
Compared to the SME V, the OL/RB300 can't match its bass power, dynamics and treble extension, but it gets noticeably closer. Indeed, the mid-band actually overtakes the SME. While it lacks the latter's detail ability, it's definitely more lucid and musical. Treble is superb too, but again not as clinically detailed as the SME's. On some kinds of music, jazz in particular, the OL/RB300 cleans up. Music ebbs and flows effortlessly, and unlike the Series V isn't showy or pushy.

The real ear-opener is an Origin Live modded RB250, which, because of its superior bearing mountings and brass base, has quite a different character to its bigger brother. Compared to the OL/RB300, bass is dramatically tighter and more powerful, while the mid-band also gains great gusto.

Dynamics are absolutely first class, and sound staging and imaging stronger still. There's also quite a change in the arm's tonal character. It's much darker and more natural than the RB300, which by comparison sounds a touch glassy and chrome plated. The OL/RB250's combination of inky black silences, holographic imaging and kick-butt bass is a joy. With all the mods, from silver wiring to the Origin Live rear stub, the Rega RB250 is nothing less than total dynamite.

As analogue addicts know, there's no 'best' super arm. Some like the SME V's clinical precision, others the Linn Ekos's kick or the beguiling rhythms of Naim's Aro or Graham's 2.0. But whatever your preference, you'll be gobsmacked at how good the humble Rega arms can be made to sound with clever fettling. Suitably tweaked, the RB250 especially can take on the very best. This is a testament to Roy Gandy's remarkable original design.

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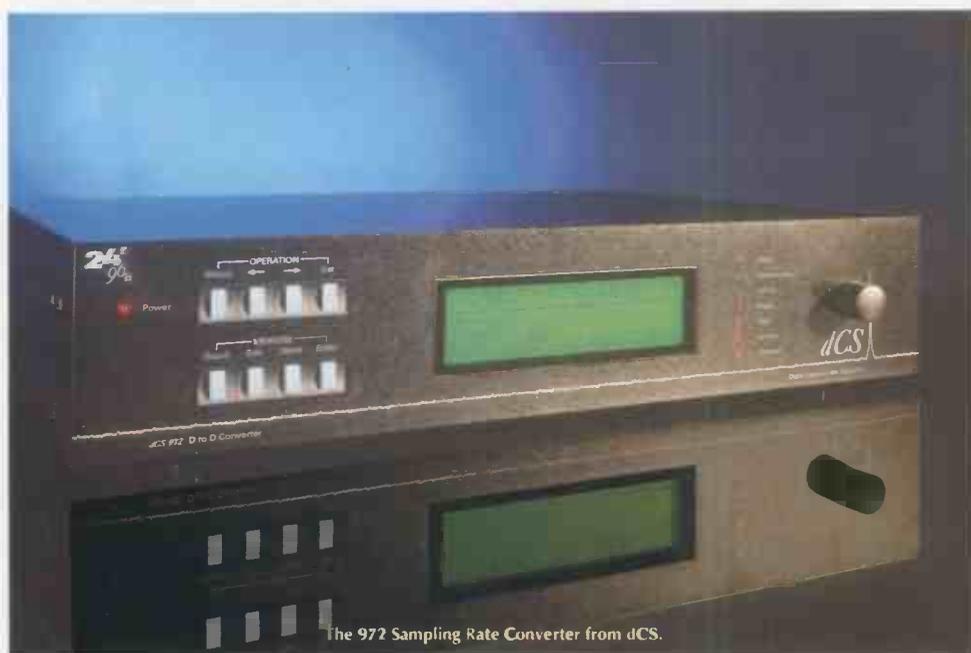
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UPWARDLY MOBILE

Jon Marks puzzles over the nature of digital sound with a demonstration of the power of upsampling, courtesy of dCS.



The 972 Sampling Rate Converter from dCS.

As a life-long fan of analogue, one of the things I find comforting about digital is how 'un-digital' it can be at times. If it all came down to just numbers, there would be no differences in sound quality between properly-designed digital cables. And why should transports sound different, if digital only boils down to reading pits and bumps in a spinning disc? For a system which is supposed to be wholly predictable, there are some surprisingly inexplicable nuts to crack, like the most recent - upsampling.

We first discovered what the future had to offer with 24-bit, 96kHz recordings after a visit from Robert Kelly of dCS and the company's Elgar DAC (in November 1997). We weren't alone in rating this convertor as a killer piece of equipment - it's been selling like hot cakes in the Far East. However, while we were lucky enough to hear what the Elgar could do with genuine 24/96 tapes on a Nagra D, apparently some doubting customers in the Orient remained to be convinced of

the DAC's high-resolution capability.

One distributor requested that dCS send out a 972 sampling rate convertor, which could step CD's 44.1kHz or DAT's 48kHz up to 96kHz, and thus light the appropriate indicator on the Elgar. This was duly arranged, the light lit and the customer bought.

A telephone call soon after had dCS scratching their heads in bewilderment, however. The aforementioned distributor, full of enthusiasm, was claiming that CDs which were upsampled through the 972 and fed into the Elgar as 96kHz signals sounded better than a standard 44.1kHz signal. Conquering their initial scepticism, the boffins at dCS wired up the requisite boxes and were taken aback by the results, as were we by the demonstration in our own listening room.

On the hardware side, a Teac P-30 served as a transport for standard CDs. This fed the 972 with its 48kHz digital output. The 972 itself was toggled between 48kHz (ie, straight through), 96kHz and 192kHz. The convertor was

the Elgar, whose on-board volume control also doubled as a pre-amp feeding Final's battery-powered Music-6 amp driving our own KLS9 loudspeakers. Genuine 24/96 signals were provided by a Nagra D digital reel-to-reel tape recorder.

What we found was that there are indeed improvements in transparency, control and rhythmicity with the upsampled signals. Music sounds more open and natural, even if the extra quality is far from equalling the major gains of moving to full 24/96.

The gap between upsampled and real thing closes when the 972 draws in 44.1 and puts out 192. All the bonuses listed above are still present, but to a greater degree. On recordings from Eric Bibb and Ronnie Earl, the bass became much faster and punchier and vocals purer, as if a layer of distortion had been lifted from the midrange. This was particularly evident on plucked acoustic guitar, where power and tonal colour were both far more convincing.

Quite why upsampling should have this affect on CD is currently open to speculation. Ideas being mooted at the moment include reduced filter ringing with the higher sampling frequencies.

At the moment, the 972 is a professional sample-rate convertor not available to the general public. This gap is about to be plugged however. According to Derek Fuller, Chairman of dCS: "After convincing listening trials, literally in different parts of the world, dCS is responding by launching a consumer version of the 'Upsampler'. The dCS Purcell will be shown at the Consumer Electronics Show in Las Vegas in January and will be available about one month later."

Whether upsampling technology is adopted by other manufacturers remains to be seen. But as we move towards DVD-Audio and Super Audio CD, it looks like there's life in old CD yet.

FORTUNER 500

You don't have to be one of the world's richest audiophiles to enjoy Cambridge's new T500 tuner.



For many people a tuner is an also-ran part of their hi-fi system. If you were to ask them how important the airwaves ranked in the overall scheme of things, you'd find that quite often they languished below the humble cassette deck in terms of perceived sonic value. However, those who have discovered the delights of the ether thanks to a tuner like Cambridge's T500 are well aware of the delights that can be beamed down, and all for free.

The T500's manufacturers claim that "Never before has this level of RF performance, sound quality and operating flexibility been available at such an affordable price". Fair test or not, a Naim NAT02 has been my benchmark for many years, so the £179.95 Cambridge was up against some real competition considering that it sells for about a fifth of the Naim's price.

Setting up the tuner was easy; a standard 75-ohm co-ax feed from a five-element roof-mounted aerial for the signal; two phono outputs for connection to the amplifier; mains via an IEC lead. Having left the tuner on overnight I settled into listening on Sunday morning, when most of the world is still fairly quiet.

For those who prefer to tune manually there is a Station Locked indicator which shows whether a station is fully tuned in or if you're still on the sidebands. This worked

well, even on distant stations.

Spinning the front-panel rotary knob had me travelling smoothly through the available ranges - FM, MW and LW - to home in on Classic FM. For a change their early broadcasts seemed surprisingly hiss-free and the tonal balance was pretty neutral apart from an occasional hint of mild sibilance (but then sometimes the station sounds like that on the Naim too). Classic's output is not noted for its dynamics, but those the tuner found were handled with ease and there were no signs of distress on loud passages.

Moving to Radios 3 and 4 the T500 demonstrated the Beeb's broadcast quality was in fine form. It was easy to pick out the different environments behind the 'action', and with newsreaders, for instance, the shuffling of papers and creaky chairs came through loud and clear. In fact, the Cambridge's handling of speech was very natural, with no obvious boom or nasal quack to voices.

An afternoon of tuning gave greater insight into the T500's ability to recreate a sense of space with plays, for example. The stage area was clearly delineated, and the actors' presence could easily be felt. Sometimes the odd dubbed effect was a little out of place, but otherwise the results were highly enjoyable.

Radio 1 and Kiss offer the least challenge to tuners; in this case the sound stage was limited in depth and

confined strictly between the 'speakers compared to what less processed transmissions had managed.

The tonal balance across the whole range of broadcasts remained impressively neutral, with good bass weight and articulation, and no obvious top-end roll-off. The T500 managed to keep the sparkle and openness which point to a good decoder alignment and front end. Using a 'wet-string' aerial naturally gave poorer results but nevertheless the Mono auto-select option only came into play on very distant stations and kept hiss low. With a roof aerial no hiss was discernible except on very weak broadcasts.

As far as AM goes, station reception and selectivity (often areas where a tuner can fall down) were both fine. Of course AM is decidedly second-rate as regards sound quality but even so there is much of interest (the BBC World Service, for instance). There was no obvious station drift, and this usually irritating waveband remained in use for longer than I can normally tolerate.

Cambridge's T500 is a very accomplished all-round performer. Its presentation is easy on the ear without being soft and it has a real talent for recreating the environment of the original performance. Long-term it's one of the better bets in the crop of current budget tuners, and one which would surely get my vote.

Cambridge T500

£179.95

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WORLD VERDICT



The T500 is one of the most gifted tuners under £200.

Measured Performance
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Gershman Acoustics

Avante Garde RX20 - a mere 36" tall and 12" x 12" at the base - Absolute Sound review - " a true torture test with a bass line that's big, super fast and continuous - the Gershman's handled it beautifully, servo driven Infinity RS1 towers have more power but are way too slow. The Magnepan MG3.5/R's, can't match the low bass impact of the Avant Gardes, only the Thiel 3.6 can handle this track with aplomb and even they don't sound quite as fast. Unquestionably, the Avant Gardes are a tremendously musical loudspeakers".

X-1, Specter, Enigma 500-X, GAP-520X



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DUAL RE-BOX

A new home for Tannoy dual-concentric drivers? Richard White surveys Slate Audio's Stormforce cabinets.

Here at World Towers we've had quite an epidemic of dual-concentricity recently, what with Haden Boardman's feature in November and reader Colin Dobson's mighty Autographs in December. Looking back on these can be just that - looking back - so we've ferreted out a modern design which uses the venerable Tannoy drivers in all-new surroundings.

Slate Audio's Stormforce cabinets are the progeny of Peter Soper's life-long love for Tannoy dual-concentrics. Unfortunately for listeners nowadays, the driver is often the best part of the old reflex designs. What's needed is a more up-to-date approach to air-loading and a zero-tolerance policy on resonance.

The marble Stormforces are, let's face it, not 'speakers to juggle with. Tipping the scales at roughly 200lbs each and standing over four feet high on their plinths, it's probably best not to buy these on a whim, and certainly not if there are any signs of subsidence at home.

As Tannoy duals seem to thrive with plenty of air to drive, it's worth noting that the internal volume of these beasts is not far off four cubic feet (about 112 litres) which is comparable with the volume which Tannoy's own (smallest!) enclosures used to be built around.

Marble is something of an old fave for loudspeaker experimenters since it has the same sort of density as concrete but a much more handsome appearance. It lacks that material's castability but for æons it has been a choice material for durable decorations, provided you don't drop it on your foot.

The marble for these monoliths originates in Italy but is cut and dressed in the UK. Joins are made

with an epoxy resin having (when set) a similar resonance, the idea being to make the cabinet as much of a complete 'entity' as possible. As a modern necessity the crossover has been re-developed to permit bi-wiring.

For all the labour of love that has been lavished on these cabinets, the \$64million question for the audiophile is, "What do they sound like?" Bearing in mind that a great deal of care had been taken with the selection of the crossover point and components and that the drivers had been comprehensively overhauled and run in, an unsatisfactory sound could only be laid at the feet of the box. . .

Before going looking for the nitty-gritty-eensy-weensy, I took out some orchestral big guns in the shape of the DGR digitally-mastered 'Romeo And Juliet' (Tchaikovsky) - not that digital is an end in itself but the sudden woofs don't allow a 'slow' speaker to get away with it. Shortly afterwards, as I picked myself up, I had to admit that the Stormforces were not lacking in drive! One other point - judging by the rattling of my windows, fans of deep, taut bass will have nothing to worry about. Once the windows had been boarded up I was ready to start listening for subtleties.

Chamber music can be a mixed bag as regards testing and it is helpful to use both string music and woodwind to check on all-round accuracy. Beethoven's famous septet helped out here on both sides at once, showing the Stormforces as gifted performers on what might seem superficially to be a fairly trivial order for such mighty beasts. The clarinet wove in and out without any of the truly horrible contributions this instrument can



Slate Audio Stormforce
£8000

make when squeezed through an indifferent chain of reproduction.

As my time with the Slates drew to a close, I was surprised to find how much part of the furniture they had become; their sound with all types of music from Rachmaninov to Radio 1 remained natural and certainly un-forced.

It is true that Tannoy dual-concentrics have a distinctive signature which may be a little smooth for everybody's palette, but I wonder whether this is more down to the ease with which they shift air than anything else. If you are a devotee of the dual, though, and you have floor and wallet strong enough to handle the Stormforces, they're a major upgrade over any of Tannoy's original reflex enclosures●

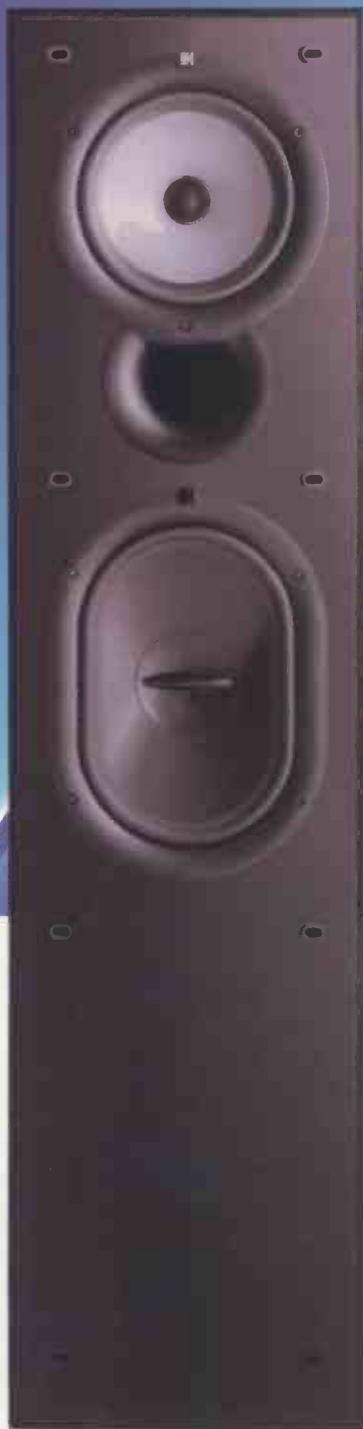
Slate Audio
47 Gemini Close,
Leighton Buzzard,
Beds. LU7 8UD
Tel: 01525 384174

WORLD VERDICT



The Stormforces are the best home for a reflex-loaded Tannoy dual-concentric, but they don't come cheap.

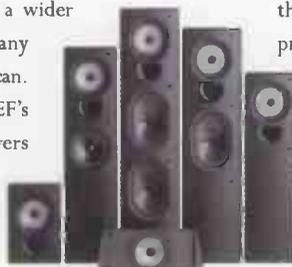
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PIZZA THE ACTION

Italian hi-fi continues to win admirers in Britain. The latest examples are Opera's Prima loudspeakers.

You have to hand it to the Italians. Whatever they do, they do it with style - football, cars, food, loudspeakers. Over the past few years a whole Italian battalion of hi-fi companies has sprung up, offering attractive 'speakers. Names like Chario, Sonus Faber and the manufacturer of the Primas, Opera, have built up enviable reputations.

It is Opera's practice to use only real hardwood cabinets in all of their loudspeakers and the Primas are no exception to the rule, even at £465. This choice helps to minimise cabinet coloration, which is apparently one of Opera's priorities. The solidity theme extends to the binding posts which are made from brass 24-carat gold-plated. The drivers consist of a Scandinavian soft-dome tweeter from Seas and a mid/bass built to Opera's specifications by ATD of Milan.

I positioned the Primas on our traditional Elemental Audio stands and gave them a listen straight from the box. After a little fiddling with positioning I found a happy medium with the 'speakers toed in about 20 degrees and three feet from the back wall.

Playing Skunk Anansie and Garbage to blow away the cobwebs, the Primas responded with a smooth, neutral tonality accompanied by a deep bass. The solid hardwood construction meant that the bass guitar and kick drum were fast and punchy without any coloration or 'boom'. Even after running in, there remained a certain brightness in the high frequencies but it was unobtrusive. The balance between voice, guitars and drum kit was excellent, the vocals never being either too forward or swamped in the mix.

Bass response aside, what really

impressed was the depth of the sound stage. Very often with a 'speaker of this size and price you get plenty of width with good separation, but not much depth. The Operas proved otherwise with realistic, three-dimensional staging.

Many studio engineers work on the final mix with the intention of positioning the instruments in the mix as they would appear on stage. The Primas displayed this method to the full in 'Brazen' by Skunk Anansie. The strong vocals were centred just behind the 'speakers. Left and right panned guitars were also slightly to the rear along with the drums and bass, all neatly balanced.

All rocked out, I treated the Primas to the silky tones of John Coltrane's 'Setting The Pace'. This tune highlighted an impressive midrange as the piano tinkled away in the accompaniment and Coltrane's close mic'd tenor snaked its way through the harmonies. With this more acoustic fare the Primas lacked some of the bass thwack they had shown on Rock. What emerged wasn't loose, but the double-bass sounded a little thin and light when compared to previous material.

When you consider the name of the manufacturer of these 'speakers it would seem silly not to let them wash in the strains of a full orchestra. Our disc of the Brahms' violin concerto isn't exactly an acoustic wonder; in other words, it's as dry as a kangaroo's undercarriage. This was swiftly confirmed by the Primas, as they showed up this CD warts and all.

Moving to the other end of the scale, the recording of Stravinsky's orchestral pieces by the Minnesota Orchestra under Eiji Oue is one of the

most detailed I've ever heard, with an enormous dynamic range. This is



near-master-tape stuff which filled the Primas with life, the complete opposite to the pedestrian sound they had produced with Brahms. In the Rite Of Spring the performance demonstrated the virtuoso nature of the piece and the precision playing which is the hallmark of many American orchestras.

The Primas are extremely good value for money - the bass rivals most stand mounters I've heard and many small floor standers. Treble could sometimes be a little hard, but the overall well-bred response compensates for this. I wouldn't describe the Operas as out and out stonking Rockers - they possess a more refined sound and look than that. Their traits are a clarity and smoothness more the hallmarks of a true sophisticate (Italian, of course, and dressed in Armani)●

Opera Prima £495

UKD
23 Richings Way,
Iver,
Bucks SL0 9DA
Tel: 01753 652669

WORLD VERDICT

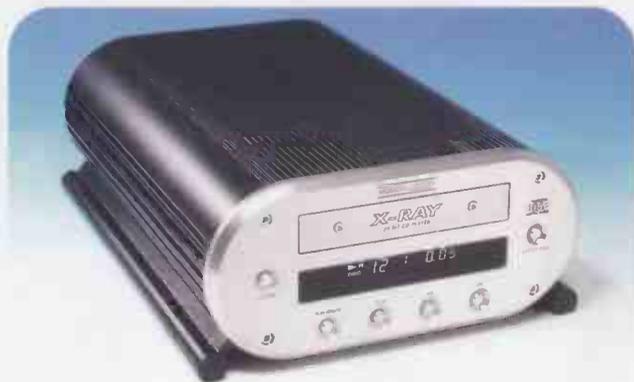


The Primas offer a taste of the high-end at a sensible price. They are more fans of Classical than Rock though.

Measured Performance
see p111

WIN AN MF CD PLAYER, BLACK BOX STANDS, SONNETEER PHONO STAGE OR A MIDIMAN DAC WORTH £2000

This month's prizes run to a Musical Fidelity X-Ray CD player, Black Box Monitor loudspeaker stands, a Sonneteer Sedley phono stage and a Midiman Flying Calf DAC.



Our second issue of 1999 gives four readers the chance to boost the sound of their systems with some of the best components which have recently visited the listening room at World Towers.

First, Musical Fidelity have contributed to our give-away by donating one of their 24-bit X-Ray CD players. This worthy addition to the ever-expanding X Series is reviewed on page 73 by our own Richard White, who was impressed by the X-Ray's



adaptability to all styles of music. He commented that its "clear portrayal of a wide variety of recorded material appeared to be the signature of the player as a whole". The biggest asset that this player has is its clarity. Music is delivered with a lightness and lucidity that stand out from the strong competition around at £800. Its compact and sturdy build are also plus points, the front panel cut from thick brushed alloy.

Black Box's £697.95 Monitor stands with their chic design take a different approach to the perennial rigidity problem. Developed from professional stands for use in studios, the Black Boxes have merits which could land them a place in the home. Instead of the traditional heavy lead shot/sand filling these unfilled stands have an elongated footprint to provide the necessary front/back stability. Made in steel box-section and MDF, they are surprisingly light in weight yet still ensure solid, firm bass and precise imaging.

In his review in the November '98 issue Jon Marks tried them out with a variety of stand mounters from the £140 Tannoy Mercury m2s to our own reference Jamo Concert 8s. He remarked that the low-mass construction resulted in good transparency with a "crisp, fast presentation" free from bass waffle, rounding off his opinion by commenting that they "make a fine foundation for revealing loudspeakers".

Lest vinyl-lovers feel left out, we have a fine phono stage from Sonneteer up for grabs. The Sedley was reviewed back in May and pasted itself firmly into our scrapbook of World Favourites. Unlike many other phono stages, even at the same £400 price, the Sedley is a full-size component, the brushed aluminium faceplate and blue LED lending it a touch of class.

Judging a book by its cover works in this instance because the Sonneteer certainly delivers the goods sonically. Technically speaking, the Sedley is compatible with both MM and MC cartridges. Take a peek inside and you'll see star earthing has been used throughout in conjunction with Sonneteer's own Active Ground.

What raised Ketan Bharadia's eyebrows was the sense of life and zest that music enjoys through the Sonneteer. The ultimate compliment to the Sedley, though, must be the following: "I just stopped taking notes and listened to the album all the way through" - no mean feat!

Last, but by no means least, we have a piece of equipment originally intended for studio use that straddles pro and domestic boundaries. The Flying Calf DAC is reviewed on page 41 of this issue and receives glowing praise for its clear and dynamic sound which, at £109, easily rivals equipment up to three times its price.

Regular readers will know that Midiman's other convertor, the Flying Cow, was an immediate success with us when we



reviewed it, and it was business as usual with the Flying Calf. This DAC really tightens up the sound of virtually any recording and breathes life into it. Anything from Heavy Metal to Classical is given the same treatment. Complex passages are deciphered to give a clean representation with a highly neutral sound. As a consequence it kicks a lot of domestic DACs into touch.

To stand a chance of winning one item from this abundance of prizes you'll have to pick the correct answers to the following questions and complete this month's contribution to the annals of English literature in no more than 30 words. Please send these in on the entry form (which may be photocopied) affixed to the back of a postcard or sealed envelope (not IN the envelope, please). Make sure that this reaches us by 8th February 1999 for judging. Please state which prizes you would like in order of preference.

COMPETITION ENTRY QUESTIONS

1) The X-Ray is what type of CD player?

- A. 24-bit C. 16-bit
B. 20-bit D. Hob-bit

2) The Black Box Monitor stands are filled with what?

- A. Lead Shot C. Nothing
B. Sand D. Custard

3) Which of the following is used in the Sedley?

- A. Flat Earthing C. Star Fish
B. Star Gazing D. Star Earthing

4) What is the name of the other digital convertor made by Midiman?

- A. Flying Horse C. Flying Cow
B. Flying Saucer D. Fly Me To The Moon

5) The Sedley can be used with which types of cartridges?

- A. MM and MC C. AC and DC
B. PS and SP D. U2 and Z3

TIE-BREAKER (obligatory)

Complete the following in fewer than 30 words

This month's medley includes a Sedley;

Does that set you scribbling? Say, not half!

Tall in your socks on a nice Black Box,

Endavouring to X-Ray a Flying Calf. . .

COMPETITION WINNERS

December's prizes of a REL Storm II subwoofer, Classique Sounds' Octavia plinth and BKS's 107 loudspeakers have been won by John Bray, Andrew Dean and Jane McCabe respectively. **Congratulations!**

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MAGNIFICENT SEVENS

Timothy Liu wonders if he'll be floored by Mission's 774 loudspeakers.

What's in a number? Those of you familiar with Mission's 'speakers will realise that every model's name contains the number seven. Mission's founder Farad Azima believes it to be his lucky number; after all, Mission Electronics was founded in July, the seventh month, of 1977. The company's first product was also a loudspeaker, explaining why Farad keeps to this formula.

The 'speakers in question this time are the 774s, the big daddies of the current 77 range. Standing three feet tall, seven inches wide and 12.5ins. deep, the 774s are a two-way reflex design. They also claim to be one of the most sophisticated mid-price 'speakers on sale at the moment.

Ecology being a word on many people's lips nowadays, the real wood veneers used on the 774s are supplied by sustainable sources. Our pair was tastefully finished in Cherry, with black grilles and vinyl-covered front baffle. This is made of 38mm MDF sculpted to minimise edge diffraction affects, thereby improving stereo imaging. Their pleasing aerodynamic appearance gives the impression the 774s were designed in a wind tunnel rather than an anechoic chamber.

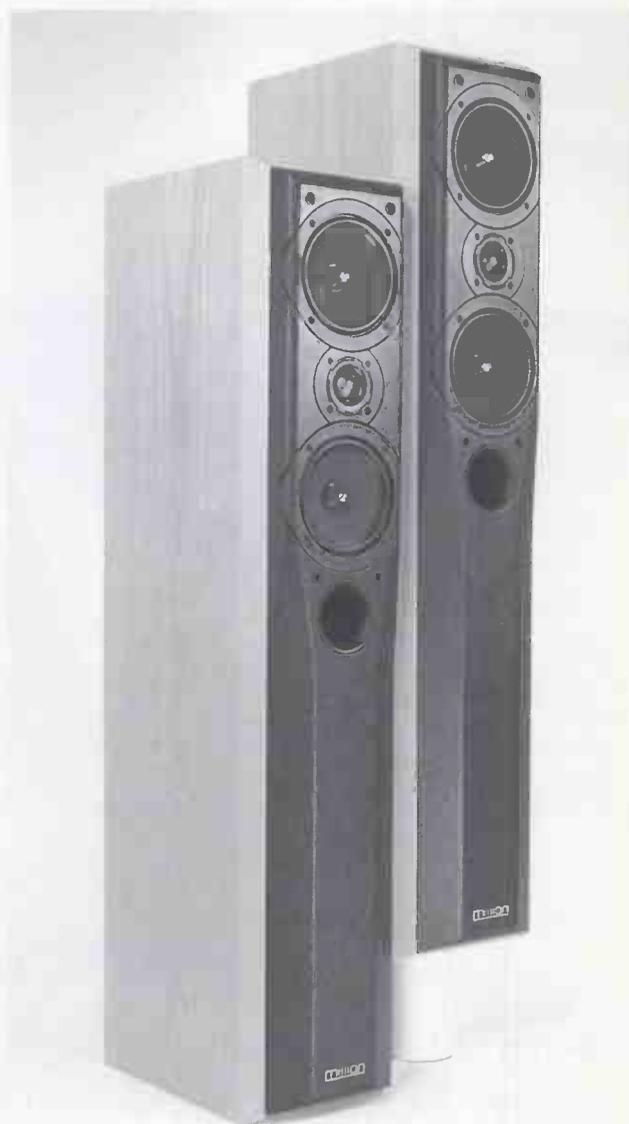
Moving the air are two 130mm Aerogel mid/bass drivers, between which is located the 25mm ferrofluid-cooled fabric-dome tweeter. To prevent vibration from its partners causing problems for the treble, the tweeter is decoupled from the front baffle via leaf springs moulded into its plastic face-plate.

The 774s were auditioned with two amplifiers, Rotel's RA931 and Audio Analogue's Puccini SE. My habitual Marantz CD-94 provided the front-end. Wiring included Siltech interconnects and DNM Reson solid core as well as Absolute Wire Force 4 stranded 'speaker cables. Harmonix feet and a Sicomin carbon-fibre isolation board were used for fine tuning.

Early listening sessions weren't too promising, with the 774s sounding hard and bright. 30 hours later and a swap from stranded to solid-core 'speaker cable found the Missions greatly improved. A spot of final repositioning had the 774s spiked 30cms from the rear wall and 70cms from the sidewalls.

With Leonard Bernstein at the helm, the New York Philharmonic Orchestra performing Mussorgsky's Night On Bare Mountain rumbled into life. The frenetic playing of the string section was true edge-of-the-seat stuff, backed up handsomely by the horn and woodwind sections cranking up the power to Force 10 gale proportions. Speed and dynamics like these combined with levels of neutrality normally associated with well engineered studio monitors were the 774s' fortes. Tonally they might have been slightly cool but careful choice of partnering equipment will remedy this.

Going Latin the Missions made light work of some South American pipe music. Here their lightning fast detail and dynamics revealed the intensity of the players' breathing and the power in plucked acoustic guitar and Latin vocal harmonies



alike. The thwack of the bass drum delivered when it came to weight and smack too.

Knowing that Robin Marshall (the man behind the 774s) is a big Blues fan, I tracked down some more appropriate material in the form of John Lee Hooker's Mr Lucky. With John Lee and friends set into a wide, deep sound stage unhindered by the rear wall, these tall, slim cabinets scored again.

If you arrange a demo of the Missions, just remember to take along some ropy recordings. Their transparency and insight will show up flaws in duff discs, although not to the point of destroying any musical enjoyment therein. If you are shopping around for loudspeakers at £500 you owe it to yourself to check out the Mission 774s. In terms of sound and good looks they're hard to beat.

Mission 774 £499

Mission Group
Stonehill,
Huntingdon,
Cambridgeshire
PE18 6ED
Tel: 01480 451777

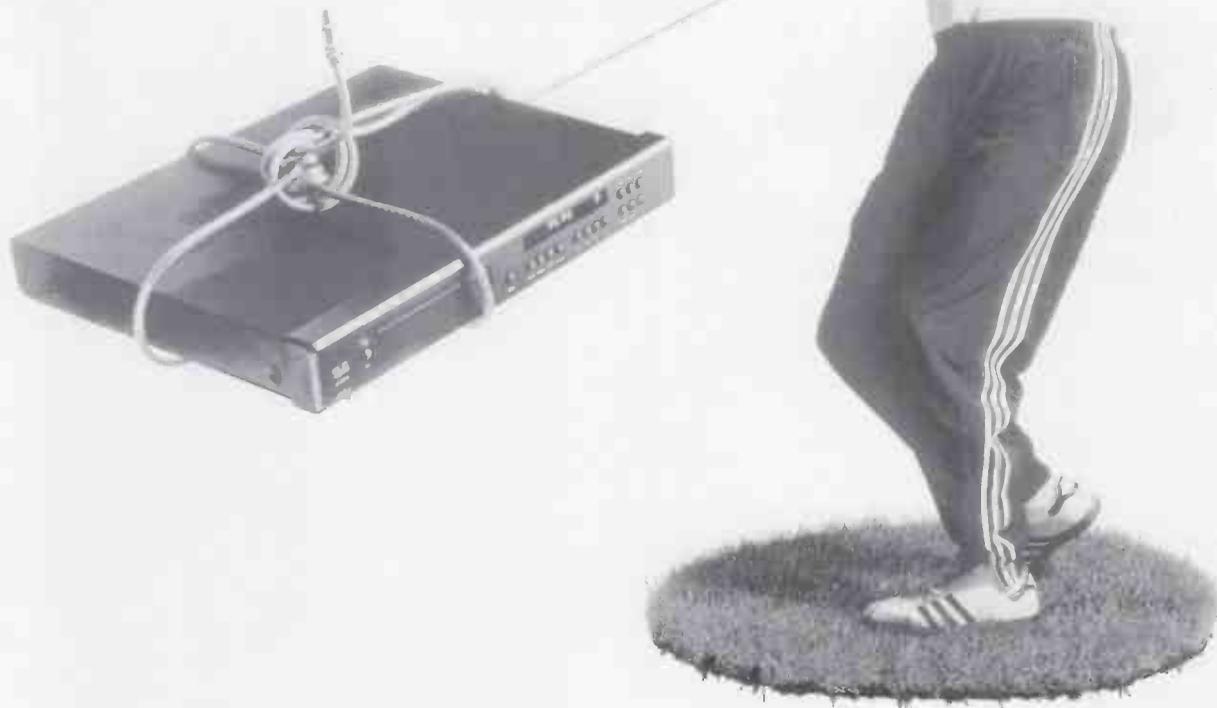
WORLD VERDICT



With the right ancillaries, the 774s have a clarity and lack of coloration still rare at the price.

Measured Performance
see p111

T+A
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What subliminal advertising messages are contained in this apparently innocent sporting picture? T+A reveals all. Firstly the Audio Triax double-shielded coaxial cable has 330 silver OFC wire strands, unique to T+A. Secondly the CD 1220 is the first CD player in the world with a two-way converter. Thirdly 'Audio' magazine puts it in the five-figure price bracket, although it barely costs a third as much. Fourthly listen to both, that's the hammer!

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TAPED CRUSADER

Richard White spends some reel time with Pioneer's CT-S550S Precision cassette deck.

Cassette machines? You're not still reviewing those, surely? Well, the answer is "Yes", as long as manufacturers continue turning them out and our readers keep using them. Pioneer's CT-S550S Precision is in any case no run-of-the-mill machine. 'Precision' means that Tom Evans has had a go at maximizing its potential with specialist audio-grade parts.

Standard with this edition come a three-head transport, motorized door, Display Off, Fine or Coarse level display, and a socket for system-automated functions with compatible CD machines.

Before I got on with the serious listening business I did a quick once-over of all the gadgets with which cassette has tried to keep pace with its digital rivals. Chief of these is track search which whizzes ahead looking for gaps of four seconds and more. The system worked fairly well on tapes which naturally break into sections, but unfortunately found quiet passages just as alluring.

One gadget which is genuinely useful is the automatic tape optimization programme. Bung the cassette in, press the button and the CT-S550S works through a sequence of tests and sets its biasing accordingly. An A-B comparison showed that the exercise is distinctly worthwhile and served to conquer initial scepticism concerning the lack of a manual control.

Once the Pioneer was warmed up, it was time to begin with some spoken-word tapes. Running through a number of these gave the deck the opportunity to demonstrate its accuracy (after all, we all know what a voice sounds like and even the least hi-fi-experienced ears are surprisingly quick to point out faults with speech). Allowing for the vagaries of studio equalization, the



'550 passed with honour.

Trying out a pre-recorded proved an ear-opener; with The Rio Trio's album on Java Records I have the luxury of both CD and cassette versions to compare. To my surprise the tape came off very well. Disc quality it ain't, but the full frequency response ran it a very close second.

So to recording music. As a blanket-bombing I loaded an assortment of chrome, ferric and metal tapes and, after auto-setting the bias, galloped round the radio dial at random. Stepping up through all the Dolby NR settings was quite enlightening and, thanks to the track search, not too frustrating locating them all again. Lengthy listening still confirmed that a good tape with the recording levels properly set will give even Dolby S a run for its money.

Recording from records offers the chance to set the agenda with some precision. A bravura performance by Maurice Hasson of Paganini's First Violin Concerto begins with a sequence of emphatic orchestral flams followed by a few bars of quietness. Truth to tell, the Pioneer coped exceedingly well. Bass rolled out richly and the staggering fiddle figures lost very little in translation. Silence, of course, is a relative concept with gramophone records

but it was notable that the tape's inherent hiss was no more offensive than the usual record surface noise. Although a little Dolby S went a long way in this direction, the un-adorned version even with a budget tape like TDK's D ferric maintained the freshest, most vital sound.

Henry's Bootblacks, a small vintage jazz orchestra, gave the Pioneer plenty of musical contrasts to handle, with the sharp attack of muted brass set against the sweet smoothness of the reeds. Altogether quite a revealing record this, since cassette is sometimes inclined to make a muddle of ensembles. The CT-S550S Precision thought otherwise and gave full details of some quite complex section work and vocals.

Scoring top marks in most respects doesn't equate to perfection, though. The recording amplifier had insufficient gain to fully modulate all tapes with all sources. This can lead to under-recording and then, boy do you get hiss! Again for recording, the balance control has a less than definite centre point and can inadvertently be moved. These minor bleats aside, the Pioneer is a well-conceived three-header that deserves much more than a second glance even in the twilight of cassette's years.

Pioneer CT-S550S Precision £339.95

Pioneer
Hollybush Hill,
Stoke Poges,
Slough,
Berks. SL2 4PQ
Tel: 01753 789789

WORLD VERDICT



Ease of use and high quality sound make the Precision a strong contender.

Measured Performance see p111

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BOVINE EXCELLENCE

Simon Pope wines and dines his ears on Midiman's meaty Flying Calf DAC.

The word 'professional', can cover a multitude of sins. However, when it comes to audio equipment, the tag 'professional' can sometimes mean a component that could be easily relocated into the home, but is just too expensive, large or heavy. There's no mystique about it - good 'professional' equipment simply sounds lucid and neutral.

In June 1998 we were impressed by the £300 Flying Cow DA/AD convertor by Midiman. So impressed, in fact, that we decided to give it's £109 offspring a listen.

The Flying Calf is a 20-bit digital-to-analogue convertor and differs from the Cow physically. Digital source input is via an S/PDIF socket; the unbalanced analogue outputs use L/R 1/4in. jacks. Many manufacturers will knock up a combination of phono to jack leads, so this won't prove a problem. It also comes supplied with a 9V DC power supply. At just over 1in. by 5in. by 3in. the Flying Calf is a bit smaller than its mummy and looks not unlike the NAD PP1 phono stage in build.

The front panel consists of a power switch and LED and another LED labelled 'Data Valid' which confirms that digital information is being received. The livery, however, could cause a few problems with the aesthetics of your home components unless they are emblazoned with farmyard Fuzzy Felts.

Technically, everything is concise and the unit is simple to set up. If necessary, the output level can be reduced by 6dB when two internal jumpers are moved to the left. What really makes the Flying Calf stand out as a professional product is the warranty. Midiman have enough confidence in their technology and build to guarantee it for life (the term of ownership under the original purchaser). At the price it's up against



little except the AMC DAC8 and the Cambridge DACmagic 2 MkII.

Using a Musical Fidelity X-Ray and the Pink Triangle Litaural CD players as transports I hooked up the Flying Calf with an Audio Analogue Puccini SE and a pair of Jamo Concert 8s.

Like its parent, the Flying Calf was in its element without any warming up. Playing a selection from Garbage and Kula Shaker to John Lee Hooker, I was very impressed. Remembering the price, I was gobsmacked.

The 'groove' of the bass and drums is the essential element upon which the rhythmic structure of these albums is based. The FC highlighted it straight away. The sound was muscular and powerful yet retained enough sophistication not to get carried away. With 'I Think I'm Paranoid' by Garbage the dynamic difference between the chorus and verses was deftly handled. The sound had real grip and control but without dynamic restrictions.

The Midiman coped easily with heavy music loads and took it all in its stride. A big, full sound was complemented by an ambient quality where the FC pinpointed the delayed reverb on John Lee Hooker's voice and guitar to great effect.

Classical music such as the

Brahms' violin concerto also sounded lucid and accomplished. Clarity was the keyword. Following the score would have been simple thanks to the way that the Midiman separated out the various sections of the orchestra. The slight lack of warmth in the sound was made up for with precision and transparency. The rhythmic sections of the Brahms had a biting intensity located in a deep sound stage with instruments positioned exactly as intended in the mix.

The Jazz sax of Gene Ammons on a JVC XRCD was as clear as a bell. Again the reverb was noticeable, the resulting decay natural. The accompanying congas patted away so clearly that you could almost see the dirt under the player's fingernails.

At £109 this little DAC is a revelation. It produces a detailed and neutral sound that is the trademark of affordable professional kit.

My only reservations would be that the treble can sometimes err on the hard side in complex passages and that the occasionally 'clinical' sound might prove wearing. That said, I found the Flying Calf amazing for the price. It takes hold of music that you have heard many times previously and revitalises it. Tasty!

Midiman Flying Calf
£108.99

Midiman,
Hubberts Bridge House,
Hubberts bridge,
Boston,
Lincs. PE20 3QU
Tel: 01205 290680

WORLD VERDICT



A great little DAC that can't be beaten at the price. Quite simply a bargain.

Measured Performance
see p111

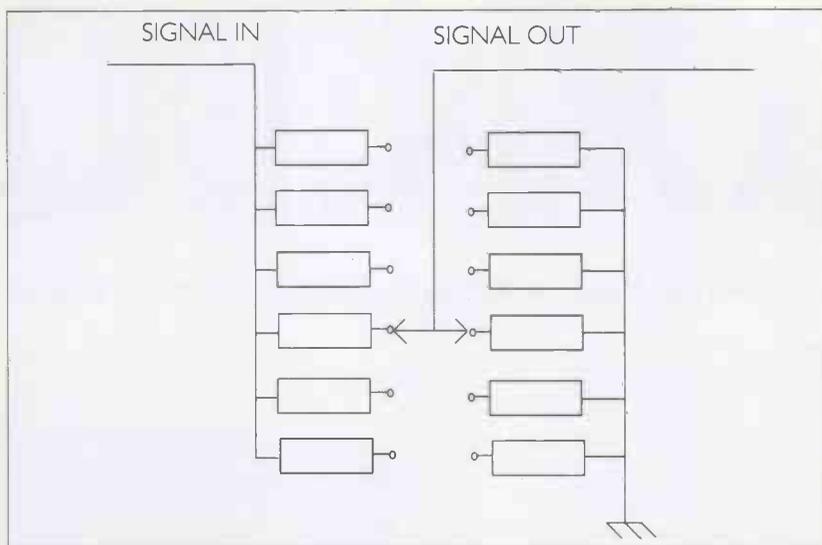
Letter of the Month

The writer of the 'Letter of the Month' wins a free subscription to Hi-Fi World as well as a Top Prize every other month

GOING POTTY

In response to the letter and your reply in the December issue about balance controls, I think there is a way to have the facility to adjust the balance when required and yet not its intrusion when unnecessary. It is, of course, impossible for its inclusion to have no affect, but the suggested arrangement should cause the minimum of damage to the signal.

The easiest solution is where the bottom of the volume attenuator is lifted from ground by a balance pot. When the balance control is not needed, the pot would still short the attenuator to ground via the inevitable wiper contact, but at



This is how an attenuator which switches pairs of resistors looks on paper.

least this would be at the earthy end away from the signal. Two pots, one for each channel, would be required. A better solution would be to use a two-ganged switched attenuator wired so that in its centre position both channels' attenuators are earthed and one or the other stays earthed as the balance pot is rotated.

An alternative to this would be, where the volume is already a switched attenuator, a second switched attenuator could be arranged to progressively connect the volume resistors to ground, increasing one by one further up the ladder from the earthy end.

Finally, on the subject of switched

attenuators, I have built several from 16 to 30 steps but the most recent is a four-gang 30 position where the two pairs of gangs are arranged so that only two resistors are in circuit at any one time. What do you think? I am not an electronics engineer (although I have been building audio for over 25 years and still enjoy studying it), so I leave you to judge the worth of these suggestions.

D. W. Richards
Bristol.

Thanks for your suggestions. As I see it both versions involve a

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variable resistance 'tail' on the earth end of the volume pot. This isn't a bad idea in its way although if I'd gone to the trouble of making a stepped attenuator for balance I think I'd go the whole hog and scrap balance altogether and have independent volume attenuators for each channel.

As far as balance goes, it does depend on what degree of attenuation you expect to need. Most commercial balance knobs give a fade to nothing on each side which your 'tail-trimmer' arrangement obviously can't do. On the other hand yours does at

least avoid having another pot bang in the direct signal path.

For those keen to try Mr Richards' idea out, a pot which has a resistance of 50% of the volume pot will give about 3.5dB lift to the channel when fully in circuit. Other handy value suggestions: 100% gives 6dB lift; 200% gives about +10dB.

I do not advise going any further than this because you can start to unbalance parameters like feedback and maximum desirable gain if you go too far. Additionally, just by leaving the tail pot in circuit at all, the channel cannot be silenced on the

volume control alone which may be inconvenient. RMW

I'm in the process of constructing an attenuator which sounds very similar to your four-gang, 30-step type. Putting together something like this takes an unbelievable amount of time though - if you have 30 steps and four gangs, that's a total of 116 resistors to be soldered in! However, all the effort will be worthwhile as this sort of device should sound extremely good. We hope to provide more details on parts and suppliers for the above in a future Supplement. JM

COLD TURKEY

I happen to live in the beautiful city of Istanbul with its population of 12 million people. Unfortunately the last second-hand hi-fi shop has been closed four years now and there are only two or three outlets for new equipment. Therefore I am hoping that you can respond to a call for help from an absolute audio desert.

My current system contains an Albarry AP4 pre, Albarry 1008 monoblocs, an Arcam Alpha 8 SE CD player and a pair of Rogers Studio 1 loudspeakers. I intend to replace the current interconnects and loudspeaker cables with brands such as van den Hul 102, Kimber PBJ, Kimber 4TC or DNM Reson as soon as possible. Sometime soon I am also planning to purchase either a pair of Triangle Kays, which are available on the local market, or a pair of used KEF 105/3s from England. I need your help on the following points:

- 1) What can I possibly do to modify the sound quality of the Albarry pre and powers?
- 2) How can I obtain the second pre-out send from the Albarry AP4?

3) What would your suggestions for a 1008-compatible second power amplifier be?

Demir Ugun
Turkey.

The easiest way to give a quick boost to sound quality is to replace cheap volume potentiometers with

Of the cables you mention, the van den Hul and DNM would probably give the best results. Position your monoblocs as close as possible to the loudspeakers for optimum sound quality.

The simplest method for bi-amping is to connect up the two power amps to the pre with a 'Y' interconnect rather than rooting around inside its case.

The second power amp is where you start to run into problems. For the set-up to function well, the amps should ideally be the same to prevent there being too much bass or treble if one amp has more gain than the other. If you are unable to pick up another pair of 1008s, a decent integrated would take the AP4's output into its CD input, thereby allowing you to match levels between integrated and monoblocs via the

former's volume control. In this arrangement, the monoblocs should drive the woofers and the integrated the tweeter or mid/bass units. JM

Hook up your pre and powers with a set of Siren 'Y' interconnects from The Chord Company.



The simplest way to bi-amp using a pre (like Albarry's AP4) which has only one pair of output sockets is to use a 'Y' interconnect and an integrated amp like the Puccini SE.

types like Panasonic's For Audio. Make sure you have a circuit diagram before you warm your soldering iron, though - some pots can also be connected to Loudness controls, etc, and just dropping in a new one without hooking it up properly can frazzle an amp.



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BACK INTO THE HABIT

Back in the Seventies and Eighties I was a keen hi-fi enthusiast, but due to unforeseen circumstances I had to suspend my hobby. Well, it's time to pick up where I let off now that I'm an OAP and have some time on my hands.

My almost vintage equipment consists of the following: Crimson Electric pre and power (built from kits), Thorens TD160 turntable, Mayware tone-arm and Audio Technica cartridge. The loudspeakers are Martin Colloms studio monitors (again from kits) and the CD player a Philips. I also have in my possession a Quad 22 pre/Quad II power amp, Nakamichi CR-7 tape deck and an Ortofon SPU GT cartridge.

My plan is to dispose of the above to finance upgrading. The trouble is, which bits should I keep and which should I sell?

Peter King
Norfolk.

There's a couple of ways you could go here. If you want a valve-based system, you could keep the Quad power amp and sell off the pre, assuming it's mono. You'd need another power and, say, a Croft Micro pre for full-scale thermionic amplification.

TWO INTO ONE

I am a postgraduate student studying away from home and pining for a quality system. My objective is two-fold; to build a CD-based hi-fi system adequate for my needs while I am away, and later, to use some of the components to upgrade my system back home.

Now the main system at home is an ageing but able trio of Meridian 206B CD player, Arcam Delta 290 amplifier and Cyrus 753 loudspeakers. These are connected by van den Hul The First interconnects and Linn LK400 loudspeaker cables.

The weakest link is arguably the amplifier and I am looking for a more muscular alternative. As for the CD player, I have some tentative clues but would appreciate your opinion.

With a budget of around £1200, I am considering two possible strategies; a combination of a mid-price CD player (around £400) and a super integrated amplifier (£500-700) or an alliance of a budget CD player (less than £300) and a pair of second-hand pre/power amplifiers

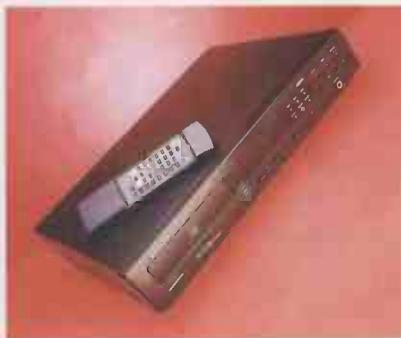
There's not a lot wrong with the TD160 turntable, which happens to be very amenable to modification. The Mayware could then be replaced with a modified Rega RB250. I'm



The sound quality Heybrook's Optimas are capable of belies their £270 price tag.

guessing that the cartridge is an AT-F5, a budget MC. If so, a better MM like DNM's Mica would sound

(£600-£900). I have targeted the Marantz CD-63 KI-Signature or Denon DCD-835 for the front-end. For amplifiers, I have short-listed integrations such as the Roksan Caspian and Arcam Alpha 10. Pre/powers



It may have been around for a while, but Marantz's CD-63 KI-Signature CD player is still a force to be reckoned with at £400.

currently under consideration are from Naim and Cyrus.

As for the loudspeakers, I would like to retain the Cyrus 753s for their command and drive. An interim solution is therefore preferable, something smaller

superior and spare the expense of an MC step-up transformer.

Finally, you could top the system off with a pair of Quad ELS 57s (bought second-hand and refurbished, possibly by Classique Sounds) and a Teac T-1 transport with Midiman's Flying Calf DAC.

If you prefer higher levels and a sound with more grunt, dispose of the Quads and hang on to the Crimson. Again, these can be modified with parts like Schottky rectifiers, Elna Cerafine or Silmic PSU caps, etc, or fitted with new circuit boards available from Virtual Reality Audio Systems (tel: 01277 227355). For more ideas, check out past Supplements.

Instead of Quad '57s, try a pair of Heybrook's Optimas, having first auditioned them alongside your existing 'speakers. Partner the above with the same front-ends as before.

Of the remaining components, keep the CR-7 as you're unlikely to find anything which outstrips it. Ortofon's SPU cartridges go down a storm in Japan, but there are very few modern arms which will work properly with them. JM

Once your system has settled down, plug in this free set of DNM loudspeaker cables.

such as Tannoy Mercury m2s, Acoustic Energy Aegis Ones or Mission 771s.

Mohd Ismail
Manchester.

The larger the price differential between components, the more you run the risk of assembling a lop-sided system. For this reason I would suggest you steer away from an inexpensive CD and pricey pre/power. The mix of CD-63 KI-Sig and a decent integrated is much more likely to hit the spot.

If you want to keep your Linn loudspeaker cable, Roksan's Caspian with its treble warmth would be a suitable match. If you can swap the LK400 for QED's Profile Silver 12 at £15/m, Audio Analogue's Puccini SE would probably be better. The last link in the chain would be Tannoy's Mercury m2 stand mounters. JM

Upgrade your system's plug-to-socket connections with a dose of DNM's Licon contact enhancer.

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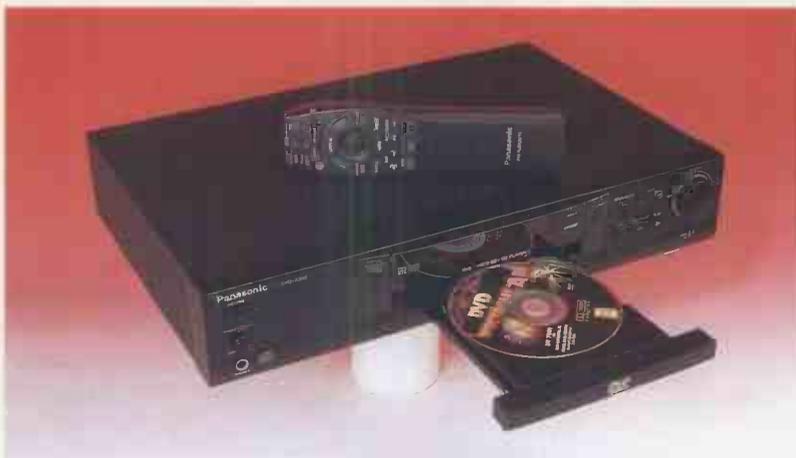
THE OPINION DIVIDE

Like one of your readers in the December issue, I too found the gulf between the findings on DVD players for CD replay made in your magazine and another disturbing. However, my concerns are for the readers of the other publication, not yours.

So inspired were we by Jon Marks's review that my friend and I both took the plunge and purchased a Panasonic 'A350 DVD player each. This was not a completely rash move on my part for I was looking to upgrade at the time.

We have both been overwhelmed by the performance of these machines -

midrange harshness gone (I can at last listen to Lisa Gerrard without cringing!),



The debate on the performance of DVD players like Panasonic's DVD-A350 when spinning CDs continues. . .

space in abundance, musical involvement, clarity - it is all there! The Panasonic knocked my previous £1200

CD player (made by a well-known UK manufacturer) into a cocked hat - there was just no comparison. We can only wonder at what went wrong in the other review. (For the record the rest of my system is an Oracle Delphi turntable, Helius Orion arm, Ortofon MC 15 cartridge, Audio Note pre-amp kit, Audio Note 300B power amp kit and Snell E loudspeakers).

Derek Cottrell
 E-mail address withheld by request

Discover the workings of digital with a free copy of John Linsley Hood's Audio Electronics.

SEEKING BALANCE

Since I'm unemployed (temporary hiccup only), I reluctantly put my hi-fi up for sale. Trouble was, no one wanted to buy it! However, a phone call and a swap later I am now the proud owner of a pair of Meridian M10 active 'speakers. Wow, they've brought back all those old hi-fi clichés - holographic imaging, silky smooth treble, tight, rhythmic bass that shakes the floor and wobbles yer belly. So what's the problem? The problem is that the loudspeakers are showing up every flaw in my other equipment. This comprises a Cambridge CD4, a QED DAC with a heavily-modified power supply, a Garrard Lab 80 turntable with the wooden tone-arm and a cheap Audio Technica cartridge, all squeezing their notes through a Creek CAS4040 modified and used as a pre-amp.

So how do I upgrade? Failing the swap-shop approach, what would you recommend in second-hand pre-amps and turntables? My taste in music covers everything from Opera to Folk and all things in between.



Technics' original SU-C1000 pre-amp brings the benefits of battery power in a very affordable package.

J. Gabanski
JGabanski@aol.com

As ever, what you end up with is going to depend on how much you can afford to spend. Assuming an overall budget of £500, try to track down Technics' SU-C1000 battery-powered pre-amp in its original guise. These sold for £350 a couple of years ago, so you should be able to find one for about half that price now. If you're lucky trawling through the classifieds, you could net an early Linn Sondek with an arm and cartridge for little more than £300. Failing that, the Axis is a decent deck in its own right, just less upgradable. Michell's Mycro and Roksan's Radius are two other options if you fancy something aesthetically different. JM

Take another step in the right direction with a pair of Siren interconnects from The Chord Company.

If you do not want your e-mail address published, please let us know.

KEEP OUT OF REACH. . .

My domestic arrangements (young children mainly) dictate the use of small bookshelf loudspeakers. However, having heard several models (and indeed bought and changed a couple), I am still dissatisfied with the lack of quantity and quality in the bass region. Am I asking the impossible to find real bass from small 'speakers?

Several dealers have suggested the use of various subwoofers. Another said I should turn to an active set-up. A third proposed I audition the Sonus Faber Concertos (which I plan to do soon). Can you help?

My system consists of a Linn LP12, Lingo, Ekos and Ortofon MC 25 FL. The CD player is a Naim CD3.5 with Flatcap. Amplification is a NAC 92/NAP 180 followed by Neat Petite 3 loudspeakers.

WEIGHTING

I've been a reader of your magazine for many years, during which time I've come to respect the opinions and judgement of your reviewers. I now find myself in need of advice and it seems logical to ask you what I should do next about my system (I don't want to change any of the major components).

The line-up is a Gyrodec QC, SME IV with silver Litz wiring, Ortofon MC 15 Super II, Arcam Alpha+ CD player, Audio Analogue Bellini pre-amp, two Audio Analogue Donizetti power amps and Harbeth HL-P3 'speakers wired with Reference Cable CS 2.13.

The sound is very clear, controlled and dynamic, with excellent sound staging from both sources. My problem lies with the lack of solidity (not extension) in the bass from my Gyrodec. CD has better presence (I realize the Alpha's bass is not entirely accurate) and I was wondering how I could go about addressing this given that it is possible to get a balanced sound from my components.

I know my cartridge is not in the same league as the rest of the turntable.

Antonio Pagliuca
Antonio.Pagliuca@cards.delarue.com



The best of small loudspeakers (like Tannoy's Mercury m2s) give an illusion of deep bass, but only a good subwoofer can endow them with genuine extension.

Squeezing deep bass from small boxes is the eternal quest, and a futile one at that. Some little 'speakers will give you the

Is this the area of weakness? Perhaps an outboard (and less hissy) phono stage would be the answer. If so, which should I listen to? Should I also consider moving up to a Michell Orbe? I know I



It's not an inexpensive MC, but Ortofon's Rohmann fully justifies its cost.

shouldn't compare the two formats with each other as each has its own merits, but I would appreciate your advice.

Gavin Sherlock
edsdx@snow.csv.warwick.ac.uk

impression of bass but most can't even manage that. The subwoofer approach is likely to be the most effective here. You could test-drive some actives like the Harbeth Xpression! DPM1s which wooed our ears in September 1998, but with their built-in amplification these tend to be a bit on the chunky side and rather heavy.

An active sub like REL's Storm II would fill in the lower registers nicely as long as it's sitting on something solid instead of in the middle of a bouncy suspended floor. Subs are tricky beasts, though, and the only way to find out if one will work correctly with your Neats is a home demo. JM

Sweeten the sound of your CD player with a free Statmat from Ringmat.

As you say, the MC 15 Super II isn't in the same price or performance brackets as the rest of your record deck. One of Ortofon's needles which impressed all who have heard it at World is the Rohmann with its Orto-Line stylus. This has miles more punch, solidity and weight than a lot of Moving Coils at around £1000 and would certainly outstrip the MC 15 Super II, as you'd expect bearing in mind the price difference.

Good though the phono stage on the Audio Analogue Bellini is, an external phono stage like Lehmann Audio's Black Box (£400) would offer a major improvement in overall sound quality, including hiss levels when handling the Rohmann's 250uV output.

Once you've had a listen to the components above, I doubt you'll feel the need to go for an Orbe to replace your Gyrodec JM

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WIRING PANELS

My sources are a Linn LP12/Lingo/Ittok II/Klyde, and a Micromega Classic Solo CD. The amplifiers are a Raphael Orthophonic Tube pre and Raphael Stereo 25 power amp (which uses four EL34s). The loudspeakers are Magnepan MG1.5QRs.

I am currently using Linn LK400 cable to hook up the Magnepans. I am not too happy with the reproduction, which is biased too strongly towards the treble. Which cable would you recommend for a more balanced reproduction?



Thomas Holin
thomas.holin@airbus.fr

The Magnepans can be very revealing of what precedes them in the replay chain. Not being familiar with your amplification makes the recommendation of a replacement a little more difficult, but at £15/m there's QED's very capable Profile Silver 12. Loudspeaker cables should also generally be kept as short as possible. JM

Pick up the low-down on electronics for hi-fi with John Linsley Hood and Audio Electronics.

If you want superior cabling without breaking the bank, QED's Profile Silver 12 is one to audition.

IN SEARCH OF RELAXATION

My hi-fi system has evolved sporadically ever since I purchased my first separates system. Less than a year ago I bought an Arcam Xeta 1 AV amplifier which I believe is based around an Arcam Alpha 9 power amp. I subsequently picked up an Alpha 9 power amp in order to run in bi-amp mode, which increased the width and precision of the sound stage dramatically. At this point I realised that my rather old Marantz CD-63 could be suitably replaced by the new Arcam Alpha 9. Again, I was compelled to purchase upon an in-store audition.

My 'speakers are TDL RTL Mk2s and my room is 16ft. by 12ft. with exposed floor boards (apart from a centrally-positioned rug). I have tried to make the best of this by placing the TDLs on stone slabs. I use Jack Lawson's Petors Blue Plus interconnects and AudioQuest Indigo 'speaker cable.

My problem is the new system can be over-bearing but I'm not sure exactly why. In some respects the results are impressive but it can also feel as though I am being aurally assaulted. I think I require a more relaxed sound. In fact the

problem may actually lie with the general focus since, even after bi-amping, it still sounds fuzzy and shut-in. This has become more obvious since upgrading the CD player.

I suspect that I should be thinking about upgrading my 'speakers and could throw up to £1000 at replacements (second-hand if necessary).

Phil Gray-Blest
Phil.Gray-Blest@boots.co.uk

player also has real finesse and transparency. Put these together with the Xeta, the Indigo (which is a rather dry, lean cable) and a highly reflective floor which will make for a brighter balance and you have the root causes of your problem.

There's a number of solutions open to you. A change of 'speaker cable to DNM solid-core, preferably in shortish runs, is one. Then you could lower the reflectivity of the floor with more rugs to reduce the amount of high frequencies bouncing around the room. The third would be the loudspeakers. To balance the up-front presentation of the Arcams arrange a home demo, if possible, of Opera's



For a balanced sound, Arcam's Alpha 9 CD player needs to be partnered with warmish ancillaries.

Arcam have altered the 'family' character of their components over the last five years or so. Most of their equipment used to sound quite warm and rich, with plenty of bass and a sweet, slightly rolled-off treble. Nowadays, the bass is firmer and beefier and the treble more forward and incisive. The Alpha 9P and CD are two prime examples, although the

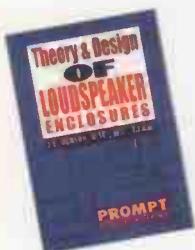
Platea floor standers (£795) or Callas Gold stand mounters (£1095). Should these smooth, relaxed transducers not cure your system's ills, a change of amplification might be the only remaining option. JM

Make sure your Alpha 9 is sitting comfortably in your system with some help from a Ringmat Statmat.

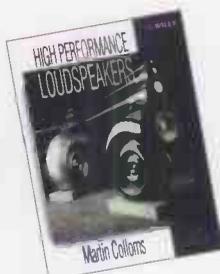
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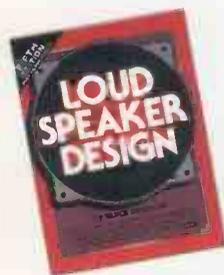
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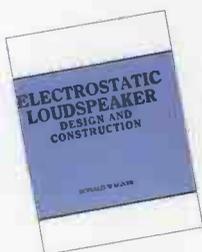
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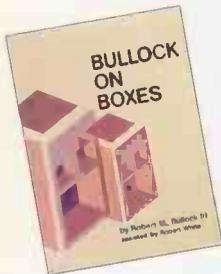
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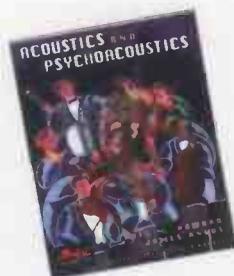
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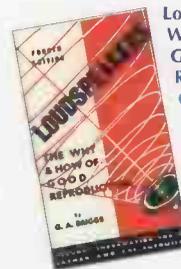
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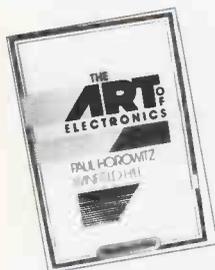


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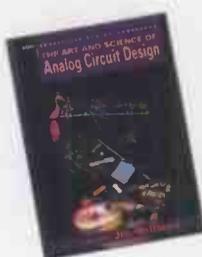


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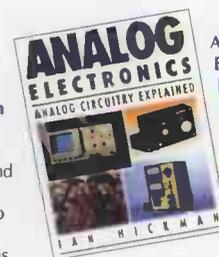
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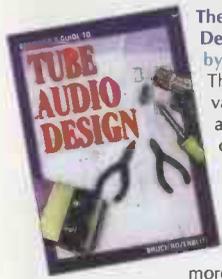
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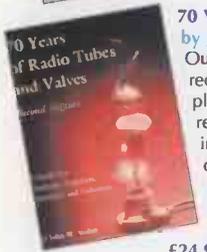
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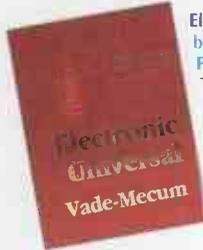
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A CARTRIDGE IN A PEAR TREE

Post-Christmas convalescent Richard White ploughs the furrow with Cartridge Man's Music Maker.

A cartridge from The Cartridge Man has a certain ring to it, rather like a bat from Batman or a school from 's cool, man. The Music Maker owes its existence to Leonard Gregory, the man behind the Cartridge Man mask, who pursues his quest for vinyl quality with basic models from Grado.

The Music Maker cartridge is of the moving-iron type, also known as variable reluctance. The general arrangement bears a superficial resemblance to moving magnets although there's a critical difference in the armature. Rather than having a midjet magnet stuck on the end of the cantilever as in an MM cartridge, moving iron devices have a stationary field and use a piece of iron to 'disturb' the magnetic flux, thus generating a signal in the coils. This arrangement allows lower mass in the cantilever and greater compliance to be achieved. In addition, with the Music Maker considerable attention has been given to the damping arrangements with the result that the unit's main resonances are all sub-15Hz.

To partner the Music Maker I turned first to the Hadcock 228 SE arm, which we reviewed in December's issue; the mass is about right and naturally a unipivot has minimal bearing friction. After a satisfactory prelim, I reached for a number of other arms which were to hand (boom! boom!) and, as I'd hoped, found that the critical factor was sound quality not mass. Although the Gregory continued to track quite happily, its output on cheaper arms was noticeably rougher round the edges.

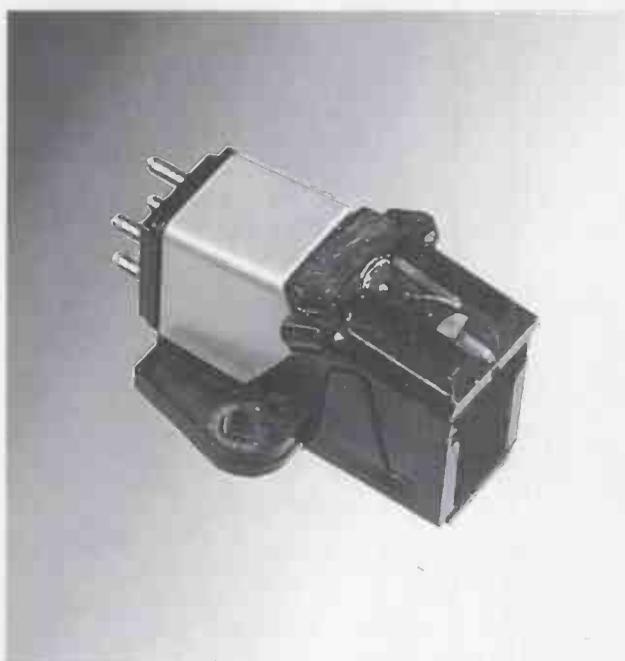
After a few evenings' worth of the fiddling that comes with an addiction to black plastic discs, if

there was one thing that marked the Music Maker out, it was that it has genuinely glued-to-the-groove tracking abilities. In the course of assembling a collection of gramophone records there are always going to be a few which simply will not track. According to the Music Maker, these are so few as to be almost negligible.

For instance, a would-be treasure of mine, a double-LP of Bach's violin and harpsichord sonatas, has been unplayable since the day I found it - a suicide attack on a cats' home combined with emery polishing a dustbin would sound musical by contrast. I'm happy to report this cartridge didn't agree. Given the horrifying noises which had originally assigned the disc to the land of Never Again, the Gregory somehow managed to dig out the musical remains in an eminently listenable way. Granted there was the occasional "Whoops! that was close!" but the performance was sterling given the (very) raw material.

Although it might seem unlikely, I needed to be sure that the musicality and smoothness emerging from LPs were not aural artifacts produced by a subtle form of mistracking. With this in mind Zukerman's Elgar Violin Concerto hit the platter. The extreme harmonics of the treble were brought out with a crispness which came as a shock next to the harshness of many other cartridges. In addition, sudden orchestral sforzandi were tracked surefootedly, smooth but never dynamically squashed.

Record after record succumbed to the treatment of the aptly-named Music Maker. Whether it was the filigree of transients found in Baroque harpsichords or the flam of



the drums on latter-day Be-Bop, this cartridge was content to take everything in its stride. It was easy to subconsciously compare the unit's performance favourably with cartridges (MCs at that) selling for at least double the Music Maker's modest £575

Part of the secret must surely be the unusually high compliance which is maintained evenly through the 'cone' that defines the cantilever's range of movement. Many MCs do not manage anything like the Music Maker's 30cu figure, nor do they give anything like its healthy 4mV at 5cms/sec - no expensive transformers or head-amps needed here!

Whatever the technical reasons, subjectively Len Gregory's upgraded Grado will have a lot of MCs quaking in their generators. It has a speed, power and sheer listenability that few competitors combine in the same small body, and that sounds like a bargain at any price.●

The Cartridge Man
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WORLD VERDICT



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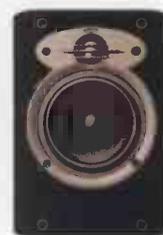
As the saying goes, size isn't everything. It's how you use it that counts.

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CELESTION



Noel Keywood

The sick-list got longer in the telling. First I heard that Mordaunt-Short loudspeakers had ceased to exist as a brand, then Rogers. In quick succession they were followed by a string of names. Suddenly, I had five manufacturers in front of me, all allegedly kaput.

Much of it proved to be scurrilous rumour, possibly from a company eager to divert attention from its own woes. Whatever, long ago I reached the conclusion that British loudspeakers were actually a fast stagnating breed. I did not believe that, suddenly, a new ice age had claimed five victims, but it did remind me of a conversation I had with a very experienced engineer recently who said more or less the same thing.

From our own experiences I know that if you invent a better mousetrap the world will beat a path to your door. Recession? Not with a MkII mousetrap. Recession, if you like, culls the weak, not the strong.

The key to commercial survival through a tough spell lies in the attractiveness of your product. "Attractiveness" in this case is the broad definition of the word - it does not mean giving the same old mousetrap a quick lick of paint and some die-faster stripes. It means truly innovating to produce something conspicuously better.

It has been too long since anything really new or exciting hit the British loudspeaker market. Some are so lacklustre it has become sad to watch their launch on to the market. How many reflex-loaded, two-way loudspeakers can a market take?

The Japanese won. Their excellence at developmental research and production engineering, together with their dedication to marketing in accordance with the standard American text, has shaped the market we see today. One of its features is design uniformity. The most effective design

system (that is, process plus product) is used to yield a stable and reliable product at a competitive price. The outcome is market dominance by low-priced, mediocre product so undistinguished it can only be given an identity through marketing hype.

We use the same standard design system at Hi-Fi World and it works well. But its short-term benefits are balanced by long-term drawbacks. You can see the benefits this month in our new kit loudspeaker KLS11. Before describing this design system let me explain that, although it has great merit, it also has a corrosive influence upon the sort of innovation that small British companies need.

Some time ago, in the late Seventies when loudspeaker research attracted a lot of attention, the knotty problem of matching a bass unit to a box was solved. The electrical and mechanical parameters of a loudspeaker drive unit, such as cone mass and surround compliance, were combined with the influence of a box to generate an analytical model able to predict a wide range of performance parameters, especially

Thiele-Small parameters he derived by measurement. We know from experience that this system is reliable in its predictions, providing you input accurate data.

The reflex loudspeaker is by no means perfect, nor is it fully understood. The port radiates out-of-phase with the cone and the two "combine in complex fashion", as the expression goes, so that results are room dependent and therefore, in base theory, unpredictable. Ergo, reflex loudspeaker design offers a predictable design solution but an unpredictable result in real life.

Now, all of a sudden, the reflex doesn't sound so good. If it really was disastrous then we would know of course. In practice, reflex loudspeakers more or less deliver the bass performance promised by the computer. All the same, I and others who have heard different loading systems suspect the bass reflex has subjective limitations.

As the reflex becomes all-pervasive, dissent diminishes, because progressively fewer people know what any other system sounds like! And worse still, all other systems need bigger cabinets, so making

"Nowadays, if you want to design something other than a bass-reflex loudspeaker, it is difficult."

frequency response. Importantly, the system could be computerised and used to manipulate and predict the influence of a port. Analysis also clearly showed a ported loudspeaker could produce deeper bass from a smaller cabinet than an unported one. Now nearly every 'speaker has a port.

That change encouraged drive unit manufacturers to tailor their bass and mid/bass drivers to suit a ported cabinet more than an unported one. And here is the first example of how a slick, modern computer design system can have drawbacks. The speed, simplicity and reliability of the design process has reduced design options. Nowadays, if you want to design something other than a bass-reflex loudspeaker, it is difficult. Drive units are optimised for reflex loading, not for infinite baffle or transmission-line loading.

Just look at KLS11. We were surprised to see how little volume the Audax PR240ZO bass unit needed to get down to 40Hz. Gary Hollands said his LEAP computer programme (an industry standard) predicted just 40 litres would do. It took me just minutes to verify this, using a set of driver

them more intrusive in the home. My suspicion is that low-frequency phase might be only part of the problem. Room impedance matching is likely more important. Reflex ports radiate a lot of deep bass energy from a very small diameter port. If the port is re-proportioned to have a bigger mouth to better match and drive the room air-load, then it tends to a horn-like profile. The cabinet gets bigger and more expensive and the design time shoots up, but you get firmer bass. Castle's excellent Howard is an example that impresses me. But it is a serious prospect for most homes.

I think you can see from all this that a slick, modern, computer-based design system develops its own inertia and logic. It is the success of this system that is its failure. The audio industry has become locked into a single design solution for loudspeakers. This is bad news for small specialist manufacturers who need to ensure they have something conspicuously better to offer than the norm. If British manufacturers do not re-examine what they are doing in this respect I fear more will be joining the sick-list soon.

Gadgets good enough to save the cost of a new CD player? Yes. If you cringe at an edgy treble or yearn for more realism, read on.

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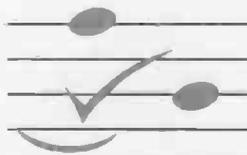
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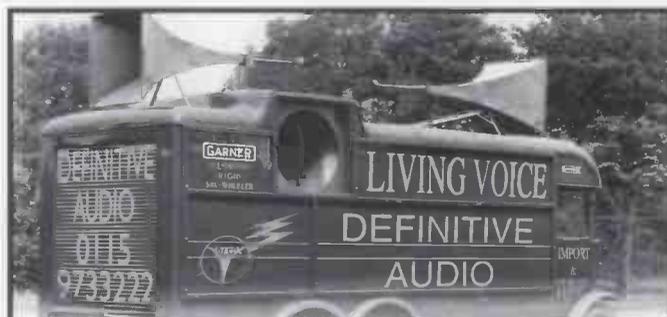
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MINIDISCUSSION

How does Kenwood's DM-5090 MiniDisc recorder fit into the happy home?
Simon Pope plays host.



It would appear that MiniDisc, as yet, hasn't quite taken over from cassette in the way that Sony (the format's creators) thought it would when it was originally unleashed on the public. That hasn't stopped them or other Japanese manufacturers like Kenwood filling out their MD model ranges - the latter currently has three domestic recorders, the DM-5090 at £330 occupying the central slot. Fronted by a fascia almost identical to that on the discontinued DM-7090 (reviewed in April '97), the '5090 possesses the same jog dial and large, centrally-located LED display. Also present is a fully-programmable remote control for couch potato editing. Digital inputs come in the form of both optical and co-axial. The update which marks this machine out from its predecessor is the move to ATRAC 4.5 compression, which is used in conjunction with Kenwood's tried and tested 20-bit Rec DRIVE (Dynamic Resolution Intensive Vector Enhancement).

Copies of both Erasure and the Fugees were musically involving and far superior to pre-recorded cassette as regards hiss and noise. 'Fugee-La' was clean, sparse and spooky, the vocals forward of the hypnotic, hard-hitting bassline.

For the majority of users MiniDisc

is, of course, a recording medium. Starting with a digital source, I connected the Kenwood up to a Roksan Caspian CD player via a co-axial lead and fed a little of Tchaikovsky's Fourth symphony through the system. I wanted to see if the music still communicated once it had made it onto MiniDisc.

Truth to tell, the copy was very close to the source apart from a few minor losses. The sound stage was slightly squashed front to back, violins were a little veiled in the lower registers and climaxes were a smidgen less dynamic. Vitality, none of the spirit of the playing was lost in the transfer, allowing the performance to retain its bite and passion.

I laid down sections of the first movement on TDK, Maxell and Sony ES MDs. The Sony was obviously superior in terms of clarity, tonal colour and dynamics, which is perhaps hardly surprising seeing as it's twice as expensive as the others.

With a compilation of assorted Rock and Dance I had the opportunity to try out the DM-5090's editing facilities. Track re-ordering and deletion were easy to execute and the remote isn't too complicated, so head-scratching should be minimal.

One drawback when making

compilations is the lack of a digital recording level. Most modern CDs are recorded at similarly high levels and will compile without too great a difference in volume between tracks. Older recordings can have you reaching for the volume control every five minutes or so if you're unlucky.

As most of us now know, digital isn't the be-all and end-all in audio - compare any standard MD or CD with a cassette taken directly from an original master and you'd be gobsmacked at how much better tape sounds. So I treated the Kenwood to some good, old-fashioned vinyl to test its analogue-to-digital converters. The results were surprisingly good. Not one iota of life was lost from either Talvin Singh's OK or Mozart's Oboe Concerto. While neither had lost its innate vinyl vibrancy, a little of the bass control and speed on the Talvin Singh album went by the board. On the other hand, the Mozart actually sounded better in some respects as the Kenwood's bass lift added weight and solidity to its presentation.

The DM-5090 is another worthy name in the MD pantheon. Impressive recording (both analogue and digital) and playback mean that anyone wishing to convert to digital would be advised to give it a whirl.

Kenwood DM-5090
£329.95

Kenwood
Dwight Road,
Watford,
Herts. WD1 8EB
Tel: 01923 816444

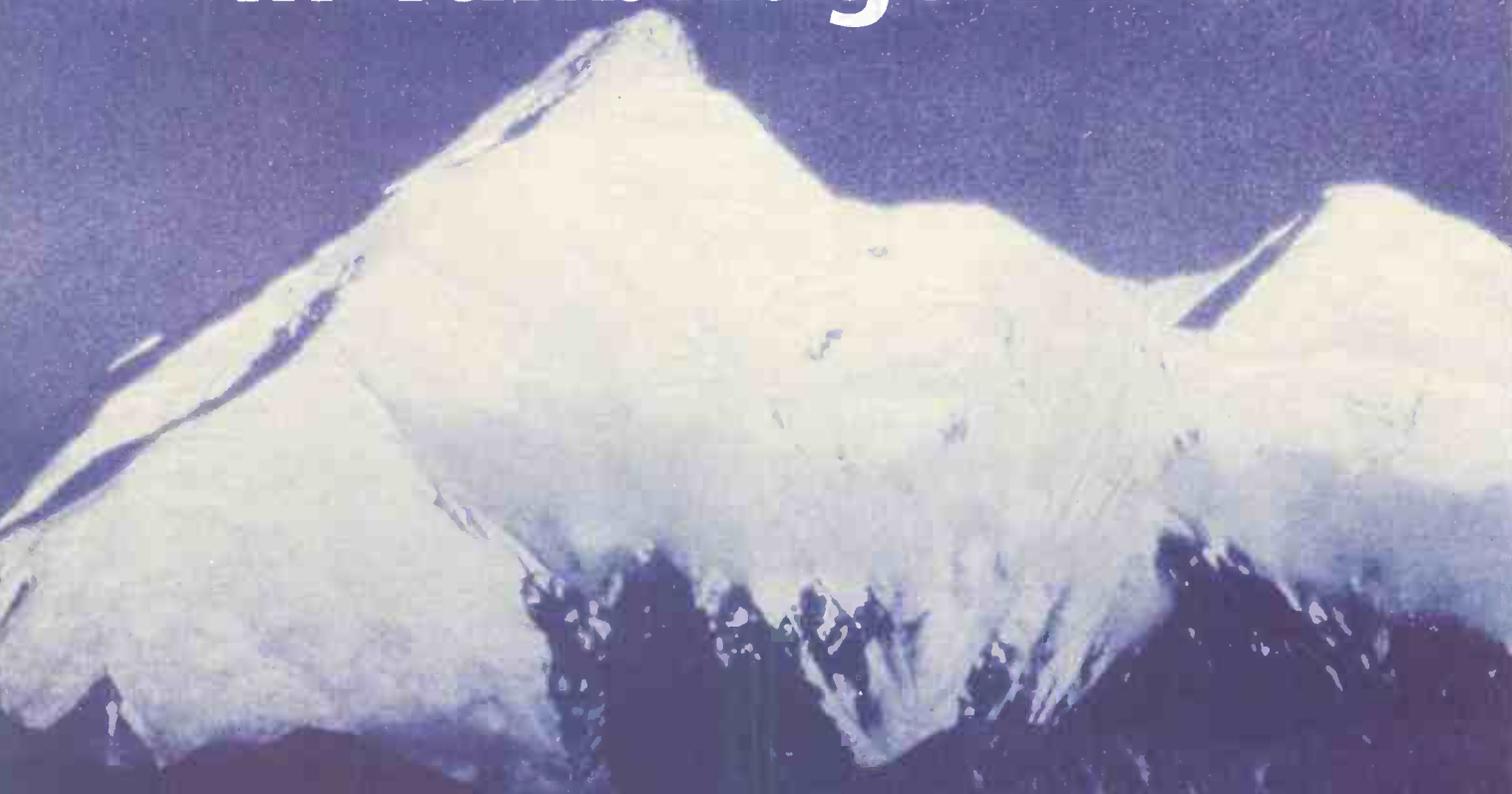
WORLD VERDICT



Analogue recordings are especially good. The lack of a digital record level is a small setback.

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FOR OUR EARS ONLY

Sony have pulled out the stops on their latest 'UK tuned' integrated, the TA-FB920. Dominic Todd checks the changes.



Some might find it easy to dismiss Sony's latest amp - for all the world it looks much like many another Far Eastern component, complete with the obligatory flap which covers a multitude of buttons on the fascia. But there's more to this particular Sony than just gizmos. Sure enough there's remote control, 'speaker switching and a useful 65watt output, but it has also benefited from a fair degree of tweaking under the hood.

As part of the UK-based Brooklands series, components have been updated to suit British tastes for superior timing and control. The toroidal transformer features a more oval cross section, apparently in order to improve the bass timing. It's also directly wired in and coated with glass fibre. In addition, the internal 'speaker cable connections have been beefed up and star earthing has been extensively used. Even the number and position of the chassis screws has been changed!

In short, it would appear that Sony have performed a thorough Marantz KI-Signature-style job. However, all this has been achieved for £100 less than the equivalent PM-66 KI-Signature integrated - an impressive feat, if sound quality lived

up to expectations. With the '920 connected up to my usual system, I was about to discover whether it did.

First impressions of the Sony with Pras Michel's Ghetto Superstar pulsing through its veins reminded me of the Kenwood KA-7090. There was a sense of immediacy and power that only higher-powered transistor amps seem capable of. What's more, the '920 had no problem with the 82dB efficiency of my Celestion SL600s.

Unlike the KA-7090, the Sony was more than just a bruiser - basslines were tight and rhythmic in a way foreign to many of this company's previous efforts. Ultimately others may go that bit lower, but Sony have struck a fine balance here. On the other hand, while vocals were presented well ahead of the 'speakers, they could become a little too forward at times. Female singers also suffered from sounding slightly 'processed' and 'grey'. However, articulation and definition were both a cut above the average with good separation from the backing mix.

Claire Martin's 'Come Back To Me' provided a useful change of fare with its bold, spacious presence and fine piano timbre. Once again, the excellent timing captured the anticipation in the song to a tee. After

this, the slight lack of control in the highest frequencies (where the sound had a tendency to become rather tiring because of what sounded like a lift in the upper-midrange) came as a disappointment.

'Entry March Of The Boyars' by Halvorsen introduced a more Classical tone. A dense, heavily-layered recording, it highlighted the Sony's strengths and weaknesses. Instrumental separation was fine, in spite of the fact that the more complex passages seemed to lack some cohesion. Both drum rolls and the brass section would have benefited from a little more impact too. Having said that, the '920 built up the volume and tension in the piece to fine affect.

The Sony TA-FB920 is one of those amps that rarely puts a foot wrong. The features, construction and pricing are all hard to fault. In terms of sound, you can hear that Sony have tried hard with the '920 - there are occasional flashes of brilliance (like the superb timing and rhythmic basslines) but the forward balance and grey tonality count against these. Slotted into a warm set-up, the TA-FB920 still has a lot to offer, but don't discount competitors from Marantz and Creek.

Sony TA-FB920R £300

Sony
The Heights,
Brooklands,
Weybridge,
Surrey KT13 0XW
Tel: 01932 816000

WORLD VERDICT



Partnered correctly to counterbalance its forwardness, the Sony offers a fast, rhythmic presentation.

Measured Performance see p111

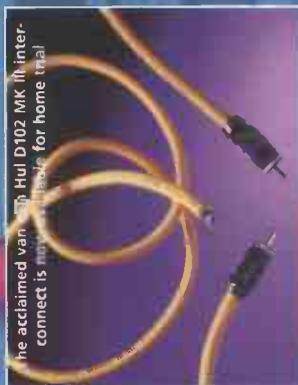


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David Price

Nobody involved with hi-fi professionally, be they hacks, sales people or manufacturers, can help becoming just a wee bit cynical from time to time. In truth, so much of what's on the market, so many 'new products' and 'amazing breakthroughs', amounts to nothing; nought, zilch, a big fat zero.

Frankly, not all system buyers are as discriminating as you or me. The problem is that some people have about as much taste as a chocolate brown Austin Allegro or a pair of purple tartan golf slacks. They're clueless when it comes to deciding what they want and why, and thus invariably end up with a lemon. This explains why so much audio equipment sold is a complete waste of space, and why a frighteningly high percentage isn't even hi-fi at all, let alone the real variety.

So it's always a tonic for the troops when big manufacturers come out with bold, daring statement products, such as Linn's new Sondek CD12 CD player. Of course, at umpteen thousand quid, buyers won't exactly be beating a path to dealers' doors. Statement products rarely do great things for the short-term corporate bottom line, but they do get people's interest and subsequently their custom - for the company's cheaper, 'real-world' products.

What state-of-the-art, cost-no-object designs do is fire the imagination, stir the soul and burn the brand deep into buyers' psyches. But the problem for hi-fi until recently was that there weren't any. In the sober, sensible, focus-grouped Nineties, many companies distanced themselves from

outrageous expressions of wealth and opulence, and hi-fi has been all the worse for it.

'Twas not always the way though. Like many first-time Linn buyers in the early Eighties, most of my Basik LVV arm's glory came reflected off its rather pricier Ittok LVII brother. Likewise my miniature Naim Nait and the massive 32.5/135 six-pack. My cheapo Pioneer CT-200 cassette deck benefited more than a little from the existence of its steroidally-enhanced CT-F1250 sibling. And my pint-sized Wharfedale Diamonds looked all the more attractive in the company of their monster E90 Pro brethren.

By the late Eighties, Sony's £5000 CDP-R1/DAS-R1 silver-disc spinner was doing more for sales of their £200 machines than you'd credit. In truth, Philips' rival budget designs were

Nautilus loudspeakers and Linn's new Sondek CD12, to the forthcoming TAG McLaren F1 range and possible new Leak valve gear, we're finally getting products to dream about again.

Ditto Japan. Last year I spent some months over there, during which time I took the opportunity to hear countless Nipponese statement products from various decades. From the late Seventies TTS-8000 turntable to the very latest CDP-R10/DAS-R10 CD player, engineering big guns like Sony have created some true, cutting-edge stuff. Likewise Nakamichi, Victor, Pioneer, Diatone, Sansui, Denon, Technics and many more. Shame so little of it ever reached us.

But the most stunning, arresting and awesome device ever to wear the name 'hi-fi' is, in my humble opinion,

*"By the middle of
this decade hi-fi was in the doldrums,
with little truly tasty kit for audiophiles
to salivate over."*

streets ahead, but their range topper had workaday black box styling and a £450 price tag - hardly classy. Even as late as last year, while reviewing Cambridge's bargain-basement CD4SE, I couldn't stop myself remembering the moment I first clocked the seminal CD1. In truth, only the name was the same, but still the memories flooded back.

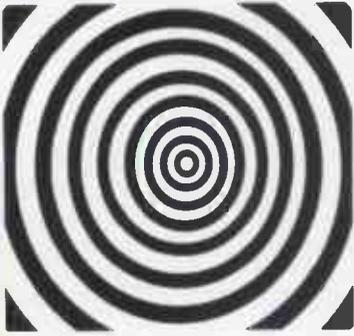
Sadly, though, by the recession-hit early Nineties, many manufacturers were getting out of high-end altogether. The big Japanese companies pulled the plug on exporting their esoterica, while British brands went ever more down-market. As we floundered in a sea of cheap, black boxes, aspirational audio seemed as gone as it was forgotten.

Fortunately the tide is turning, and a number of key British manufacturers are at last releasing super-fi statements. From B&W's outrageous

the Esoteric P-0. Without doubt it's the ultimate CD transport thus far designed, boasting a quality of engineering and build that simply takes your breath away. Hand-made by a select band of engineers, it puts Teac (whose high-end brand name is Esoteric) right up there as the best. In the same way I revere the super-decks of my formative hi-fi years - like Trio's L-07D - so today's budding audiophiles will consider the P-0. It's an absolute, classic, masterpiece - good enough to drive even a hardened vinyl junkie like me nuts about digital.

Will Teac ever export it? Let's hope so. This is my personal plea. Come on guys, it's just what we need to remind us all what we're about! And by way of a PS - can I have one on indefinite loan (purely for review purposes, you understand)?

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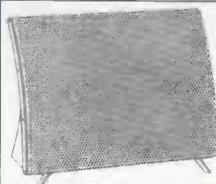
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CHARIOS OF FIRE

Tim Liu finds out whether Chario's Hiper 1000 can go the distance.

When it comes to design with imaginative flare, you can never rule the Italians out. Names such as Sonus Faber, Audio Analogue and now Chario have cast that irresistible Italian hi-fi spell over Britons. No new kid on the block, Chario have actually been producing loudspeakers like the £300 Hiper 1000s for the past 20 years.

Given the price tags swinging from their enclosures, the Hipers' build was refreshing. Ours were finished in a classy light Walnut veneer fronted by black grilles that have the profile of a rocket with its nose-cone sliced off.

Standing 35cms high, 18cms wide and 28.5cms deep, these appeared to be your basic European two-way stand mounter - or were they? Closer inspection revealed four large, pointy rubber feet on the bottom vital to the working of the downward-firing port. This unusual positioning was apparently chosen to ensure correct bass loading of the cabinet.

The enclosures themselves rely on 25mm MDF for the front baffle and 18mm everywhere else. The driver line-up consists of a 130mm doped-paper cone and a 27mm textile-dome tweeter joined by a PCB-mounted bi-wireable crossover with beefy air-core inductors. A large slab of acoustic foam on one wall is the only other cabinet occupant along with the plastic port.

To test their mettle I slipped the Charios into a system headed by a Wadia 6 CD player and a Yamaha CT-7000 tuner. Another Italian import, the Audio Analogue Puccini SE amplifier, provided the electrical horse power.

First test for the 1000s was a live broadcast on Radio 4. With their uncanny realism and freedom from

chesty or nasal colorations on spoken word the Charios proved they weren't a million miles away from the renowned BBC LS3/5a monitors. The illusion of walking in on the programme and pulling up a chair to listen in was made more plausible by the ability of these boxes to portray clearly the acoustics of a radio studio.

Relaying the shipping forecast isn't the sole ace up the sleeve of these Italians. When it came to playing music the '1000s duly obliged. Jazz guitar, courtesy of Grant Green on the track 'Grand Stand', helped raise room temperature. The patter of brushes on snare drum and cymbals, the cheesy pumping notes of a Hammond organ, Green's nifty chord changes - all helped keep the music on the boil.

Whatever the music, continued listening through the Charios was an enjoyable experience. Performers and instruments were fixed pin-sharp in a sound stage with depth as well as breadth (both strengths typical of a good stand mounter).

The way that the Hiper 1000s could turn on a sixpence as far as changes in tempo and dynamic swing were concerned really came to light on Vivaldi's Four Seasons. In tandem with Viktorla Mullova and The Chamber Orchestra of Europe

(conducted by Claudio Abbado) they made certain the opening movement was never less than invigorating.

Sweet, open treble gave the violins an appealing airy smoothness, while cello and double-bass had a substance attributable to bass that was unusually extended and solid for the Charios' size.

If you've always loved the sound of the famed LS3/5as, then you'll discover the Hiper 1000s offer something similar with added bass depth. The combination of clever design, impressive sound quality and Italian craftsmanship will have a lot of other £300 loudspeakers looking worried.



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VINTAGE VIRTUES

by Haden Boardman

I had a bit of a shock the other day; a friend of mine brought in a Sony CDP 101-CD player. I was well aware that this was Sony's first commercial CD product, but the realisation that it was now knocking on for some 15 years old was what took me aback. Where have those intervening years gone? It seems like only yesterday that these infernal digital contraptions were on the television news; the discs were smeared in honey and jam, washed off with a cup of coffee and then stuffed straight into some poor, unsuspecting machine for it to play perfectly to an audience still fresh from vinyl's dominance.

Not to put too fine a point on it, some of the first-generation machines were, well, a bit ropy. All the Japanese manufacturers had their own models at the time of CD's launch, March 1983, and boy, some of them will never be missed! One prime example, the Sharp, had a sort of radio tuning indicator cord to position the laser and (common to several other machines of this generation) a daft 'slot' loading mechanism, a bit like a cassette deck's, which did not allow you to pick up the disc by its edge.

Of course, the great style classic was the clean and simple

Philips CD100. This little top loader had minimal features and facilities (going back a track or two is a nightmare, as is accessing anything past track 15), great build, and pretty decent sound.

This was the first generation and, as far as some magazines were concerned, all CD players sounded alike. Well, we all know that is far from true; personally, I am constantly amazed at just how much progress has been made with a 16-bit word, sampled at 44,100Hz, and thought it might be interesting to assess a golden oldie player and compare it to a rather more contemporary machine.

The '101 was the audiophile's choice back in 1983 in the days before the first wave of 'British-tweaked' machinery. As such, it was probably the best sounding of all the machines at CD's birth. So, which contemporary machine to compare it to?

Step forward the gorgeous Sony CDP-X3000ES. Amplification was provided by my own 10watt, class A push-pull valve amp, with KEF LS3/5a Signatures tagged on the end. Both the machines were left on and running for 70 hours before listening commenced, and just to add a bit of old-fashioned fun, a panel of

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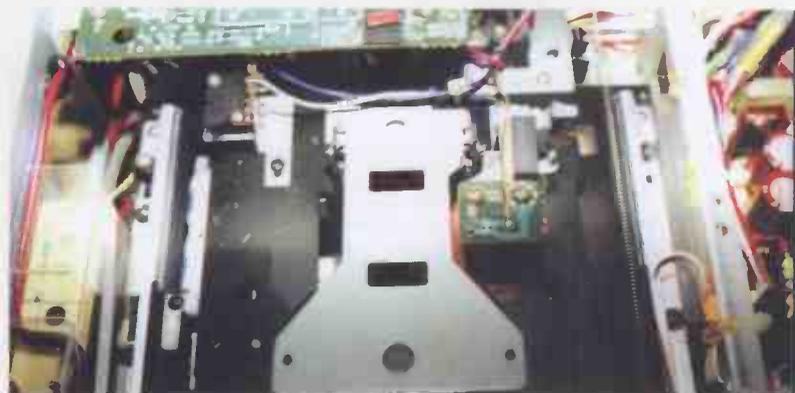
'experts' was subjected to a blind listening test!

Before we got to this, I had my screwdrivers out and had a good peak inside both of the machines. The old Sony is quite a mess internally - it must have been a pain for the factory to screw together. But look at that complex cast mechanism, an expensive work of art. Even the fancy transport on the '3000, where the laser is fixed and the disc is moved over the top of it, looks a bit low-rent in comparison. The older machine has its strengths on the inside, the new machine on the outside.

Control-wise, there is no comparison. The older machine doesn't even read the CD's TOC (Table Of Contents) until set to play. Its style is also like virtually every other CD player made since; neat, black, functional - a complete contrast to the gold anodised '3000.

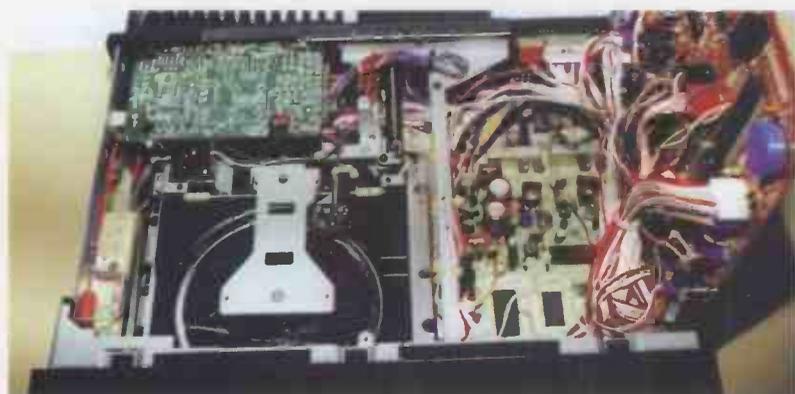


Many better-built older players (like the Pioneer PD-91) had chunky transformers on their back panels.



No cheap plastic in the Sony's mechanism - it's metal all the way through.

On audition, it was not hard to guess which was which. In isolation, the older machine offered a solid, stable sound. Detail



As you can see above, one of the difficulties with working on aged players is their rat's nest wiring.

was fine, stereo imaging clean and precise. It is still a confident performer by any standards, and we enjoyed the music it played; the '101 can hold its head up high as cheap modern budget machines don't get close to it. But changing to the new £500 machine, the same price point the '101 was released at 15 years ago, was a bit of a surprise. Talk about a generation gap! Where the old machine was smooth and laid back, the new machine was brassy and forward.

The real difference was the amount of detail dug out by the newer Sony. To be quite honest, it left its older stablemate standing. Different discs sounded, well, different! On the '101, it was as if the player was deliberately holding something back, as if it felt we only needed a certain amount of information. This

manifested itself as a noticeable footprint on the sound. The '3000 did not suffer this problem. In truth, it was a lot more honest and open than its elder.

But for those of us with a sense of history, and for those of us who do not have £500 to blow on a new CD player, the CDP-101 offers a robust, if slightly polite sound. Even after all this time, the basic mechanism works perfectly well; not enough of them make their way into service depots to warn of impending doom. But be warned, I would doubt that any quantity of parts is left for these early machines, so don't pay too high a price for this little piece of history. I paid £40 for my example, complete with the remote control, and the highest price I have seen one advertised at is about £120.

I have not come across too many for sale in our own classifieds section; most up-to-date audiophiles will have been through three or four generations of machines since the CDP-101 went on sale. But using the World Wide Web, a quick search of the free-ads paper Loot revealed two other '101s for sale, both working and both for under £50.

Well, for that kind of money the venerable Sony is a bit of a bargain. The future is likely to look on this and other first-generation machines as collectibles. They are now getting rare, having long since passed out of audiophile hands. Prices are almost certain to rise, and these players only need to make it into a glossy style book to become trendy. Buy now before the design-conscious begin to realise just what a classic it is ●



It's easy to gauge the CDP-101's vintage from the component density and complexity on the PCBs.

Time Waits For Saga of the Audio Note

While we all wait for the brave new world of DVD, with its many proposed (imagined??!) benefits to sound quality, Audio Note is introducing a highly innovative and unusual addition to existing digital converter technology.

The question is, will the one times oversampled D to A converter with no digital filter make a further contribution to 96kHz/24Bit technology or extend the life of the existing 16Bit system??

A brief technical discussion follows below.

Digital Audio recording consists of measuring (sampling) the amplitude of the audio waveform at regular intervals and storing the measurement results in the form of binary data.

A digital to analogue converter generates an output which bears a direct relation to the digital data it is presented with, and hopefully if all goes well we retrieve the original analogue signal.

The sampling rate is the rate at which measurements are made and the resolution is the accuracy of these measurements. The greater the sampling rate, and the greater the resolution (number of "Bits") the closer we theoretically get to the original, and infinite amounts of each would result in a perfect recording, this has been the limiting factor so far, because more resolution and higher sampling rate means more information which in turn requires greater storage space and thus greater cost.

The engineers who originally specified CD decided upon 44.1kHz sampling rate and 16 Bits (65536 discrete levels) of resolution were aiming at good recording time on the disc combined with acceptable cost within the technology available at the time (1982/83). This just about gets us to the generally accepted 20kHz upper hearing limit and gives acceptable dynamic range and distortion, but only just.

Due to the limited sampling rate of 44.1kHz the actual bandwidth of the system is limited to a theoretical maximum of 22.05kHz (half the sampling rate). If a digitally recorded signal is played back above the high frequency limit there is a lot of signal related noise which is generally considered to be undesirable. In fact, if you observe a 16Bit 44.1kHz encoded signal which has been directly converted by a D to A converter without filtering it looks a real mess. The current wisdom is to use a digital filter which interpolates the 16Bit/44.1kHz signal to a higher sampling rate and to a seemingly higher resolution. Commonly the interpolation is 8 times oversampling (to 352.8 kHz) and to 18 or 20 Bits of resolution, no information is added, the filter mathematically joins the "dots". Then after the interpolated signal has been converted to analogue an analogue filter is used to put the final polish on the signal.

As the theoretical maximum frequency limit is 22.05kHz and the required bandwidth is 20kHz the digital filter has to cut off very very quickly. In fact the popularity of the digital filter today is entirely due to the impossibility of designing an analogue filter which can roll off so fast, and without phase distortion and time related problems. The digital filter uses a mathematical function called a sinc function which gives the required "brickwall" roll-off and with no theoretical phase distortion. The sinc function is an impulse which starts at time Zero and ripples off infinitely into the future, and the past!! Of course this is impossible in reality and the filter uses a part of the function and feeds the data into one end. Even though the filter only uses a small part of the sinc function it must still be large enough to be effective at filtering and this means that it is usually several milliseconds long, regardless of the duration of the signal itself.

At Audio Note we have long pondered the question of how much damage the signal suffers at the hands of this filter function and the unavoidable time smearing it introduces. To give you an example, if an impulse lasting only one sample is fed into a digital filter, it gets smeared out into a ringing signal several milliseconds long, hardly supporting claims of accurate reproduction, or as we say here at Audio Note; time waits for no-one, not even the "perfect" digital medium. Time displacement is the greatest cause of audible anomalies in audio reproduction and always has been.

Whilst we are not alone in questioning the effects of the sinc function and the digital filtering universally used in all CD-players and D to A converters, we are the only manufacturer unconventional enough to have grasped the nettle properly and removed the digital filter altogether, in an attempt to answer the central question; "how else do you establish with any accuracy exactly what the digital filter actually

does to the signal and is there an alternative method of filtering that would preserve the signal better??"

After much trial and error we found a way of removing the digital filter and incorporating a carefully designed analogue filter after the D to A conversion. Needless to say, this goes so completely against the grain of all current opinion because a lot of the spurious signals above 20kHz are still present in the output of the converter after the analogue filtering. The filter is a 3rd order design with a silver wired inductor and silver capacitors and is so designed to slowly attenuate the higher harmonics in a natural way, preserving as much of the musical waveform as possible, each filter is dynamically matched to within 0.5dB of its partner in the other channel across the full frequency spectrum, to achieve best possible channel balance.

Rather than use an off the shelf voltage regulator chip for the low voltage digital and analogue power supplies for the DAC we designed a unique discrete shunt regulator circuit, and use only the finest components throughout. In fact the DAC 5 power supplies take up more than 2/3rds of the substantial chassis. After the signal leaves the filter it is passed to a valve output stage, similar to that used in the M5 pre-amplifier, and is transformer coupled to the output, allowing both balanced and single-ended operation.

So how does the Direct Line DAC 5 converter with no digital filter and one-times oversampled D to A converter sound??

Let me first give you some background to what I believe matters in music reproduction and how I have arrived at the evaluation criteria we use at Audio Note.

It is no great secret that ever since Digital Audio was introduced in 1983, I have seriously questioned the validity of the claims that the technology would deliver the "Perfect Sound Forever" that launched the technology, I, and many others with me, found analog reproduction far more "real", satisfying and authentic, not to mention less fatiguing.

The main criterion I have always used when evaluating any hifi system or component is that when playing different pieces of software (whether LP or CD) the better system or component is the one that individualises the sound from each record the most, or in other words makes you sense each recording as a different and individual musical "event".

This evaluation system is based on a fundamental analysis of recording in all its forms that concludes that all we really know about recordings, is that they must sound different from each other, the conclusion is based on the indisputable fact that each piece of software was done at a different time in a different location, with different microphones, cables, mixers, tape recorders and they were recorded by different people to any other recording, furthermore the software was manufactured by different cutting and pressing machinery at different plants and as a result must have an individual character or "signature" uniquely its own.

I call this method of differentiation "Comparison by Contrast" and with this tool in hand (or should I say ear??) I have spent many years searching out the "better", more accurate (you will notice that the term used is more accurate, not accurate in its absolute sense, because total accuracy does not exist in recording or music reproduction, it is an unachievable goal, that will never be a reality, no matter how much the marketing men of the hifi industry would like you to believe it is) audio components and technologies in a largely selfish quest to improve the reproduction of my own record collection.

I made this pursuit my livelihood in 1977, when I left my career as a broker with a large multinational shipping company.

Back to the main subject, by the criteria outlined above, CD fails miserably compared against even quite cheap analog component hifi, and I have always thought that this failing was inherent in the medium itself, i.e. the fact that the musical signal is broken down into little "bits", with poor resolution at low levels, which is after all the entrapment of the musical signal (it is often forgotten that music starts from silence, not from somewhere up the amplitude scale, the assumption is often made that what we hear at the beginning of a note is what was recorded and the words "I hear more detail" assumes that we somehow know what is supposed to be there, which we certainly do not, what the reviewer should perhaps say is I hear more contrast!!) it never seems to occur to anyone that the starting parts of the musical note might be missing.

The quiet background of the digital medium should therefore allow the best possible low level detail, but it does not, low level acoustic information like hall ambience is almost completely lost on most digital recordings (it is a little better on good analog recordings transferred to CD, indicating that the digital recording process is at least

No One or the DAC 5 D/A Converter.

partly to blame), modern recording techniques do not help, as multi miking, digital mixing and other technical gadgets used in the studio, "help" the recording engineers do their job speedily and within budget, a far cry from the simplicity, dedication and time that went into every recording made from the early acoustically recorded 78's to the earliest LP's and this real acoustic information is replaced by a varying degree of hard and bright electronic echo, which makes most CD listening fatiguing, unless of course the system used tailors the high frequencies to suit, creating a "listenability" that comes at the price of severe loss of information at high frequencies, which may be preferable, but does nothing for the idea of a wide band system or signal, nor does it improve the listener's ability to distinguish between the great and the merely good performance or interpretation.

While I owned Audio Innovations (sold out 1991) I spent years in denial and despite all the arguments in favour of the commercial considerations of what my company required I heard nothing from CD that encouraged much enthusiasm and since I prize my longterm credibility more than just making money and as long as my favourite music was available on LP either new or second hand, I had no need for CD until the early 1990's when a lot of interesting material (mainly historical piano recordings previously unavailable) suddenly appeared on CD-only releases.

I had already spent a lot of time looking at the subject of digital to analog conversion, without achieving any really substantial sonic improvements against the better converters already available, my approach was to conformist, as it turned out, as it accepted too much of the existing dogma and therefore too closely followed the already beaten track.

In 1990 I decided to test the use of an interface transformer between the converter chip and the analog filter, primarily in the belief that a better interface between the D-A converter chips output should yield sonic improvements but also because I felt that separating the digital and analog circuits ground planes ought to yield some improvements.

Early experiments showed promise, but the matching impedance and associated analogue filter configuration were more critical than first assumed, after two years later we finally got it right and Audio Note launched its first digital product, the DAC3 D-to-A converter with patents awarded in the UK, the USA, Germany, Australia and elsewhere.

Since then we have progressed with greatly refined components quality (DAC3 Signature), even more high quality components plus a power supply with a valve rectifier (the DAC4), and finally the best output stage and ultimate component quality (the DAC4 Signature), and whilst all of these measures achieved even better sound quality than the original DAC3 offered, the improved versions did nothing to dent the original product's price/quality relationship to competing converters, after 6 years on the market it is no mean achievement for a digital product to stay at the top of the performance spectrum in its price range in a market where model life generally is measured in months rather than years.

The more I studied the fundamental equations that all digital theory is based on, the more convinced I became that the sinc functions used in the digital filtering must have a far more damaging effect on the signal, than is generally accepted (or even considered).

The basis for my idea is that there has to be a price to pay in all attempts to improve, "correct" or manipulate the signal, regardless whether it is done in the digital or the analog domain, and I have always thought that the digital filters with their oversampling, relocking, noise shaping, jitter reduction and whatever else are no different in their fundamental properties to the corrective feedback systems employed in the analog domain, in that they also try to "stop" or reverse time, so their deteriorating effect on the sound must be similar.

In early 1995 work started on the no digital filter - 1 x oversampling D to A converter and when Andy Grove joined me in 1996, his contribution to the idea was a first prototype within weeks of joining, a great credit to his talent and ability.

Although the first version had a fair bit of the sampling frequency breaking through, even with this interference it was obvious to everyone that the sound had something fundamentally "right", it was freer, had more presence, immediacy, delicacy and contrast than any digital product I had ever heard, there was obviously more good information in the digital data stream than previously thought, and it was clear that this converter had very serious sonic potential, so we persevered getting the interface transformer and filtering right, and here we are, nearly three years later introducing the finished product, the DAC5 Direct Line D/A Processor with 1 x oversampling and no digital filtering, relocking, noise shaping, jitter reduction or other such signal correction or manipulation.

Having listened to the final version of the DAC5 with its no-oversampling D to A conversion for nearly a year, I can say for the first time since my earliest experience with digital audio in late 1983 that digital has more to offer than I had ever imagined, because for the first time there is genuine contrasting quality between recordings with the DAC5, a fact which combined with an incredible sense of hall ambience, where instruments have greater presence, solidity and texture and a far more defined spatial position (provided this is what how it was recorded). An orchestra now has an organic quality where the musicians appear more like real people actually playing in real space, rather than as cardboard images in a sound deadened studio, the reproduction of stringed instruments has the sound and feel of real wood rather than the usual artificial and plasticky presentation of digital.

It may sound absurd, but the greatest beneficiaries of this vast improvement in the sound of my CD's are my big collection of historical recordings of piano music, the distinct differences in style, touch, tempo, tone and sound of each of the great pianists from Sergei Rachmaninov to Joseph Lhevinne, and from Simon Barere to David Saperton is a true revelation, which has greatly contributed to my appreciation of the interpretative skill, dedication and pure musicianship of these great artists.

When all is said and done, however and despite the DAC 5's great and almost analog qualities I still find my AN-TT Three Reference turntable with AN-1s/AN-Vz arm and IoGold cartridge excels with the best recordings, but at least now it is a contest between the two formats rather than a race between a Ferrari and a man wearing a pair of worn shoes!

The DAC 5 uses the Analog Devices AD1862NJ chip with as little in the signal path between it and the input chip as possible, the analog filtering has been done in such a way that the carrier frequency is inaudible, although it will show up on the oscilloscope in abundance (another example of the hard to grasp reality of measuring and its correlation to sonic reality)! We have experimented extensively with different filter configurations to find the one that passes an amount of breakthrough that does not disturb the ear without affecting the quality of sound more than necessary.

The DAC 5 has facility for 96KHz DVD technology, as well as the conventional 44.1 and 48KHz, it has high B C-core output transformers, with a 600Ohm balanced output using a professional Lemo connector (we can provide the silver cables with the Lemo plug for this) as well as a standard unbalanced RCA output.

There will be no patent applications or copy rights filed on this revolutionary idea, because that would limit its wider use by other manufacturers, to the detriment of the reproduction of music, instead we are offering a small technical paper on the technology to anyone who wants to test the idea, and this includes any of our competitors, all we ask is that you remember who thought of it first.

The DAC 5 is not cheap at £18,500.00, its component, power supply and transformer quality is far too expensive and elaborate for that, but go and give it a listen anyway, even if it is out of your price range, because the improvement it represents is nothing short of a digital revolution and you can rest assured that we shall move this advance in technology down in price as quickly as possible, so after 6 years most of our DAC-range (from the DAC3 upwards) will be upgraded to 1 x oversampling and 96KHz technology, to take us through at least another 6 years, which is in line with our stated aim to do our homework thoroughly and properly and only release products that have longevity built in.

Peter Qvortrup
01.09.1998.



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Noticed anything different about the hi-fi shops this Christmas? If you're like me, you can't have failed to have noticed that accessories are back in a big way. Of course, ever since it was discovered that interconnect and loudspeaker cables did make a difference to sound quality there's been a fair market in hi-fi 'add-ons'.

The accessory market is a curious beast that seems to rely heavily upon new formats. For example, as CD became more and more widespread during the late Eighties we saw a proliferation of lens and disc cleaners, stabilisers and squishy feet. Vinyl twiddly bits benefited from the public's new-found enthusiasm for "accys" too. Suddenly we were presented with a range of mats, stylus and record cleaners, spirit levels and spiky feet, that was greater than it had ever been in the

dropped in the bin, along came MiniDisc.

The MiniDisc format may have been around for over six years but it's only in the last two that it's really caught on. And, of course a new format brings new accessories along with it. MiniDisc must seem like a saviour to many an accessory firm when you realise just how many widgets can be sold off the back of it.

The first and potentially biggest market is that for blank discs. Never an option with CD or vinyl they are an extremely useful way of ensuring that the customer comes back into the store. While they're there, of course, they may like to consider a storage unit for the discs, and perhaps a matching one for CDs too. Don't forget the MiniDisc cleaner either. Unfortunately (for the

"MiniDisc must seem like a saviour to many an accessory firm when you realise just how many widgets can be sold off the back of it."

history of vinyl. Those still cassette-bound were limited to a couple of cleaners, demagnetizing devices and, fading away in the sunlight, tape splicing kits.

You only have to take a look at the hi-fi mags of the time, with the inevitable tweeky freebie stuck on the front cover, to see what big business accessories represented at the time. Some of these bits and pieces was genuinely worthwhile; others were simply intriguing; many proved to be nothing more than household junk.

As we left the optimism of the Eighties behind us, to face the caring, sharing and minor recession-led Nineties, the popularity of accessories appeared to be petering out. Naturally, there was still a demand for decent cables and the more esoteric tweaks still survived. Yet, just as the final CD wipe appeared to have been

marketeers) MiniDiscs themselves can't be cleaned out of their caddy so there are to be no MiniDisc wipes! No matter, a lap-top sized remote control complete with Qwerty keyboard should keep the gadget freaks happy (even if it does nothing the standard remote won't do).

MiniDisc has another advantage over other formats. Being a recording medium, there is likely to be a far greater demand for some means of replay when on the move. An in-car unit is one idea, but of more interest to the hi-fi retailer is the personal MiniDisc. Bingo! An add-on sale that can be worth as much as the original machine itself, or more, if the standard tinny headphones are upgraded. In addition, there's an endless list of cases, pouches and wallets to go with it. Closer to the heart of the specialist cable manufacturer is the increased demand for



Dominic Todd

digital interconnects.

To get the best out of either a full-size or portable machine it's a necessity to record digitally. Given the fact that every full-size machine and most personal recorders have either a digital input/output or both, the cable manufacturers have huge scope for sales.

Some machines come supplied with an optical lead, many don't, although the freebies are pretty scrawny. Better than optical is co-axial. Most MiniDisc players now also have these so, hey presto - there's another upgrade possibility. Those brought up on the requirements for a decent interconnect to partner their CD player are applying the same theory to MD players. It's hard to see how the cable manufacturers can fail to be enjoying increased turnover. MiniDisc has clearly enhanced the accessory market, but are there any losers in this story of growth?

Well, it turns out that there are very few. As already mentioned MiniDisc sales are often additional rather than substitute. If there has been a loser it's the cassette deck market at prices over £150, bearing in mind that the add-on market for standard cassette was limited in any case. MiniDisc has definitely added far more than it has taken away from hi-fi sales.

If you've been fortunate enough to have Father Christmas drop a MiniDisc player down your chimney, which are the best bits and pieces to spend your Christmas money on? Best advice would be to stick to top interconnects and decent quality blank discs. All the rest is fairly superficial, and the price of personals is bound to come down to portable CD levels (i.e. £50+) in the not too distant future.

X-RAY SPECS

Is Musical Fidelity out to make X-maniacs of us all? Richard White X-plores.

Musical Fidelity are never ones to stand on the edge of the pool and since the introduction of their X-Series have done their damndest to fill a full range of hi-fi components cloaked in the now-familiar 'beer barrel' get-up. In cases where the cylindrical model would be a clear absurdity, the race-track profile has been an admirable substitute. Consequently the X-Ray 24-bit CD player bears a family resemblance to its brother units such as the renowned Nuvista pre-amp, the X-A1 integrated and so on.

As is usual with more modern CD players, the front panel gives the minimum of control with all the fine detail 'gadget' side of things being left to the remote unit. Essentials like track-finding, playing and drawer opening are controlled by neat little alloy buttons recessed into the brushed fascia, which houses the Fort Knox-style drawer cover and the commendably clear turquoise LED display.

On the back panel lurk the ordinary audio outputs, widely spaced to accommodate whatever oil-drum phono plugs your leads may have, plus the co-ax and optical digital outputs. Shunting the X-Ray's compact 4.5in by 9in by 13in (hwd) dimensions onto our test rack, we hooked it up to one of MF's own X-A1 integrated amplifiers (to make it feel at home) and let play commence.

Feeling kinda blue we stuck on Joe Beard and the Blues Union. Immediately noticeable was the winning punch which the kick drum was providing to the ensemble. Speed was obviously no problem to the X-Ray and the question of who was getting there fastest with the mostest did not arise. Upper midrange regions like the lead guitar work had a clarity which gave a true solo feel, as opposed to the sense of

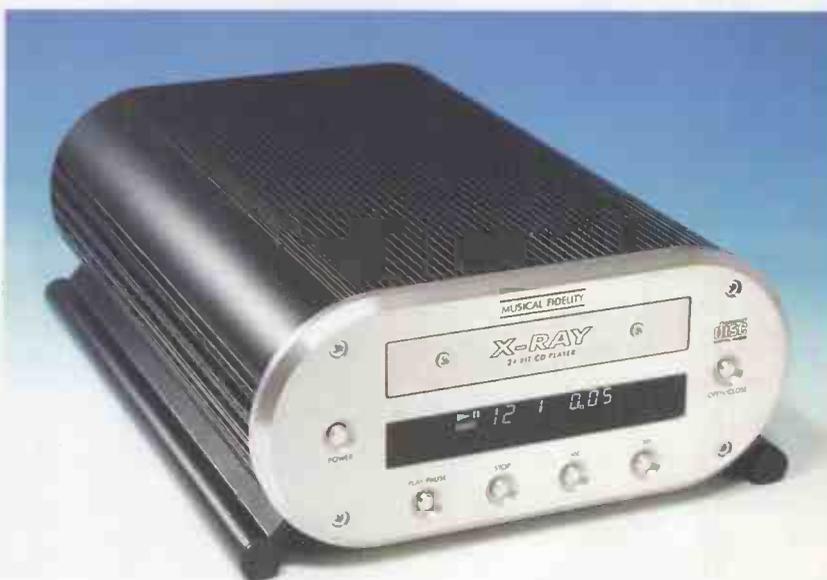
just making it by virtue of being louder in the mix.

This clear portrayal of a wide variety of recorded material appeared to be the signature of the player as a whole. The side drum, sparingly used on this album, had a beginning, a middle and an end to each stroke with none of that offensive hang-over to mar informal ensemble work. The bass

guitar was very tightly reined indeed; we half wondered whether the bass player should be playing his cards quite so close to his chest but it made a refreshing change from the indeterminately pitched tea-chest effects which with some machines have to pass for bass and drums.

Gene Ammons' Boss Tenor CD was next in line. Ammon's almost staccato 'you'd better believe it!' attack and at times inexplicable but oddly comforting liberties with the beat in 'My Romance' showed that there was not a lot wrong with analogue recording in the USA in 1960. The wealth of tonal detail presented on the disc gave us the cue to cross reference the X-Ray with another amplifier, in this case the Audio Analogue Puccini. The player continued to produce things clearly, so the affect was obviously not just a question of stable-matiness.

With more serious music there is often less for the rhythmic senses to smuggle past your ears so, putting our hand-jiving away for a rainy day, it was high time to make the X-Ray



hop through the Classical hoop. Our copy of the Brahms' Violin Concerto is rather a telling example of imperfect sound forever. It requires number-crunching of quite a high order to remove the sand-paper from the soloist's bow and the comb-and-paper virtuosi from the woodwind. The X-Ray plainly wasn't in the mood to miss out on the detail. Woodwind ensemble work floated above the string ground with a lightness which was more pleasant than we had expected.

Arnold Bax's 'Mediterranean' miniature was similarly sparkling; added to the smooth solidity of the strings were the oh-so-Southern touches of castanets clattering away with realistic woodenness.

The X-Ray's greatest virtue is the clarity with which it allows the music to express itself. This can be a touch unforgiving on sub-standard discs but with the right material this nicely-priced player is difficult to fault. If you're fond of hearing the 'inside' of your records, we heartily recommend it.

Musical Fidelity X-Ray
£800

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WORLD VERDICT



Bright, clear and well built, the X-Ray's transparency can be hard on poor recordings.

Measured Performance
see p111

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The HD83 is our new headphone amplifier, a beautifully simplistic design using Mullard ECL83 valves, a triode and power pentode housed in the same envelope. It works directly from any source be it a CD, tape, tuner etc., or from an amplified tape out or pre-amp sockets. The circuit utilises high specification output E and output transformers that will drive any headphone load from 16 ohms to over 300 ohms depending on how the secondaries are wired up. The HD83 is a single ended design with the power pentode wired up in triode configuration for that added purity and is as quiet as a mouse. For sound quality Jon Marks says, "The bass is punchy and controlled without becoming artificial, while treble has the crispness of the best solid-state, with the tonal purity, delicacy and speed associated with valves. External dimensions 18cm(w) x 30cm(l) x 8cm(h) weight 4kg.

Please note that we are selling the full range of sennheiser headphones at discounted prices when purchased in combination with our HD83. Please ring 0171 221 0691 for further details.

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MkII with SRPP input stage!



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This is a specialised 28w amplifier based on the high linear 300B triode valve. The 300B runs in Class A, giving one of the most sweet, open and neutral sounds possible today. Matched with good loudspeakers, it is unsurpassed. All parts are included in the kit except valves since different 300B makes are available. Weight 26kg, external dimensions with valves 44cm(w) x 35cm(d) x 20cm(h).

K5881 MkI Upgrade kit

Upgrade your pre November 1996 K5881 amplifier to MkII status. The kit converts your amplifier to the new 7025 double triode input stage in place of the original EF86 pentode input.

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KLPP1 has five line inputs, a tape input with monitor, and a unique low noise valve MM/MC phono stage. There is a switchable subsonic filter to prevent output transformers of valve amplifiers saturating. The line stage has gain, so it will drive any power amplifier. Audio grade components are used and many parts are custom made for highest quality. KLPP1 has a super clear sound, sweet and detailed through line and phono inputs. Weight 6.5kg external dimensions 28.5cm(w) x 23cm(d) x 8cm(h).

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KLPP1 & KLP1 use the same chassis

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DRIVE UNIT PACK £160.00

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KLS3 Gold Mk II ADVANCED TECHNOLOGY THREE WAY LOUDSPEAKER

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KLS4 TWO WAY CARBON-FIBRE DRIVER LOUDSPEAKER

A two way standmounter using stagger-tuned reflex loading for good bass, plus light and fast carbon-fibre drivers. Sensitivity 86dB at 1W/1m, 18mm MDF, internal volume 15.3 Ltrs, external dimensions 21.6cm(w) x 42cm(h) x 25.8cm (d).

DRIVE UNIT & CROSSOVER KIT £230.00 DRIVE UNIT PACK £120.00

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Gold dome piezo-
electric tweeter

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ONE CAREFUL OWNER

If you only have a shoestring system budget, you can get more for your money by going second-hand. Richard White and Jon Marks offer some advice on how to buy a bargain, not a lemon.



One favourite used loudspeaker purchase is the LS3/5a, in this case Rogers'.

Hi-fi is not a pursuit renowned for its excitement - it's more a slow-burning, life-long passion than a non-stop roller-coaster ride. However, as anyone who has bought used equipment can testify, there are times when this ain't the case. As you close in on a classic piece of kit you've been hunting down for weeks, the thrill of the chase kicks in. A nervous telephone call confirms the vendor is still in possession of your ears' desire. After a journey to some dark, distant location, there's the challenge of the haggle. The whole process is crowned (hopefully) by the triumph of a superb hi-fi component singing sweetly without having inflicted terminal damage to your wallet. You know what they say about the best laid plans of mice and men, though. . .

Buying second-hand hi-fi is like buying any other used item - if you know what to look for, you should be fine; if you don't, caveat emptor. What follow are not hard and fast inspection rules, but only guidelines to help those new to purchasing pre-owned. As well as the suggestions below, make sure you get a demonstration of anything you're thinking of shelling out for. Also avoid buying sight-unseen by mail, as this can be a very risky business.

LOUDSPEAKERS

Complex designs with a multitude of drivers are best avoided. The cabinet should be heavy and should not emit semi-tuned

'bongs' when you tap it.

Some of the most eminent high-quality manufacturers produced cheap stuff as well. This was never intended to be supersonic so don't be disappointed if it isn't.

Unless you're the persevering kind with a long life ahead of you, never buy an unusual single drive unit hoping for its twin to turn up one day. While we're on the subject, mixing and matching loudspeakers doesn't make for good stereo.

It may be true that 'you can get them done', but don't pay anything remotely approaching serious money for a driver with a burnt-out voice coil or perished surround - for one thing you may never get round to it. Merely taking a 'speaker out of its box makes it second-hand, so ignore lines like 'only 30 hours' use'; it still isn't new.

Many loudspeakers up to, say, 1970 had 15ohm voice coils so they may be quieter than 8ohm versions when plugged into your amp.

AMPLIFIERS

TRANSISTOR

Transistor amps up to about 10 or 15 years old tend to be quite reliable. Where two of the main problems with valve gear are drifting resistor values and leaking coupling capacitors, younger solid-state is generally less of a headache.

One thing to look out for is hum at medium to high volumes due to failing power-supply electrolytics. Volume potentiometers have an annoying habit of becoming crackly as well, and switches are often in need of a good clean.



Inside NAD's 3020 amplifier, a classic second-hand integrated bargain.

If you get the chance to have a look under the lid, sure signs of an amp on its last legs are blackened or cracked high-power resistors and PCBs.

When auditioning, as always listen to music you're familiar with. Another ploy is to carry around a portable CD player and interconnects whose sound you know well and use these as the source. This eliminates an extra variable in gauging the sound quality of the amp on offer. Low volume levels can give an indication of background noise, high levels will often unearth premature clipping or distortion.

Once you start venturing beyond the 15-year mark, buying second-hand solid-state turns into a bit of a gamble. The transistors themselves get rather fragile, as do many of the passive parts.

VALVE

"You can't beat the good old valve stuff!" This enthusiastic generalisation is not normally true, unfortunately. Granted there are fewer bottle-banks in junk shops nowadays, but wide boys have cottoned on to the valve revival and the most shamefully



Quad's II valve power amp is a common sight in our classified pages.

inadequate amps are suddenly, apparently, sounding beautiful. 5% distortion at 2watts doesn't really make for "lovely valve warmth". It's far safer to stick to the reliable, household brands you've heard of.

For novice buyers, it is wise to stay with 15watts/channel and under; generally such beasts are sweeter sounding and better behaved, even the mighty Leak coming to grief above this sort of power level.

With most mainstream designs, finding new valves is the least of your worries and, although exact replacements for the reservoir caps are unlikely to be available, a little ingenuity and a trip to Maplin can get you out of most tight spots.

In short, look to the transformers to give you the most grief. They CAN wear out as windings shake loose and are prone to internal (and thus undetectable) shorts if they've been overloaded. If a 10watt amp has an output transformer significantly less than about 30 cu. ins. in volume, it is pretty unlikely to be high fidelity. Small is not beautiful with transformers.

If you know little about valve equipment, don't be tempted to learn the hard way; the expression "an amp to die for" should not be taken literally!

RECORD DECKS

One of the commonest pre-owned purchases has got to be the turntable, for the simple reason that there were so many in



Heavy, man! Technics' SL-1000 MkII direct-drive motor unit is one of the best.

production for such a long time.

There are three main flavours of record deck:

- 1) All-in-one (like the eternally popular Duals) where the arm and motor unit cannot be changed.
- 2) Removable armboard (like the Linn LP12/Roksan Xerxes/Pink Triangle Export) which gives a choice of partnering arms.
- 3) Separate motor unit, plinth and armboard (like the Garrard 401/Goldring-Lenco 88/Technics SL-1000 MkII) which provides maximum flexibility.

The caveats are pretty much the same for all three types. Moving parts are subject to wear and tear, which means the main bearing needs careful scrutinising.

First, make sure the platter turns freely by giving it a spin. (This is easy with direct and idler drives, but you will probably have to take the belt off traditional decks.) If the platter slows down quickly, rotates unevenly or makes a grinding noise, steer well clear. Its rim should also remain steady when viewed edge-on. If it rises and falls obviously, there's likely to be a problem with the bearing. You can investigate further by rocking the platter's rim and checking for excessive movement.

When examining a belt or idler drive ensure that, like the main bearing, the motor isn't heavily worn with the side-to-side test. It should run quietly too, although very few motors are completely silent.

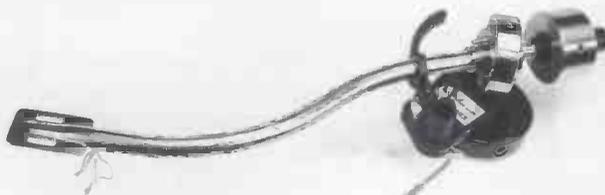
Idler drives can occasionally cause difficulties if the motor has been left in the On position. This can lead to a flat spot on the rubber idler, which can be heard as a regular 'thud, thud' when playing a record.

When it comes to listening, check for pitch stability, motor hum on spaces between tracks and high levels of background noise.

TONE-ARMS

Two of the most popular arm formats are:

- 1) Those with vertical and lateral ball races (such as Rega's



Alphonson's HR100 tone-arm (with its titanium arm-tube) is worth hunting out.

RB250 and RB300);

2) Unipivots (Naim's Aro and Hadcock's 228, for instance). A third group is air-bearings, but these tend to be rarer because the engineering involved in making them work properly carries a hefty price tag.

Check 1) by gently gripping the base of the arm with one hand and the arm yoke with the other. To check for play in the vertical bearings, apply a light side-to-side pressure to the arm yoke. Use the same sort of kid-glove approach when twisting the arm-tube to see if the lateral bearings have any play in them.

Unless it's suffered a fair amount of abuse, a unipivot is unlikely to have a worn bearing. For peace of mind, you might try moving the arm-tube back and forward with a little light pressure - there should be no movement.

CD PLAYERS, TRANSPORTS AND DACS

Seeing as a CD player is basically a transport and DAC housed within the same box, the problems faced by one and two-box implementations are very similar.

It's invariably wise to take some difficult discs along when you go for a listen. Scratched or mystery-unplayable CDs will give you an idea of what sort of state a machine's laser and pick-up are in. A lot of older specimens will have failing lasers and



One elder digital statesman is Pioneer's hefty PD-91 with its high-gloss side-cheeks.

focussing faults which can be costly or impossible to correct. If the equipment refuses to read even your normal discs, you'd be better off passing it up. Unfathomable clicks and whirrings may also indicate servos which are past their sell-by date; most players should work quietly.

An old-timer may have mechanical construction superior to more modern 'biscuit boxes', but that doesn't automatically mean it will sound better. Digital output stages have come a long way over the last decade or so, as have decoders and clocks. Be prepared to shell out on a replacement masterclock and the odd mod or two if you want to discover the promise hidden behind the aged fascia.

TUNERS

Practically any quality rig manufactured after 1975 ought to have fairly stable permeability tuning and, as the years come up to date, an increasing choice of gadgets for sideband elimination, pre-select stations and so on.

If you live in a poor reception area, a 'proper' aerial will greatly assist the suppression of hiss.

Because the discrimination circuitry in a tuner is sensitive to component ageing, accurate tuning can go off the boil as time goes by. Almost invariably the indicators for 'best signal' and 'stereo' become temperamental too.

A surprisingly common gremlin is having the panel lamps wax and wane with signal strength, presumably due to tired reservoir capacitors.

Old mono tuners fitted with a multiplex output can be



The Troughline tuner from Leak is still very hard to beat.

plugged into a stereo decoder such as Studio 12's. This arrangement usually gives better results than early (pre-1970) factory-installed jobs and, as mono tuners change hands for less cash in the first place, there is a double benefit to be had.

To be perfectly brutal, given a working tuner, the only significant criterion is sound quality - all the tuning gadgets in the cosmos are unlikely to make a Far East mega-blast sound like a Troughline.

CASSETTE DECKS

Beware, beware and thrice beware: the words "nice" and "old" do not very often apply to cassette decks. The technological advances which even now are bringing cassette convenience within shouting distance of digital-format standards are fairly recent additions to the buttons.

As a very sweeping statement, give 99% of pre-Eighties stuff the go-by. Obviously famous brands like Nakamichi and Revox are a fairly safe bet but you need to ask yourself, with oodles of quality blank tapes still on sale (and new formats still not quite settled) why someone is getting rid of a perfectly good bit of kit.



Rotel aren't famous for their tape decks, but they're another name to consider.

In spite of the slow speeds used in cassette mechanisms, things will wear out eventually, not least the heads and drive belts. A slack belt means wow at the very least, and biasing set for standard speeds will not function optimally with consistently slow tape travel. Assuming you're able to source one of the right size, a belt can take some extensive dismantling to replace. Another warning sign is when the plating on the heads is visibly worn down.

However many tape formulations the deck is compatible with, be certain to make recordings on each setting to show up any defunct equalisation components. Again, if you have a portable cassette player, it's worthwhile taking it along to see that recordings made on one will play on the other.

ROCK & POP

by Jon Clarke & Stuart Lenz



**REM
UP
CATALOGUE**

They've done Sesame Street and even a secret live show on Radio One of late. What greater fame can await possibly the world's biggest band? Whatever crops up next, they've come a hell of a long way from playing to audiences in disused chapels and the likes of the 40watt club in Athens, Georgia.

Up marks the first album in REM's colourful 18-year history not to include their recently-retired drummer, Bill Berry, and his absence is palpable. However, rather than attempting to reassert themselves as a Rock band with a high-profile new signing, the remaining trio have simply dug in and assembled an hour's worth of contemplative, experimental material.

There are definite similarities with 1992's Automatic For The People here, but Up is, in essence, a slimline tonic for those expecting another chapter from the fortified spirits of the Rock annals. The traces of previous releases are there of course, but the emphasis is

on understatement and intimacy, with few obvious moves or grand gestures. And it's therefore fitting that the band have said goodbye to big stages until at least the year 2000.

There appears to be a new-found musical maturity in REM's ranks. However, while they may have avoided a full-on mid-life crisis, the wrinkles are still beginning to show. Die-hard disciples hoping to find new classics of the old pedigree are going to feel slightly short-changed - there's no 'Perfect Circle', no 'South Central Rain' and little in the way of 'Feeling Gravity's Pull' or 'The One I Love'. What Up does have on its side are bags of elegance and charm.

A sparse and almost lo-fi production, this album's uncluttered, multi-layered production really gives the vocals on Up room to breathe - words that would previously have been mumbled are here confident and distinct. In fact, for the first time the lyrics for all the songs are printed on the sleeve, which actually makes little difference as they still make no sense.

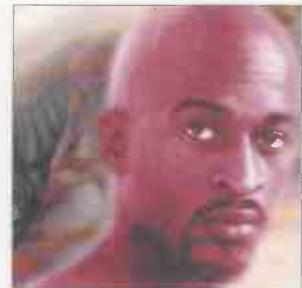
The pulsing drum machine that opens the album hints at what sceptics have feared most, the overplayed trend towards electronica (as exemplified by U2). But this and the mellotron, harpsichord, keyboards and xylophones (courtesy of part-time members Scott McCaughey and Barrett Martin) never even begin to overwhelm the

band's mighty sense of self. Actually, the warped opener, 'Airport Man', with its discordant piano and experimental theme, turns out to be the strangest song here; the rest of the album reverts more or less to business as usual.

A number of songs, balladesque tales about people ploughing their own lonely furrows, carry on from the excellent 'Nightswimming' on Automatic For The People. Take for example 'Diminished' (about a Clinton-style affair: "I watched you fall, I think I pushed"), the failure of 'The Sad Professor' and the nightshift slave operator in 'Daysleeper'.

While the influences seem to be drawn from Easy Listening and Sixties Pop, it is the few obvious pastiches that make for more interesting fare. 'At My Most Beautiful', with its falsetto harmonies and Mike Mills pounding the keyboards like some latterday Brian Wilson, could almost be The Beach Boys. 'Hope' is an echo of Leonard Cohen's 'Suzanne', while on 'Parakeet' it's easy to see that Patti Smith continues to serve as Stipe's muse.

Although the slinky groove of 'Lotus' has horrible Glam Rock pretensions, it's no more than a gentle reminder of where REM was heading with their LP Monster. On the strength of the rest of Up, that particular beast has been laid to rest.



**ERIC B AND RAKIM
PAID IN FULL: THE
PLATINUM EDITION
CATALOGUE**

Sampled as often as Mr Kipling's apple pies, Eric B and Rakim are truly the backbone of Rap music. With songs like 'Paid In Full' and 'I Know You Got Soul' they must surely feature in most clued-up Rap fanciers' Top 10 listings.

Sitting atop the Old Skool tree, Mr B and Rakim have done a fair bit of teaching themselves. Beginning way back in 1987 with the aforementioned Paid In Full, they taught the world about US street style. Released a year before Public Enemy's debut It Takes A Nation Of Millions, this album proved to be the real breakthrough for the fast-growing posse of US Rappers. They also broke many a boundary - they were the first successful Rap act to give a DJ (in this case Eric) top billing and the first to move away from the traditional sound of scratching and rhyming.

Why Paid In Full with the original album backed up by all the official US and UK remixes ever made should suddenly be re-issued now is anyone's guess. Who cares, it still sounds great despite being a touch dated.

Opening with 'I Ain't No Joke', their stall is quickly set.

ROCK & POP

With its trumpet bursts and heavy bass this number is a rousing start that'll have you racing to save your 'speakers from melt-down. Apart from 'Eric B Is On The Cut', which is unsurprisingly an instrumental, the tracks that come after are anthems of the thump-scratch-thump variety. The best of these are the seven-minute 'My Melody' and the epic 'I Know You Got Soul', which set the standard for the millions of James Brown samples that followed. Then of course there is 'Eric B Is President' and the landmark 'Paid In Full', which was what it was all about.

With straightforward, simple beats, deft scratching and plenty of honest rapping, Paid In Full is a real darling. And anyone who can make "a plate of fish, my favourite dish" not only rhyme but sound streetwise deserves a major pat on the back.



**DEPECHE MODE
THE SINGLES,
1986-1998
CATALOGUE**

They've come a long way from Basildon - 20 years and 40 million albums to be exact. But it's been far from plain sailing for the kings of Electro Pop, as this intriguing compilation demonstrates.

After reinventing themselves for mass US consumption, Depeche Mode then became a trio. With lead singer Dave Gahan nearly killing himself on drugs along the way, their continued survival looked as lasting as a pile of sawdust in a wind tunnel.

With 1990's Violator album, and particularly 1993's Songs Of Faith And Devotion, this arena-friendly outfit discovered guitars and added an urgency to their computer-generated anthems. This ran counter to the restyling of bands like U2, who were introducing Electronica into their largely guitar-based music at the time. Thus the Brideshead Revisited innocents of Electro Pop went all S&M, with songs like the wistful 'See You' replaced by the harder, more knowing likes of 'Question Of Lust' and 'Stripped'.

Four years after a brief flirtation with darker compositions in 1986's Black Celebration, which chronicled Dave Gahan's descent into drug suicide hell, their output just got bleaker and bleaker; the days of simplistic music-by-numbers creations like 'Just Can't Get Enough' were well and truly over. Most striking of all was their Nine Inch Nails phase which spawned 'Personal Jesus' and 'I Feel You'. Songs of pure Rock swagger, these saw Dave Gahan at the time metamorphose into a Michael Hutchence lizard-type thang.

DM didn't stay on this Rocking high-ground for ever, though, and their habit of tweaking their image took them to other places. They landed on Gospel shores with 'Condemnation', moved on to

an industrial hinterland with the scuzzy 'Barrel Of A Gun', and entered an emotional desert with 'Home'. Finally, as this collection demonstrates, they came home to their favourite territory of synthetic Pop in 'It's No Good' with its punishing beats, care of recent producer Tim Simenon.

Lyrical most of 1986-1998 is vacuous nonsense, but the boys from Basildon rise above the need to make sense and provide an album of big tunes on a big scale.



**PLACEBO
WITHOUT YOU I'M
NOTHING
CATALOGUE**

Placebo may have suffered from accusations of misogyny and druggy bisexuality which their anthem 'Nancy Boy' did nothing to fend off, but from the moment Without You I'm Nothing hits the deck, the true nature of Placebo is plain to see. They happen to be an enthralling hive of ambitious excess headed by an androgynous singer.

If you ignore the band's worryingly single-minded ingestion of Eighties influences (from The Cure to Sonic Youth, The Banshees and The Pixies), there is still enough character

to mellow the most hardened critic. Mind you, vocalist Brian Molko is such a dramatist and arch media manipulator that any spiteful criticism is merely shrugged off with a little wit, spunk and energy.

There is no doubt that Without You I'm Nothing is an exciting album, shot through with generous quantities of adrenalin. It comes bulging with tunes which can be hard, menacing, cheap, sleazy and languid by turns, all of which is strangely reminiscent of Bowie during his Ziggy Stardust era. However, if the narcissism belongs to Bowie then the vocals, so ultra-stylised, belong to Brian Ferry and Marc Bolan.

The music, on the other hand, while it can certainly be retrospective often contains an astonishing range of otherworldly affects. 'Pure Morning', the first track, comes at you as if it had just landed from Planet Mars. If this isn't enough, there's also a touch of Bolan's hazy, cosmic jive, with its prolonged drama-queen indulgence.

The shock value doesn't wane with 'Brick Shithouse', which hides itself in a barrage of coiled riffs, epic distortion and careering momentum that seems to outsonic Thurston Moore himself. Other numbers, such as 'Allergic (To Thoughts Of Mother Earth)' or 'Every You, Every Me' carry on in the same fashion, but the raucous sound is not everything - Without You I'm Nothing has more than its fair share of refined ballads. The melancholic beauty of 'My Sweet Prince' is a high point, as is 'Burger Queen', a wracked serenade that's apparently an

ROCK & POP

RECORD OF THE MONTH



**TALVIN SINGH
OK
CATALOGUE**

Spirituality at last. The boy from Bollywood (well, Hackney actually) has done good, although OK is definitely the wrong way to describe this musical gem.

Most widely known for his work with Björk and Future Sound Of London, Talvin Singh

has been harnessing his talents and bashing his tablas for the best part of a decade. Only now, with the waters becalmed, can his impact (and amazingly his debut) be fully appreciated.

All the world's a stage for Talvin, who has had a song named after him by the mighty and venerated Sun Ra, and he's happy to make the most of it. In OK we find the perfect mix of Ethnic, Ambient and Dance and it seems fitting that the album was actually recorded in Madras, London, New York, Bombay and Okinawa. A genuinely eclectic mix maybe, but the very soul of the record is distinctly Indian with its Classical sitar melodies, meandering Punjabi Folk and its

grand but syrupy Bollywood operatics.

Putting to good use his credentials and experience as a noted clubland groover - he was the guiding light of Anokha, a celebrated London Trance club - he jam-packs the album with ideas. Fortunately, what transpires is busy to the point of relaxation rather than exhaustion.

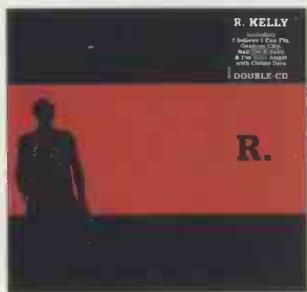
Opener 'Traveller' and tracks like 'Sutrix', 'Eclipse' and 'Light' are bathed in Drum 'n' Bass over which is laid percussion, fresh and invigorating. Besides this, there are plenty of contrasts within OK: Oriental stylings like the almighty title track which sees Nenes, the geisha choir, competing for airspace

against Ryuichi Sakamoto's flute; the Dubby New York Jazz of 'Mombastic'; the last track 'Vikram The Vampire', which falls prey to Talvin's overzealous instinct to make the track sit up and dance.

Massively elaborate in the way Björk tends to be ('Traveller' sounds like an edit from her own Homogenic album), OK is certainly far more than just that. For starters it demonstrates to those non-Indian listeners that there is a lot more to Anglo-Indian culture than Bhangra beats and take-aways. Secondly it shows how sweetly a mixture of cultural influences can mix. World music without the need to buy a passport.

autobiographical account of Molko's time in Luxembourg.

If the current taste for a return to Glam, as embodied in the film Velvet Goldmine, etc, is anything to go by, Placebo could either be on the cusp of greatness or set for a slow stagnation. On the showing of this effort let's hope its the former.



**R. KELLY
R
CATALOGUE**

After months of delay, the

high-flyer from Chicago's Southside has a new set of R&B tricks to follow up his Space Jam smash. On this evidence he seems at last to have moved away from his irritating tendency to pump out soft Swing moments and loose Bump 'n' Grind in production-line mode.

R, a double-album with 30 tracks, sees him turning in virtuoso displays of varying styles and tackling some of the issues of the day. Maverick magpie that he is, Mr Kelly makes sure to pick out a few tracks to keep up the female adoration in numbers like the egocentric 'I Believe I Can Fly', the sentimental 'If I Could Turn Back The Hands Of Time' (about his mother) and the booty-swinging 'Etcetera'.

Strangely, R is biased more

towards brooding, slow-burning songs of fidelity and contentment, regret and recrimination ('If I'm Wit You', 'Half On A Baby' and 'When A Woman Fed Up' to name but a few). In other words, what we have here are plenty of sweet nothings which, while inoffensive to the majority, can also get a bit dull and predictable.

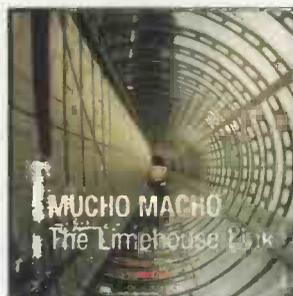
What makes R otherwise memorable is the impressive array of musical variety and the slew of colourful all-stars who participate. Not only does he cash in on the sampling talents of current Bad Boy favourite, Sean 'Puffy' Combs, on 'Spendin' Money', but he also uses the very able Trackmasters and their liberal splashes of Seventies Disco to give the whole album an up-beat,

slightly funky tempo. However, these appropriations are distinctly low-key in flavour next to the all-out 'rumble in the jungle' ploys or Disco infernos so common of less sophisticated textbook operators.

On the duetting front, while he gets away with garbage like 'I'm Your Angel' (with Celine Dion), he demonstrates he can still Rap with the best of them on 'Home Alone' (with Keith Murray) and 'Money Makes The World Go Around' (with the wonderful Nas). These inject a dose of ghetto realism into the proceedings and for once show Mr Kelly with a bit of bite. All in all, R proves that, despite his King of Swing tag, Kelly is a man who refuses to be pigeonholed.

DANCE & AMBIENT

by Sara Davis



MUCHO MACHO
THE LIMEHOUSE LINK
WIIJA

Romford. Famous for the skatepark, market and Five Star. Now Mucho Macho join the ranks of celebrated town features having literally forced themselves onto the single scene with a deluge of releases.

The Mucho Macho posse take themselves not very seriously at all - their name comes from the Beastie Boys' 'Sabotage' video, in which the Beasties dressed up as fake cops in Seventies gear and leaped about shouting 'Mucho Macho'. Their sleeve credits also include George Clinton and Mantronix! But there are also some very healthy influences credited: Jon Carter, Trouble Funk, Marshall Jefferson and Kraftwerk to name a contrasting few.

Muzik said of the last single, 'Lightning', "it's thankfully free of the sweat and beer breath found in most Big Beat," and they obviously don't have a clue because sweat is perfectly natural and beer breath is sexy. However, it was supposed to be a compliment (they rated it single of the week) and the underlying point is simply that 'Lightening' was a fresh sound back in May and Big Beat

always gets bad press.

Nearly a year on The Limehouse Link pays homage to a few of the boys' favourite influences from a decade of clubbing. It's a hotch-potch of old-skool party Breakbeat, Chicago House, weekender Funk grooves and full-on Techno. Ultimately it's a party-flavoured, been-there, done-that kind of album boosted by occasional and much appreciated tongue-in-cheekiness and humour that sadly seem to evade your average Dance LP these days.



ADDITIVE COMPILATION 2
MIXED BY JON THE DENTIST
ADDITIVE

Cynics out there who think that mix artists tend to favour their own tracks are proven well and truly right in this case. Of the 14 tunes on Additive 2, a healthy proportion are Jon the Dentist numbers! But let's not allow such a bias get in the way; after all, Jon the Dentist has a real knack for churning out banging, minimal tempos, usually with a quirky spoken sample dropped in and out for humour's sake.

DJs love this man's work - it's just so easy to mix with that characteristic top-bpm bass

beat that sounds like someone chopping wood next door. Then there are those squeaky musical notes bleeping along in pairs and that itchy hi-hat that always drops in about 32 bars into the proceedings.

The man behind the drill features his own 'Terminate', 'Shindo' and an exclusive new number, 'Eastern Temple' alongside classics like Sosa's 'The Wave' and Marc Et Claude's 'La'. It's not an uninteresting set but, by nature, this musical genre blends subtlety and minimalism with harsh beats and the two always seem to end up cancelling each other out. Techno that's out of phase?



MARK VAN HOEN
PLAYING WITH TIME
VIBRANT AMB8953CD

One half of Pop band Locust, Mark Van Hoen is actually also a critically-acclaimed composer with five albums, numerous stage appearances and many visual exhibitions under his belt. Despite the wide range of previous releases this album definitely belongs on the Dance and Ambient page due to its innovative synthesised stand point.

The title of the album best describes the contents: Mark

plays with the concept of time in every single track. Musically, each tune bears an off-beat element through the way an instrument is mixed or in the way the vocals are layered on top. It's something of an experiment based on the idea that recorded music lives in non-real time and that recorded music cannot be reproduced live. Consequently tracks appear to skip in places, samples of old works are reintroduced and tempos just wander all over the place.

Playing With Time also offers variations on an eclectic musical basis, borrowing from Techno, peaceful far-Eastern music and trashy Industrial sounds which culminate in an open, contemplative space in the final track 'Love Is All'. The whole thing sounds extremely arty-farty but the sound scape is so deep and diverse that it's accessible to anybody into laid-back beats and soothing, beautiful noise.



SASHA
SAN FRANCISCO
GLOBAL UNDERGROUND

Recent months have seen a glut of uninspired Dance compilations flooding the market whilst a visit to the local music shop gives the impression that

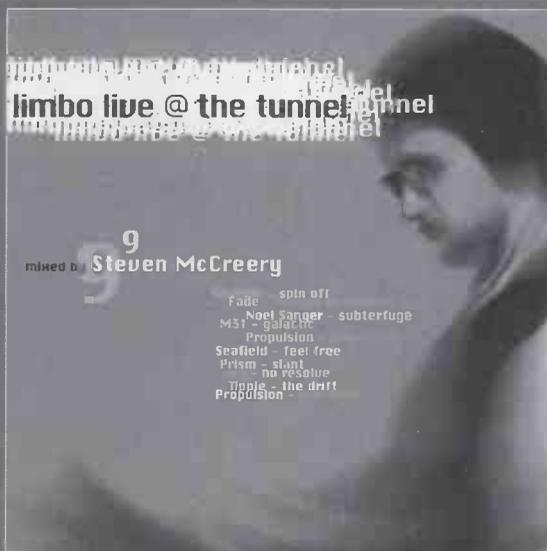
DANCE & AMBIENT

RECORD OF THE MONTH

LIMBO LIVE AT THE TUNNEL
MIXED BY STEVEN McCREERY
LIMBO

Hidden away off Glasgow's Sauchiehall Street lies 23rd Precinct Records, a modest vinyl outlet for Scotland's home DJs and Dance lovers. What most people don't know is that the shop is also home to one of the country's best House labels, Limbo. It's a fine, fine record company with a solid reputation but it doesn't get a fraction of the recognition it deserves.

As long as seven or eight years ago the House Of Limbo collections were showcasing the label's excellent breed of uplifting House crossed with mean Techno beats and driving Trance elements.



In those days it was acts such as Mukkaa, Havana, and Gipsy who were pioneering haunting vocals and epic

breakdowns over dark, pounding bass. This album features the works of local Tunnel DJs Kevin McFarlane and Steven McCreery among others, but the formula is more or less the same.

From the first pounding beats of Track One, 'Spin-Off', it's evident that Limbo Live At The Tunnel is another corking selection of smoothly-mixed Techno tunes. Moving through infectious melodies to long breakdowns, the pace is unrelenting. Just as the beat drops out for a quick breather, it's slammed right back in again with full force. In the singles market these tunes will probably stay firmly underground, but not because they aren't worthy. As a whole the album is faultless, a nutritious slice of Scotland's finest.

every DJ with a pair of decks has released an Ibiza mix CD.

Not so Sasha, one of the world's most selective DJs. Throughout his career he has always tended to suppress commercial urges and use his releases as a creative outlet. As a result, you can always be sure his works are a true reflection of the nation's dancefloors rather than some marketeer's idea of what should sell well.

The Global Underground series has always gone for a less traditional approach to mix albums too, so what you get here is a really individual piece of compilation. Taking tracks like Hooj's 'Resurrection' and Platipus' 'Anomaly', Sasha works through well-balanced, steady House grooves to harder, melodic Techno. There isn't too much in the way of sonic peaks and troughs - the vibe is well-controlled and cool

but the pace builds slowly and surely into the kind of uplifting House that Sasha is so well known for.

The majority of tracks will be unavailable on other mix comps. In fact, the set features a number of unreleased tracks such as one from Madonna's new bosom buddy, William Orbit, in his remix of Morgan King's 'I'm Free'.



FAT BOY SLIM
YOU'VE COME A LONG WAY BABY
SKINT BRASSIC1CD

Probably one of Santa's most requested stocking-fillers last Christmas, Fat Boy Slim's 'You've Come A Long Way Baby' deserves a belated mention this year just in case anybody missed it.

The Big Beat sound has been around since someone came up with a term for it a couple of years back, but as soon as the name hit the media it got a real slating along with the Breakbeat scene. However, Norman Cook, the Brightonian behind Pizzaman and other equally bizarre pseudonyms and a man famed for his chirpy, quirky Dance tack, was one of the only people in this country likely to boost the scene into the mainstream. He couldn't have been more successful - after the massive debut 'Better Living Through Chemistry' and various single remix projects, he stormed into

the charts with the single 'Rockerfella Skank'. 100000 sales later the second major single, 'Gangster Tripping', consolidated the Norman Cook Big Beat sound and made Fat Boy Slim a household name.

This album features both singles plus nine more tracks which have their feet firmly on the dancefloor but retain enough depth, width and mirth to make for a truly diverse Disco/Hip-Hop medley. Check out the tongue-in-cheek vocoder nirvana of 'Kalifornia' and 'You're Not From Brighton', the wondrous piano highs of 'Praise You' and the acid wig-out that is 'Acid 8000'. 'You've Come A Long Way, Baby' is an unbelievable album to come bursting out of a tiny studio at Brighton's House Of Love. Right about now, a must-have for your collection.

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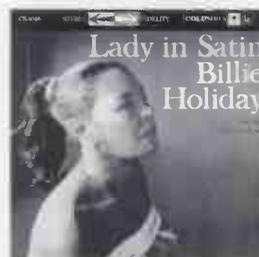
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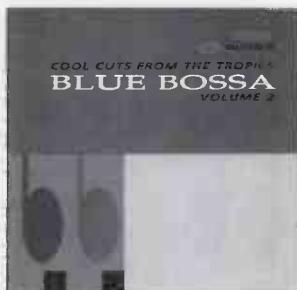
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JAZZ

by Ian Nicolson



VARIOUS
BLUE BOSSA - COOL CUTS FROM THE TROPICS, VOL 2
BLUE NOTE 497156

Baby, it's warm inside and, even if every artist featured in this latest revealing compilation drawn from Blue Note's influential Fifties and Sixties catalogues is a Norteno from several frontiers up toward the cold, there's a wealth of fine, beach-blanket Bossa here.

Since the Blue Note roster could boast the finest - and sharpest - commercial Jazz players in the US, the Bossa and Latin boom found some of its most successful expression in the hands of Stanley Turrentine, Lou Rawls, Dexter Gordon and Duke Pearson.

The first Blue Bossa compilation a year or two back mined the more obvious successes. This volume skips back to 1954 and trombonist JJ Johnson's early but proudly Latin 'Old Devil Moon', and forward to 1975 for vibist Bobby Hutcherson's itchily irresistible 'La Malanga'. Alongside Lou Rawls schmoozing through Joao and Astrud Gilberto's 'Girl From Ipanema', there's Hard-Bop pianist Horace Parlan out-percussing his band in 1962's 'Heading South', with the inimitable trumpet effects of Lee Morgan chasing Joe Henderson's tenor around Billy Higgins'

widescreen drums from 1965.

Stan Getz may have broken through when he joined Charlie Byrd and Joao and Astrud Gilberto to record 'Girl From Ipanema' and Jobim's 'Desafinado' on 1962's Jazz Samba, but Mick Hucknall and the Loungecore scene prove that there's still a lot of good wine left in the Bossa bottle. Why not try some of these vintage pressings?



GEORGE DUKE
AFTER HOURS
WARNER BROS 70732

After Hours is pitched as Duke's first all-instrumental album for two decades and involves a concept that teeters close to the edge of cheese. Whether it overbalances depends entirely upon what you want from your Jazz. What is for sure is that it makes a great advertisement for programmable multi-changer CD players.

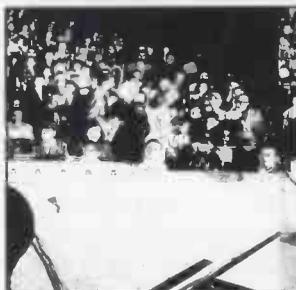
Simply stated, a suite of tunes follow a single evening and night through mood after mood, setting after setting, in an urban version of 1996's splendid, pastoral (and all-instrumental) Muir Wood Suite for orchestra and Jazz quartet.

After a frenetic (though only by comparison with what follows) 'Rush Hour', a wind-down 'After Dinner Drink' and an elegiac 'Anticipation', electric bassist Larry Kimpel and drummer Leon Chancler begin

to sashay around some always gently funky rhythms. In the meantime, Duke's Fender Rhodes and Paul Jackson's Soul guitars nuzzle up to get naughty, and it becomes obvious that there's two folks here to tango.

I'd have voted for more of the sweaty stuff, but Duke and engineer Erik Zobler had something a little less intrusive in mind, so what we're left with is a kind of pre- and post-coital soundtrack that won't tip off the neighbours and still sounds engaging at minimalist volumes. Which is the cue for Marvin or Barry White (or whoever tickles your fancy) on the multi-player.

What remains is almost a souvenir of the imagination, something like an artist's impression of the emotional trajectory described by two lovers' pheromones and endorphins. After Hours could so easily have been slushy and shallow, or slick and uninvolved, and some listeners may find it so. But when relationships are so often condemned to three minutes and a nagging chorus, it's refreshing to come across something that aspires - wordlessly - to the narrative breadth of a feature film.



JAZZ AT THE PHILHARMONIC
BEST OF THE FORTIES CONCERTS
VERVE 557 534

Record and concert impresario Norman Granz's key

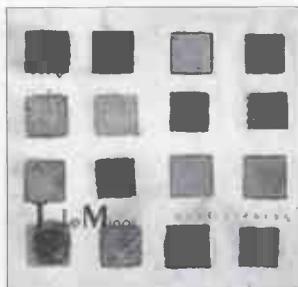
innovation - putting together concert packages of the best Forties Jazz players he could lure to play together, then releasing the undoctored live jams - is well-captured on this single CD compilation derived from the stunning, still-available 10-CD box of a couple of years back. Ella, Billie, Parker, Dizzy, Oscar Peterson, Krupa, Lester Young and Nat King Cole among others trade magic amid coughs, asides, fluffs, creaky changes and the sound of rapturous, unabashed audiences. For the first time, record buyers and concert audiences can experience the excitement that drove the musicians to spend their small hours chasing down the groove in tiny clubs.

Like most innovators, his recordings were initially greeted with contempt by Jazz purists and the recording industry, but never by the musicians who took part. Like the Last Night Of The Proms, the sheer exuberance of the shows reached out to a new audience of fans, and brought Granz the credibility and funds to launch his massively-influential Verve label.

Digitally remastered and restored without attempting to mask the technical deficiencies of the locations, the mastering process or the playing itself, these nine tracks are a fitting tribute to the musicians and the fans who loved them, and an inspiration to every Jazz fan who believes that popular is not synonymous with poor. As an introduction to the box set, this is 80 minutes of history that's a pure pleasure to revisit.

JAZZ

by Simon Hopkins



BEN GOLDBERG
TWELVE MINOR
AVANT AVAN 035

If there's anyone reading this review who can tell me more about the musicians who perform on this CD, please e-mail me (simon@state51.co.uk, just for the record); I'd love to hear more. The seven pieces which make up clarinetist Ben Goldberg's *Twelve Minor* have all been written by the session's leader and are performed by a genuinely refined sextet: Goldberg himself on clarinet, bass clarinet and contra-alto clarinet; Miya Masaoka on koto; Carla Kihlstedt on violin; Rob Sudduth on tenor sax; Trevor Dunn on double-bass and Kenny Wollesen on drums.

The music - recorded in California in the Spring of '97 - is balanced between formal composition and free group improvisation. It can get pretty heated, but the overall atmosphere is one of intelligence, reserve and introspection.

The quality of the playing is very high indeed, and there's a lot of serious listening and group interplay going on, but what helps *Twelve Minor* stand out is the imaginative instrumentation. Goldberg is fluent on each of his clarinets, to great effect, and I personally have always enjoyed the rare appearance of violin in this

kind of context. And, of course, the Japanese koto's presence in the line-up is startling, while quite lovely. Deep stuff; close and repeated listening pays off.



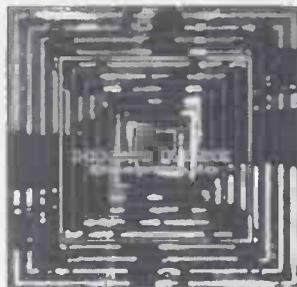
MERZBOW
TAUROMACHINE
RELEASE RR33

In 1981, somewhere in Tokyo one Masami Akita formed Merzbow. There have been 200 releases since (yes, really!) and Merzbow deserves the description "legendary". For those of you as yet unacquainted, this outfit is justly regarded as the gods of noise music.

For Masami Akita, the endurance tests he puts both himself and his audience through in performance and on record are the musical corollary to his interests in the S/M and fetish scenes, rituals of extreme visceral experience designed for the practitioner and the victim to acquire transcendence. Whether it works its transcendental magic on you or not is down to how much guitar and electronics-driven white noise your lug 'oles can stand. Me, well, I can't get enough of it (although I stop some way short of the full 200 releases, I'm afraid!)

For this, his second disc on the fine US label Release - a

follow up to 1994's *Pulse Demon* (arguably Merzbow's most widely-distributed album at that point) - Akita returns to the full, unrefined ferocity of earlier releases, with paint-blistering, white noise, electronic freak-outs and guitar-mangling of all kinds. Ouch, cool. Here's to the next 100!



HIGH RISE
DESPERADO
PSF PSF80

Here's a bit of a personal tale, a tale I keep meaning to tell each time I review a PSF CD here. Early in '98 I was privileged to travel to Tokyo to perform a series of concerts with Paul Schütze and A Small Good Thing's Andrew Hulme. During our stay there I was taken to visit a little record shop called Modern Music, in the Setagaya district.

Modern Music is tiny, really tiny - a first-floor room about the size of someone's bedroom. It's also home to one of the most substantial collections of recorded esoterica in the world, from ancient psychedelic LPs to the latest Noisecore CDs: Japanese Folk music, US Blues, avant-garde Classical, Chinese children's songs, Free Jazz, Punk, Ambient. Boxes are piled on top of each other, stacks of mags cover further

stacks of LPs. The shop's owner informed me that some recordings hadn't seen the light of day for over 20 years. I was in heaven, of course.

Anyway, as well as being a shop, Modern Music is home to one of the world's most exciting record labels, PSF, who deal in wayward Japanese psychedelia of all denominations. The reason I'm sharing this with you is that it struck me standing in the store that it is a perfect realisation in physical form of the record label's ethos: at once bewilderingly chaotic and full of passionate enthusiasm. And that, in its own way, is about as good a description as one could give of the Japanese Rock underground as a whole.

Of the scene's handful of real gods, High Rise come close to reigning in my books. Well, they maybe share the throne with Fushitsusha. And Musica Transonic. And The Boredoms, of course. Oh, and Vajra. OK, it's a big throne. Point is, High Rise ROCK.

The group's main man, Asahito Nanjo, is surely one of the most prolifically active musicians, cropping up in a staggering number of bands and settings. High Rise, however, is pretty much the most straightforward of these. For where, say, Musica Transonic's brand of psychedelia comes wrapped in warped time signatures and Free Jazz drumming, and Fushitsusha's comes on all Blue Cheer-goes-mediaeval, High Rise's Hard Rock is strictly back-to-basics, brutal Punky rhythms ripped apart with blinding psych-guitars. Slash, trash, thrash.

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by Peter Herring

If you're feeling the post-Christmas pinch, take heart. All this month's recordings are re-issues at reasonable prices, including a couple of ripe cherries picked from two new-flowering and highly-collectable series.

RECORD OF THE MONTH



JOHANN SEBASTIAN BACH

Partita No2 in C minor, BWV826

FRANZ LISZT

Piano Concerto No1 in E flat major, S124 et al

PHILIPS GREAT PIANISTS OF THE 20TH CENTURY 456 700-2 (2-CD SET) (ADD/157.52)

Launched last autumn, the series Great Pianists Of The 20th Century is a product of extraordinary collaboration. For the first time, the majority of leading Classical record labels have pooled resources - and master tapes. The recordings of pianists from Ignace Jan Paderewski and Sergei Rachmaninov to Krystian Zimerman and Yevgeny Kissin are to be reissued on 100 2-CD sets, 20 sets at a time, up to the end of 1999. Philips Classics is coordinating the project and issuing the sets and the compilers are able to draw not just on the repertoire of fellow Polygram labels, Deutsche Grammophon and Decca, but those of EMI,

BMG Classics, Sony Classical, Warner Classics, ASV and others. Such cooperation is unprecedented.

From the opening batch, one set immediately stood out: that featuring the Argentinian-born pianist Martha Argerich. Every performance here is special, and three of the four concerto recordings rank among the finest ever made. In that case, you may ask, why have I only vaguely heard of Martha Argerich? Hers is a story worth reflecting on.

Born in Buenos Aires in 1941, she gave her first concert at the age of eight. In 1955, she moved to Europe and studied in Vienna and Geneva. While in Switzerland, she won the Bolzano and Geneva Piano Competitions in 1957. After further studies, she walked away with the first prize in the 1965 Chopin Competition in Warsaw. Thereafter, her career took off and, by the mid-Seventies, she was giving over 150 concerts a year. The strain told. She performed her last major solo recital in 1978, her last solo recording in 1984, since which time she has stayed away from the spotlight and devoted herself to chamber music.

Luckily for us, Martha Argerich committed her finest interpretations to tape, performances that remain as fresh and full of vitality as the

day they were recorded. In the Rachmaninov Third Concerto, recorded at a concert in Berlin in 1982, Argerich is at her most electrifying. The momentum and tension are cranked up as the performance progresses, and Argerich's surges of bravura brilliance have you on the edge of your seat. The volatility seems utterly in tune with the romantic spirit of the work, and the little idiosyncrasies are part-and-parcel of an enthralling musical experience. Off-setting the brilliance of the outer movements, the central adagio is tenderly poetic, and throughout Argerich is sensitively accompanied by Chailly and the Radio Symphony Orchestra of Berlin. With a well-balanced recording (if one that doesn't do full justice to the RSO strings), this is an effort to stand alongside the classic Horowitz and the composer's own recording.

Argerich's collaborator in the other concertos is the conductor, Claudio Abbado, one of those partnerships made in heaven. In the first movement of the Ravel G major, I know of no other pianist who matches Argerich's dazzling vivacity. The rhythmic panache of the first movement - its Jazz elements given full rein - is exhilarating.

The slow movement brings out another

characteristic of Argerich's playing, its sensuality and poetry, and the toccata-like finale - which can sound mechanical - here has a bubbling exuberance.

The two solo Ravel pieces are equally satisfying, Gaspard De La Nuit full of colour and atmosphere. Like the Ravel concerto, Argerich recorded the Prokofiev Third in Berlin with Abbado. It remains a magical performance, which helped establish her reputation as one of the most exciting virtuosos of her generation and, again as with the Ravel, it benefits from a vivid, detailed recording.

Abbado also partnered Argerich in her high-voltage version of Liszt's First Piano Concerto (sadly, she never got round to recording No2). This grabs the attention from the imperious opening octaves, which Argerich cleverly follows with passages of poised reflection. It sets the pattern for a reading which, although not short on bravura, never lapses into vacuous show.

The final composer in this compilation is the most surprising - J.S. Bach. Argerich proves to have a temperament just as suited to Bach as Rachmaninov. Her playing is disciplined and decisive, faithful to the notes and not at all self-conscious. Yet her personality, as in everything here, is still stamped on the performance.

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JOHANNES BRAHMS
Ein Deutsches Requiem, Op45
 Elisabeth Schwarzkopf, soprano; Dietrich Fischer-Dieskau, baritone;
 Philharmonia Chorus;
 Philharmonia Orchestra; conductor, Otto Klemperer
 EMI GREAT RECORDINGS OF THE CENTURY 5 66903 2 (ADD/69.09)

To launch its Great Recordings Of The Century series, EMI has fielded some of its biggest hitters. There's Elisabeth Schwarzkopf in Richard Strauss's 'Four Last Songs', Dinu Lipatti playing Chopin, Dennis Brain as soloist in the Mozart Horn Concertos, Furtwangler's Beethoven Ninth from the 1952 Bayreuth Festival, Previn's Gershwin, Barbirolli's Mahler and Cluyten's Faure Requiem. And then there's Klemperer, unmatched in Mahler's 'Das Lied von der Erde'.

In recent years, conductors such as John Eliot Gardiner and Roger Norrington have re-explored this work, cleaning off the varnish of tradition and opting for smaller performing forces (authentically so), lighter timbres and livelier tempos. Gardiner's recording is especially successful as a re-evaluation, but it stands

alongside Klemperer's rather than superseding it.

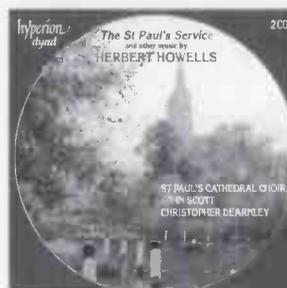
Klemperer's 1961 recording was made in the glorious acoustic of London's Kingsway Hall just a fortnight after he had conducted a memorable performance of the Requiem at the Royal Festival Hall. The overwhelming feeling remains that the intensity of that concert was carried over into the recording sessions. At 76, Klemperer, despite having suffered a serious stroke, was still at the pinnacle of his conducting career. The orchestra which EMI producer, Walter Legge, had created for him, the Philharmonia, was also at its virtuosic peak and, under the tutelage of its chorusmaster, Wilhelm Pitz, the Philharmonia Chorus was arguably the finest in Britain.

Two of the German Requiem's seven movements call for soloists, and here too Klemperer had the finest available: Elisabeth Schwarzkopf and Dietrich Fischer-Dieskau. Both contribute total commitment with matchless delivery, Schwarzkopf with heart-easing purity in the ethereal fifth movement, *Ihr habt nun Traurigkeit* (And ye now therefore have sorrow).

Despite its title, the German Requiem uses nothing from the Latin rite for the dead. Instead, Brahms, at best an agnostic, chose relevant verses from both the Old and New Testaments. He claimed to have "the whole of humanity" in mind when writing the work but it was directly inspired - if that's the right description - by the deaths of his mother and of his friend, mentor and fellow-

composer, Robert Schumann. The result is powerful and profoundly moving, but not in the least lugubrious.

Paradoxically, despite its scale, the Requiem is shot through with a touching, personal humanity. This comes across supremely well under Klemperer. His speeds are on the slow side, but never ponderous, the flow of the music never stilted. In the march-like second movement (used to chilling effect over the opening titles of the recent television series, 'The Nazis'), Klemperer is wholly convincing and the effect spine-tingling. 38 years on, this maintains its status as one of EMI's greatest recordings, something confirmed by this latest, technically superlative transfer to Compact Disc.



HERBERT HOWELLS
Music for Choir and Organ (including The St Paul's Service and Collegium Regale)
 Choir of St Paul's Cathedral;
 Christopher Dearnley, organ; conductor, John Scott
 HYPERION DYAD CDD22038 (DDD/119.43)

This Hyperion reissue combines two discs recorded in St Paul's during 1987 and 1989, together amounting to a representative survey of

Herbert Howells' music for the Anglican church. The set is also a handsome tribute to this most quintessentially English of composers.

Gloucestershire-born, Howells' musical education began within the confines of Gloucester Cathedral. He was inspired by the architectural magnificence of Britain's great churches, cathedrals and Collegiate chapels, and by the way their acoustical properties nurtured what he described as the "immemorial sound of voices". Few composers have so immersed themselves in writing for the Anglican liturgy that, if desired, an entire service could be sung to their settings, but such was Howells' contribution.

Howells was unashamedly influenced by medieval plainsong and Folk music but, above all, fell under the spell of the great Tudor composers: Byrd, Tallis, Taverner, Sheppard and their contemporaries. His music, however, is no pastiche. The wealth of sacred music he wrote from the 1930s almost to his death in 1983 was of the highest quality, elevating music for the Anglican liturgy to a new plane. That achievement is amply borne out in these wonderfully persuasive recordings.

The intelligent programme is based around the canticles for Morning Prayer and those for Evensong. Interwoven among the canticles are several organ pieces, including Howells' homage to one of his Tudor predecessors, Master Tallis's Testament, and three motets. Among these last is 'Take Him, Earth, For Cherishing', written in the immediate aftermath of the assassination of President John

CLASSICAL

F. Kennedy, but equally a heartfelt response to the death in childhood of Howells' son, Michael.

A setting in English of Prudentius's 4th century poem, 'Hymnus Circa Exsequias Defuncti', this 10-minute meditation encapsulates the structural strength and harmonic richness and bite of Howells' choral writing. And rarely can the spaciousness, resonance - and even the echo - of St Paul's have been used so effectively and satisfyingly.



GUSTAV MAHLER
Symphony No 6 in A minor/Kindertotenlieder*/Ruckert-Lieder*
Christa Ludwig, mezzo-soprano*;
Berlin Philharmonic Orchestra; conductor, Herbert von Karajan
DEUTSCHE GRAMMOPHON ORIGINALS 457 716-2 (2-CD SET) (ADD/129.12)

The Sixth Symphony is Mahler's bleakest utterance. Not here the salvation-through-faith of the Second, or the redemption-through-human love of the Eighth, or the transcendence to spiritual peace of the Ninth. This is an uncompromising examination of the relationship between man and Fate. There is little relief to be found even in the symphony's lyrical andante, which is steeped in painful

nostalgic yearnings. The hopelessness and pessimism of the gigantic last movement are literally hammered home by three mighty 'blows of fate', each one of which came to have a grim personal significance for the composer.

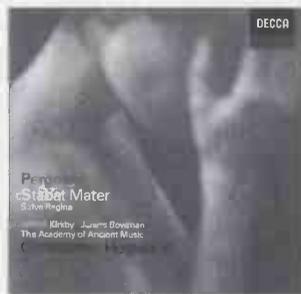
Karajan recorded the work, one of only four Mahler symphonies he committed to tape, in the Philharmonie in Berlin in 1975. Engineered by Gunter Hermanns, it was technically one of his very finest - clear, warm-toned and well-balanced, with a wide dynamic range.

There is nothing routine here; at times Karajan is revelatory. The andante flowers with unaffected and unadorned poignancy and melancholy, emerging as one of the greatest of Mahler's slow movements. Throughout, he balances his forces with masterly subtlety, but the control is flexible, the tonal colours carefully applied to heighten the contrasts. The result is compelling, even mesmerising, as the ear relishes the playing of the Berlin orchestra. Karajan's meticulous preparation, the evolution of his own ideas on this symphony produced what remains one of the most perceptive readings of the Sixth ever recorded. The work was lampooned in the Viennese press of the time for its kaleidoscopic instrumentation, which includes clanking cowbells. But, as Mahler, pointed out, cowbells are the last sound you hear before the silent solitude of the mountain peaks, and the role they play here is surely akin to that of the lonely bird calls which herald the apocalyptic conclusion of the

'Resurrection' Symphony.

The couplings in this reissue could not be more apt: the five songs to words by Friedrich Ruckert and the infamous Kindertotenlieder, to verses by the same poet. Infamous, because even the normally pragmatic Alma Mahler, the composer's wife, urged her husband not to set these poems on the death of children. Her fears were justified: not long after their publication, the Mahlers' eldest daughter died.

On every level, the recordings here represent music-making at its most involving and enriching.



GIOVANNI BATTISTA PERGOLESI
Stabat Mater/Salve Regina in C minor
Emma Kirkby, soprano; James Bowman, countertenor; The Academy of Ancient Music; director, Christopher Hogwood
DECCA 425 692-2 (DDD/51.31)

Giovanni Battista Pergolesi was one of those fragile geniuses who lived a miserably short life due to chronic ill-health - he died aged only 26 - and never had a real chance to fulfil his promise. Yet, by a twist of fate, he shot to fame almost

immediately after his death. The work that brought acclaim was his setting of the Stabat Mater. Pergolesi composed this at the Capuchin monastery of Pozzuoli in Italy where he had gone towards the end of his life.

In some hands, the celebrated Stabat Mater can sound overly operatic, with a romantic edge which is utterly misplaced in a work of such sorrowful, harrowing plangency. That is not the case here, in this well-judged 1988 recording under the direction of Christopher Hogwood. It is difficult to conceive of two more appropriate voices to take the solo roles than those of Emma Kirkby and James Bowman. Both are steeped in the stylistic conventions of the Baroque, and their partnership is a happy one. They revel in the sensuous line of Pergolesi's writing but stop well short of the acceptable boundary of musical taste in such a work. Their phrasing is a delight, and the ornamentation of the lines natural and elegant. The clear, resonant and crisply-focused recording brings out the rich detail of Pergolesi's part-writing, and the players of the Academy of Ancient Music are in peak form.

The disc also includes the better-known of Pergolesi's two settings of the Salve Regina, that in C minor. Here, Emma Kirkby is wholly beguiling, the voice tinged with an affecting poignancy. The passage of 10 years has dulled none of the vitality and freshness of this recording; it remains the performance of Pergolesi's masterpiece by which others must be judged.

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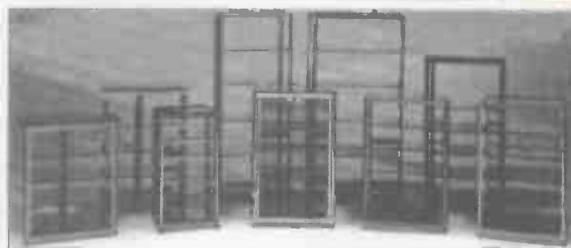
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New Items & Old Items Sale

In the December issue we referred to the new AVI Gravitron speakers, the Inner Sounds Eros Electrostatic Hybrid's and the Michell Orca/Alecta pre-power combinations, so please refer to that issue for more detail. The Gravitrons should be here next week, so by the time this comes out we should have had time to have a good listen, so do ring and enquire! Both the Gravitron and Eros cost £4K, but early next year there will be a new smaller version of the Eros, called the Isis at £2K, but will be purely passive.

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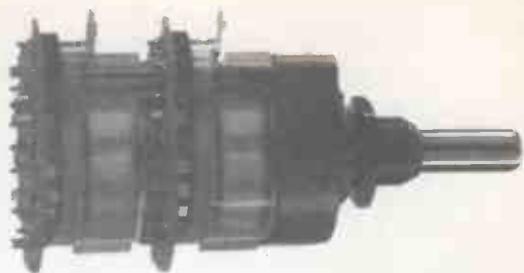
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AE2 II r/wood inc stands	£2090	£1400
Audiolab 8000C	£580	£475
8000LX	£470	£395
8000CDM+DAC	£2300	£1725
8000DAC	£900	£650
8000MX pair	£1800	£1495
B&W CDM2 r/wood	£400	£320
Copland CDA288	£1999	£1599
Cyrus 111i	£598	£475
Commander remote	£100	£50
PSX-R	£328	£275
Power	£498	£395
SL integrated amp	£398	£325
JBL Aquarius S119 LSs	£1250	£625
KEF LS3/5a piano bk. LE	£1800	£895
Krell 250 Pre+power	£5195	£4650
KA V300 cd	£3550	£3195
Marantz CD17 bk.	£800	£650
PM17 gold	£900	£695
Meridian A500 r/wood	£875	£650
M60 r/wood	£2500	£1875
566.20	£1095	£750
500 CDT +566.20 DAC	£2420	£1795
Michell Argo pre.+Hera	£885	£595
ISO phono stage	£420	£320
Mission 753f oak	£898	£750
754f oak	£1498	£1125
Monitor Audio Studio 50SE		
r/wood piano laq.	£5000	£2995
Studio 12 r/wood	£1100	£825
Pink Triangle Litaural CD	£2099	£1675
Tarantella+RB+XLZ	£1054	£750
Pioneer CLD-D925	£800	£595
A300 Precision	£400	£300
PDS505 Precision	£460	£350
Quad 77 Power amp	£600	£450
77 Pre-Amp	£700	£525
77 Remote	£300	£150
77 CD bus (all carbon)	£700	£595
REL Q100E bk.	£495	£395
Yamaha DSP-A3090	£1500	£1125

Classic second-hand...

Acoustic Energy AE1 r/w	£495
Audiolab 8000C pre-amp	£375
8000A integrated amp	£350
Audio Innovations Series 1000 monoblox (were £1799)	£750
2nd Audio (was £3000)	£1000
Gale 401 chrome/black	£250
HK Citation 11/12 pre/power & 15 tuner the very first models, in walnut cases	£300
KEF 104/2 r/w (£2000)	£850
Marantz CD63 II KI-S	£275
CD85 (built like a tank)	£250
Mission 776/777 batt pre amp & 2 x 100w power amp	£950
Argonaut bk., big, twin bass	£325
Quad 22 pre & powers	£600
ESL57 pair bk latest spec.	£750
34 pre-amp	£150
44 pre (din)	£185
405 power amp	£200
FM4 tuner (din)	£150
Revox G36 1/2 track 10"	£195
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Rogers LS6 teak	£175
Ruark Sabre bk.	£250
SME original 3012	£175
3009 mk1 original box	£75
Tandberg TD20A	
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Tannoy Cheviot 10"	
Dual Concentrics, walnut	£350
609 marble effect inc. stands	£195
Thorens TD124 mk2 +3012	£150
TD125 mk2 +3009	£200
TD150+3012 in SME plinth	£300
Vortexion Series 4 recorder	£100

MEASURED PERFORMANCE

CD PLAYER

COPLAND CDA 266

The CDA 266 worked well on one channel but suffered distortion on the other. The imbalance amounted to 0.86% against a normal 0.442% at -60dB, quite a large disparity. At 0dB down to -6dB the channels matched well and below -60dB they came back into line, but between these limits things were not too good by current standards.

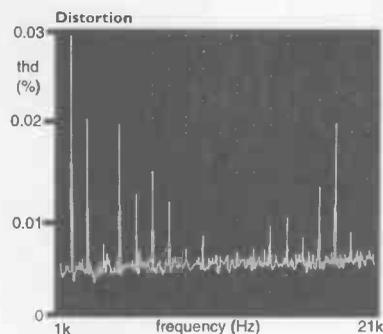
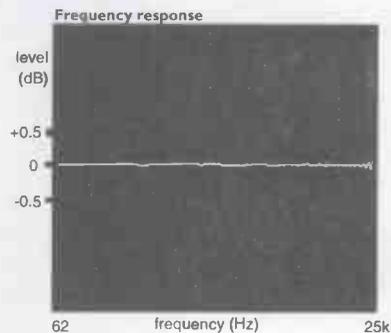
The filtering used was accurate, giving a flat, wide response, as our analysis shows. The high-frequency limit measured 21.25kHz, higher than usual. This suggests the CDA 226 is likely to sound different from the norm and may well come across as clear and open.

Output was high at 2.68V on both channels. The Copland was a little different from the norm. It is

likely to sound bright and open but possibly a little coarse. NK

Frequency response 4Hz-21.25kHz

	left	right
Distortion (%)		
-6dB	0.012	0.012
-30dB	0.045	0.022
-60dB	0.859	0.442
-90dB	29	29
Separation (dB)	left	right
1kHz	120	119
20kHz	97	95
Noise		-103dB
with emphasis		-103dB
Dynamic range		105dB
Output		2.68V



MUSICAL FIDELITY X-RAY

The X-Ray has smoothly rising treble, albeit with a very small degree of lift. This is still enough in energy terms to add a touch of brightness though.

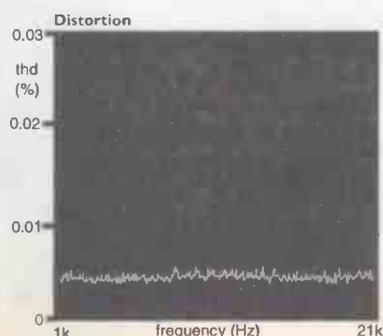
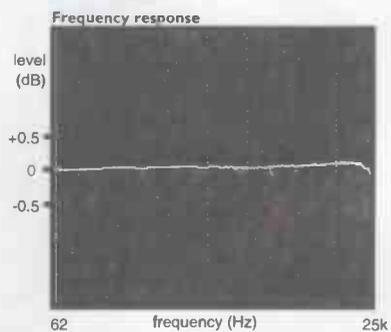
Both channels exhibited little distortion under measurement, with just 0.4% being returned at -60dB, about as low as it is possible to go with 16-bit. This resulted in an excellent 109dB dynamic-range figure.

Channel separation was high at around 115dB and noise low at -102dB.

With a normal output level of 2.25V I would expect the X-Ray to sound smooth but quite detailed and possibly a little bright with it. NK

Frequency response 4Hz-21.06kHz

	left	right
Distortion (%)		
-6dB	0.004	0.004
-30dB	0.004	0.007
-60dB	0.41	0.41
-90dB	29.7	29.5
Separation (dB)	left	right
1kHz	114	116
20kHz	109	110
Noise		-102dB
with emphasis		-102dB
Dynamic range		109dB
Output		2.25V



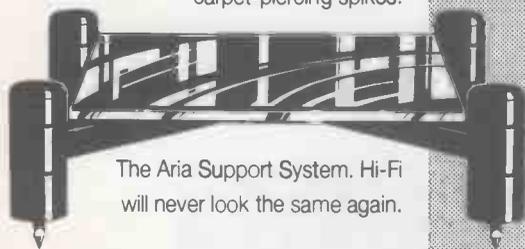
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Audio innovations Alto integrated amplifier. Mint	£ 190	Garmin bra Stinson valve pre-amp with phono	£ 250
Shure integrated amplifier. Good condition	£ 95	Denon PM-A380 amplifier.	£ 75
Creek 4040 MK2 amplifier. Excellent condition.	£ 600	Sugden A21A integrated amp with phono. Cost 830£	£ 450
Beard BB100 integrated valve amplifier. Mint.	£ 195	Naim 22 pre-amplifier & 110 power amplifier.	£ 249
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Quad 405/1 power amplifier. Ex condition.	£ 75	TVac Model TA801 int valve amp. 50W. Cost £1800	£ 695
Concordant modified Quad 22 pre-amplifier.	£ 99	O.A.C. Mistrale int amp. 5W/CH. Cost £450	£ 199
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Fisher X100A integrated valve amplifier. G/C	£ 99	Connoisseur/Sugden pre/power amp. Very rare.	£ 195
Rogers HG88 MK2 integrated valve amplifier.	£ 299	Dynaco CA35 integrated valve amplifier. Ex cond. £199	£ 199
Musical Fidelity E200 pre-amp with remote.	£ 350+	Richard Allen class A integrated amplifier.	£ 150
Quad 11s various conditions. From £350 pair	£ 75	Rogers cadet mono valve amplifiers. Pair. Reduced	£ 100
Quad 33 pre-amplifiers. Various from	£ 200	Leak TL25 mono valve power amplifiers. From.	£ 150
Leak Stereo 20 power amps. Various condition. From	£ 300	Sugden C51 pre-amplifier.	£ 95
DNM 2A pre-amplifier & power supply. Amazing			

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Garrard 301 & 401 motor units. Serviced. From.	£ 125	Thorens 124 motor units. Serviced. From.	£ 200
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SPEAKERS

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Cambridge R40 transmission line speakers.	£ 200	B&W DM3 loudspeaker. 1 only.	£ 250
Magneplaner SMG/B loudspeakers. Mint. Boxed.	£ 550	SD Acoustics SD2 speakers and stands. Good cond. £195	£ 195
Keswick Audio Volante. Mint. Boxed.	£ 295	Mordant Short MS600 with Decca Kelly Ribbons. £199	£ 199
Ruark Broadwords 2. Cost £899. Bargain	£ 399	Cyrus 781 speakers with stands. Ex condition.	£ 149
ARC 101 Active/passive speakers. Scruffy cab.	£ 75	Quad Electrostatic speakers. From £400 pair.	£ 400+
KeF 102/2 speakers. Excellent condition. Boxed.	£ 295	DCM Timeframe TP700 speakers. Ex condition.	£ 500
Monitor Audio MA3 & stands. Absolute bargain	£ 125		

OTHER ITEMS

Marantz CD80. Mint. Boxed. A real heavy weight	£ 249	Cambridge Audio Dacmagik I & silver mains lead	£ 100
Soundstyle Rack (RED) with solid marble shelves	£ 180	VDH The Second interconnect. Boxed. Cost £240.	£ 120
VDH The First Digital Interconnect. Cost £125	£ 95	5 M pair Audioquest Indigo speaker cable. Bi-wire	£ 99
Quad FM4 tuner. Excellent condition.	£ 225	Acos Lustre tone-arm.	£ 40
Quad AM3 tuner. Mint. Like rocking horse S**T	£ 175	Quad FM3 tuner. Good condition.	£ 75
Arcam Alpha CD player. Boxed with remote.	£ 175	Phillips CD964 CD player. Cost £700. Make ex trans	£ 199
Quad 66 CD player. Boxed & Excellent condition	£ 300	Goldbug Briar MC cart. Been VDH. Serious Hi-end	£ 495
Quad FM1 Mono tuner.	£ 20	Audio Alchemy Dac in the box. Cost £230	£ 75
Marantz CD85 CD player. A classic. Boxed	£ 250	Meridian 203 DAC. Mint. Boxed	£ 225
Leak Troughline 2 & 3 Mono/Stereo. From.....	£ 75	Marantz CD52 MK2. No remote	£ 69
SME 3009 tone-arms. Various. From.....	£ 60	Sony CDP 561E CD player	£ 99
Yamaha KX580 SE cassette deck mint boxed	£ 150	QED digit and positron power supply	£ 75

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EAR 834p Phono stage. MM only. No volume control.	Brand new. Boxed. At only	£349
EAR 834L. Line only valve pre-amplifier. Amazing.	Brand new. Boxed. At only	£450

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MIDIMAN FLYING CALF DAC

This neat little convertor turned out a fine set of performance figures.

Frequency response was almost ruler flat, as our analysis shows, so it should give a neutral tonal balance free from artificial warmth or brightness.

Both channels produced little distortion - by 16-bit standards that is - right down the dynamic range. At -60dB below full signal level I measured 0.45%, which is about as low as possible with an undithered signal. This in turn gave the Flying Calf an excellent EIAJ dynamic range figure of 108dB.

With low noise and a normal output of 2V the Flying Calf measured well all round. NK

Frequency response 4Hz-20.8kHz

Distortion (%) left right

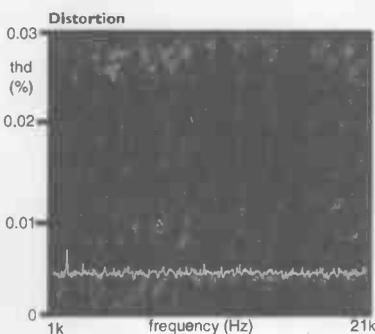
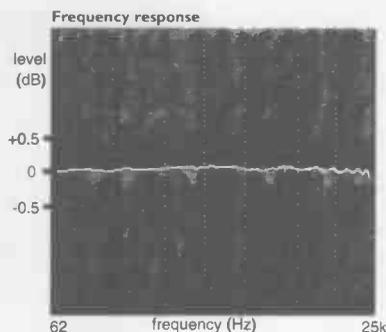
-6dB	0.005	0.006
-30dB	0.008	0.008
-60dB	0.45	0.46
-90dB	29	30

Separation (dB)	left	right
1kHz	112	113
20kHz	108	109

Noise -116dB
with emphasis -116dB

Dynamic range 108dB

Output 2.08V



AMPLIFIERS

SONY TA-FB920R

The TA-FB920R is a MOSFET amplifier with plenty of bandwidth and plenty of feedback too I suspect. It has little treble distortion, a characteristic of FETs with feedback applied since there is plenty of HF gain available. The TA-FB920R produces negligible amounts of distortion, just 0.003% at low power and no more than 0.05% at high power.

Bandwidth was good at 12Hz to 110kHz via the CD input and 18Hz-130kHz via the Phono input. There is no warp filter but gain is -3dB down at 8Hz - not a lot but enough to suppress warp information a bit.

This amplifier turns out plenty of power, no less than 72watts into 8ohms and 110watts into 4ohms.

This is more than enough to go loud with good, modern loudspeakers of 86dB sensitivity or more.

The tone controls worked correctly, applying well-tailored amounts of boost and cut at spectrum extremes. They can be bypassed if desired.

The TA-FB920R measured very well all round. It probably has plenty of feedback, which will flatten the sound stage a little, but it is likely to sound clean and punchy. NK

Power 72watts

CD/tuner/aux.

Frequency response 12Hz-110kHz

Separation 81dB

Noise -89dB

Distortion 0.003%

Sensitivity 120mV

DC off-set 1mV

Disc

Frequency response 18Hz-130kHz

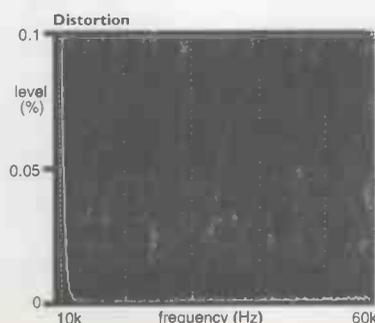
Separation 60dB

Noise -88dB

Distortion 0.007%

Sensitivity 2.3mV

Overload 140mV



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John Roberts wishes everyone a very happy Christmas and New Year



Shhand and ex-demo clearance items - January '99

	Was	Now
Alphason Sonata/ HR100S /Atlas/OC7	2600	650
Audio Alchemy DDE 1.0V	349	175
Audio Note ANS 3 Silver Coil Transformer.	1699	750
Audio Note CD2 Valve CD player	999	750
Audio Note IO 1V mc Cartridge (low hours)	1295	695
Audio Note IO II Cartridge Kondo (re-tip)	1800	850
Audio Note TT1/RB250/IQ1	750	575
Audio Research LS 7 Line Preamp	1599	950
Audion Golden Knights 300B Mono Blocks	3995	1799
Basis Ovation/ Air Tangent 1B	6800	2995
Blueprint Point 1 Loudspeakers	1000	695
Cambridge Audio DAC Magic II	149	89
Cogan Hall Intermezzo Ref 0.5M	375	95
Epos ES 11 Loudspeakers Blk	479	249
Gordon Wellford Naim 120 Poweramp	500	249
Jamo Concert 8/ 6 Months Old	1380	895
JBE Slate Turntable Series 3/SME Series IIIs	N/A	175
KEF Q30 Speakers Black	349	179
Koetsu Black (re-tip - low hours)	N/A	350
Lecson AP1/AC1 with Manuals	N/A	295
Linn LK100 Poweramplifiers	650	349
Magnaplanar SMG C SE	1150	599
Mark Levinson NO331 Power Amplifier	4500	3450
Michell Orbe (9 months old - gold plated)	2000	1495
Micromega CD3/ Duo Pro DAC	3000	1299
Micromega Stage 3 CD Player	999	495
Mission 754 Freedoms Primevera	1499	895
Mordaunt Short MS25 I Black	349	119
Musical Fidelity X-A200 Mono Blocks	1000	749
Naim Audio NAC 32 mm/mc Preamplifier	N/A	159
Orelle DA180 DAC	599	195
Orelle SA100 Amplifier	449	359
Ortofon MC 3000 Mk2 mc Cartridge	1200	475
Project 6.1 Turntable/OC 7	499	279
PS Audio 2B Poweramplifier	N/A	149
PS Audio 4.5 Preamplifier	499	225
PS Audio IV Phono Preamplifier	499	195
Rega ELA Cherry Latest Spec	535	425
Rega Elicit Integrated Amplifier	740	529
Rega HAL Pre Amp mm/mc Remote	998	649
Restek Concret II CD player	2500	1795
Rogers DB101 Red	199	99
Rogers LS35/A Black (new)	699	399
Rogers Studio 5 Rosewood	799	399
Rogers Studio 9 Black	1549	699
Roksan Attesa DP3P CD player	1595	899
Roksan Attesa DP3T Transport	1295	699
Roksan DP1 Transport	995	495
Roksan DS 5 Power Supply	549	429
Roksan L1.5 Preamplifier	2250	1495
Roksan S1.5 Stereo Power Amplifier	1495	999
Roksan Xerxes Cognecenti Gun Metal Tabz	1750	895
Roksan Xerxes XPS3.5/Tabrizi/Piano Lacquer	1750	895
Roksan Xerxes/Tabrizi/MC25FL	1295	695
Rotel RC 970 BX Pre Amp (new)	175	129
Ruark Sceptres Cherry	599	449
Sonus Faber Concertino Walnut	599	425
Sony CDP559ES CD Player	599	269
Spendor SP2/Mk2 Mahogany	599	295
Sugden SDT-1 Special Edition CD Player	1499	895
Teac TI Transport Boxed	799	599
The Source Turntable/PSU	1500	499
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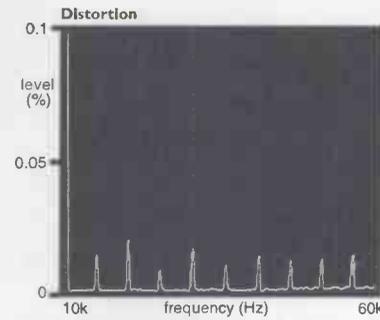
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FINAL MUSIC-5 PRE AND MUSIC-6 POWER

Battery power severely limits current draw by an amplifier, unless the batteries are high-current lead/acid types. Those supplying the Final are not, with the result that it produces a limited 10watts into either 8ohms or 4ohms. Very sensitive loudspeakers are needed to exploit this, but the good news is that large floor standers are more sensitive than small bookshelf loudspeakers and quite a few modern designs manage 90dB or more. A minimum of 90dB SPL from 1watt is needed.

Unfortunately, the Final produces classic Class B distortion at



high frequencies which affects low-level signals more than high-level ones. Crossover kinks were clearly visible on the waveform and a figure of 0.3% recorded at 1watt output. If this had comprised second harmonic it would not have been a problem,

but the harmonic structure was extended. Winding level down below 3V output saw distortion rise.

Noise was a little high at -70dB, though not necessarily intrusive.

This is a rather specialised amplifier. It needs thorough auditioning before purchase and a good pair of matching loudspeakers.

NK

Power	10watts
CD/tuner/aux.	
Frequency response	3Hz-150kHz
Separation	70dB
Noise	-70dB
Distortion	0.05%
Sensitivity	50mV

LOUDSPEAKERS

MISSION 774

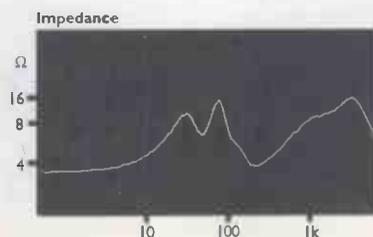
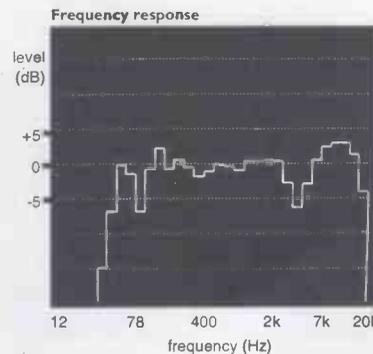
Mission have used a D'Appolito drive unit arrangement for the 774, placing mid/bass drivers above and below the tweeter, very closely spaced. This gives excellent dispersion free from phase problems at crossover. It also makes two bass units handle the input power, giving each an easier time and providing good cone area in a narrow cabinet.

Mission have exploited all these advantages, although I was surprised to find that both loudspeakers had a narrow suck-out at crossover and strong tweeter output. The suck-out was an amplitude effect, likely attributable to component variation. Mission are traditionally adept at engineering a flat response coupled with excellent inter-driver phasing.

The impedance curve shows

somewhat weak reflex action; this is almost an IB loudspeaker. Dips hit 4ohms but the overall impedance value measured 6ohms, using pink noise. Mission are a little more awake than most big 'speaker companies. They use High Definition Aerogel drivers with good sensitivity (small clearances to make an efficient motor, strong magnets, lightweight cones). As a result, for a nominal watt of input the 774s produce 90dB. In other words they go very loud with little power. Amplifiers of 20watts to 80watts or so should be enough.

The 774s are well designed but our samples will sound bright and the tweeter should sound poorly integrated because of unfortunate component variation. NK



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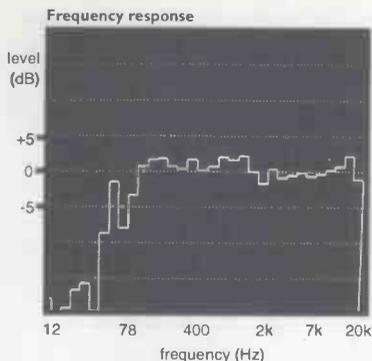
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OPERA PRIMA

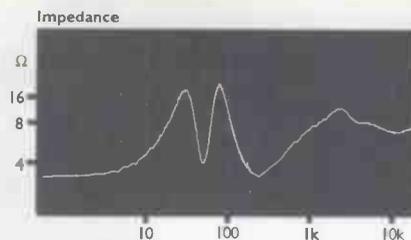
Good miniature loudspeakers often possess an impressively flat frequency response and this was the case with the Prima. Our third-octave, pink-noise analysis shows a small treble peak attributable to the tweeter and just a bit less energy across the treble than the mid/bass region. This will ensure the Primas have some body to their sound.

There was not a lot of deep bass, as you might expect, and a slow bass roll-off below 100Hz suggests heavy damping to suit a wall position.

The impedance curve is a little strange. It is high across the treble



region but low across the bass/midrange, measuring out at 6ohms overall. This explains the high sensitivity figure of 88dB. In truth the Primas draw current from



solid-state amplifiers (constant-voltage sources) in order to appear sensitive. The only problem with this is that they stress amplifiers a little more heavily and will magnify sound quality differences between them. They are not an especially easy load but will need no more than 60watts from an amplifier. NK

CASSETTE

PIONEER CT-S550S PRECISION

This cassette deck is jammed with effective goodies, all of which I have tested before and found successful. Our sample had an excellent basic playback performance, augmented by FLEX which compensates for badly-recorded tapes. Head azimuth was in perfect alignment, I found, and replay response and speed spot-on.

The Pioneer auto-tunes blank tapes too, giving a flat-ish response with ferrics, chromes and metals. Our analysis shows a little roll-down at high frequencies with TDK MA but this varied a little whenever the deck was tuned, such systems always displaying some variability. Speed stability of the transport was excellent, even though it is a single-capstan type. The head withstood high recording levels without overload and coped with metal tapes well. With Dolby S on board

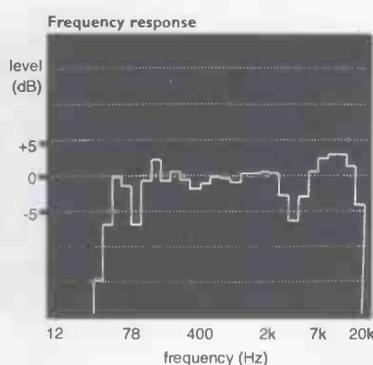
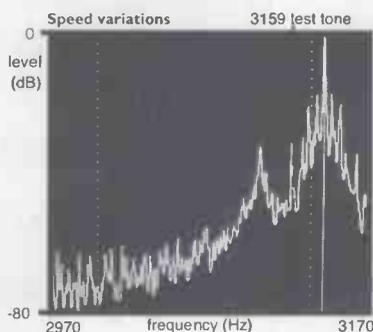
too the CT-S550S has it all, and I found no real weaknesses. This is a very good deck. NK

REPLAY (pre-recorded tapes)

Frequency response (-2dB)	30Hz-20kHz
Speed accuracy	0% error
Hiss (70uS, Dolby out)	-62dB
MOL/SAT (IEC Refs) 315Hz/10k	
ferric (IECI)	4dB/-6dB
chrome (IECII)	3.5dB/-7dB
metal (IECIV)	5dB/-1dB

RECORDING (blank tapes)

Frequency response (IEC Primary Refs.)	
ferric (IECI)	10Hz-18kHz
chrome (IECII)	10Hz-20kHz
metal (IECIV)	10Hz-18kHz
Separation (1kHz)	60dB
Distortion (315Hz)	1%
Hiss (70uS, Dolby out)	-56dB
Speed variations (DIN total)	0.08%
Flutter energy (3-3.13kHz)	-38dB

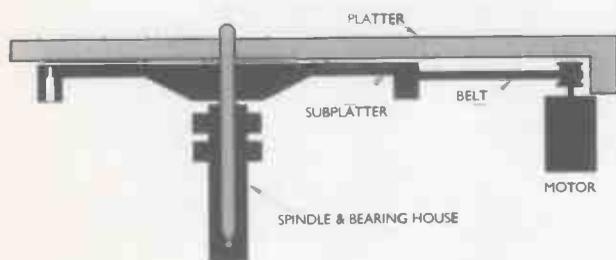


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"this Vinyl font end had my jaw heading towards the floor with the solidity and transparency of the music it was making"... "the standard came up with crystal clear images set in a broad sound stage"..." "With all these goodies in place, the standard would give turntables at the £1200-£1400 mark a hard time."
HI-FI WORLD SUPPLEMENT NOV 97

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HI-FI NEWS SUPPLEMENT NOV 97



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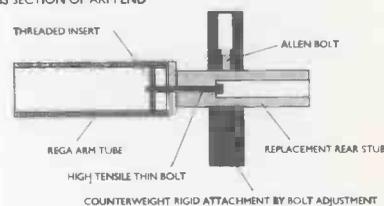
If you are the proud owner of one of these two arms why not utterly transform it into the league of super arms with the Origin live structural modification:- £75 inc post & packing. This modification will enable your Rega to perform at a level exceeding that of arms costing over £1200. Rewiring with silver high grade litz cable is also offered at an additional £70.

"I have to say the Rega modifications turn this humble arm into a real Giant killer. Gone is the rather grey, sterile sound of the cooking Rega. Instead, tonal colour is fresh, dynamics have great speed and impact, and the sound stage is huge." HI-FI WORLD SUPPLEMENT NOV 97 (structural modification only to a RB250)

WHAT HI-FI Sept 98 gave this modification a 5 star rating.

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KENWOOD DP-3080/II £180

Has great clarity and presence for the price. Not as naturally expressive as the CD4SE though. (Feb 98)

CAMBRIDGE CD4SE £200

A touch soft in the treble but outstanding in every other respect. (Feb 98)

ARCAM ALPHA 7 £330

This British-built player is extremely good value. Up-front, punchy. Suits Techno and Rock. (Mar 97)

MARANTZ CD-63MKII KI-S £400

Similar to the CD-63SE but more powerful bass and an all-round smoother sound. The famous KI tweaks pay off again.

PHILIPS CDR 870 RECORDER £500

Replay quality is on a par with £250 machines but analogue and digital recordings on CD-R and CD-RW are outstanding. (Jan 98)

DENON DVD-3000 £699.99

The Denon is a fine performer with CD and better still with 24/96. It's sonically strong with a crisp, clean and involving sound.

ROKSAN CASPIAN £895

The Caspian has a smooth, slightly bright sound with some of the clearest treble in the business. Very engaging, dynamic character. (Aug 97)

PANASONIC DVD-L10 £999.95

This mini-marvel with its built-in screen isn't cheap but it's an outstanding portable and a more-than-capable domestic device. (Nov 98)

MERIDIAN 506 20-BIT £1100

Very detailed and revealing player. More cerebral than visceral sounding, however. (May 95)

MARANTZ CD-17 KI-S £1100

The Marantz excels in all areas. Without doubt this is one of the most involving CD players on the planet. Build quality is also exemplary. (Sep 97)

DENON DCD-S10 £1300

A warm, atmospheric and smooth performer that never fails to involve. Silken musicality par excellence. (Jul 97)

MCINTOSH CDM7009 £2635

A thoroughly inspiring machine. One of the most musical CD players around; sweet, open and detailed. (Dec 95)

COMPACT DISC TRANSPORTS

TEAC VDRS-T1 £550

Not as substantially built as its chunky looks suggest, the T1 is nevertheless a good entry-level transport with a warm, expansive sound. (Feb 95)

TEAC P-30 £2500

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SONIC FRONTIERS TRANSPORT £6999

Cutting edge design and technology combine to make this one very desirable product. The only problem is the fantasy hi-fi price. (Sep 98)

CD CONVERTORS

MIDIMAN FLYING COW £299.99

Excellent as a DAC and doubles as an ADC for archiving to CDR. (Jun 98) Great value, as is junior version Flying Calf at £109. (Feb 99)

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Future-proof convertor which will handle 24/96 and 24/192. Extremely open and natural performer. (Nov 97)

SONIC FRONTIERS PROCESSOR 3 £6999

Quality never comes cheap! This DAC oozes class and when matched with the Transport 3 is certainly up with the best. (Sep 98)

TURNTABLES

GARRARD 301/401 second-hand

In a decent plinth with an arm of SME 309 calibre, the 301 & 401 have a highly authoritative sound with solid, expressive bass. Very musical, but treble isn't up to modern standards.

THORENS TD124 second-hand

One of Thorens' best turntables. Needs a modern plinth to give its best. Duly installed, it's good enough to face off the Garrards, swapping some of its bass power for a more delicate, incisive treble.

ORIGIN LIVE STANDARD £145 (KIT)

Fine in standard form with AC motor, frighteningly good with a DC motor and battery PSU.

SYSTEMDEK IIX900/RB250 £330

A fine all-rounder and easy to upgrade too. More depth and breadth than Rega Planar 3. (Sep 94)

PINK TRIANGLE TARANTELLA £680

Not only does the Tarantella have more style than a catwalk full of models, it also combines PT's usual clarity with real authority. (Oct 97)

VPI HW19 JUNIOR/RB300 £599

With its control and grip on music the Junior never fails to engage. Set-up is a piece of cake and there's a range of upgrades on offer too. (Oct 97)

MICHELL GYRODEC £875

Stunning looks, build and fine sound. Standard PSU has detailed, architectural, if undynamic sound. With QC PSU, scale and insight excel.

PRO-JECT 6.1SA £999

The Pro-ject places the listener in the best seat in the control room. Comes with Sumiko arm and Ortofon MC 30 Supreme. (Dec 94)

ROKSAN XERXES X £1295

DSU or XPS 3.5 power supply £150/170 extra. Excellent pitch stability from a new Swiss motor and outboard power supply. Very tight bass, fine dynamics and revealing clarity. (Jan 97)

MICHELL ORBE £1995

The Darth Vader of analogue, the Orbe builds on the strengths of the Gyrodec. An ultra-tuneful, expansive sound. (Apr 95)

SME MODEL 20 £3400

Including the excellent SME V tone-arm, the Model 20 is one of the last great turntables, unless you've got £11000 for the Model 30, that is. (Oct 92)

TONE-ARMS

LINN ITTOK second-hand

This early heavyweight arm benefits from fine engineering. Good dynamics and grip.

REGA RB300 £180

Supremely capable at the price, but not quite humankind's salvation. Some may prefer the simpler RB250 at £130. Detailed, tight, rhythmic sound but tonally rather grey and cold-sounding.

SME 3009SII £309

This Paleolithic device is no longer state-of-the-art with frequency extremes or detail, but its legendary serviceability makes it a cult in Japan. Can be picked up for peanuts second-hand. (Jan 93)

World favourites guide

HADCOCK GH 228 SE £595
Venerable unipivot design re-engineered for bang up-to-date performance. Bucks current tone-arm fashions but the sweet sound tells why. (Dec 98)

SME 309 £689
A down-market version of the IV and V with aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision. (Jan 93)

CARTRIDGES

GOLDRING 1012GX £74
An accomplished MM with a solid bass, slightly forward midband and clean transients. (Jul 93)

ORTOPHON MC 15 SUPER II £140
Not quite as good as the dearer Supremes but the Super II is a splendid introduction to the joys of moving-coil cartridges.

DNM MICA £185
Bettors Goldring's 1042 and costs only £135 on trade-in. An assured and transparent MM. (Feb 98)

GREGORY MUSIC MAKER £575
When mated with a good quality arm, this hand finished high-output pick-up gives an ear-boggling account of itself. An absolute gem. (Feb 99)

ORTOFON MC 2000 £799
We came across this in an SME IV on a Garrard 401; it gave one of the best results we've heard.

ORTOFON ROHMANN £1000
In a way it's MC 2000 meets MC 7500 with great tonal strengths and a dynamo sound. (Apr 96)

LYRA LYDIAN £649
A truly musical, sophisticated device that makes most other MCs sound frigid. (Jun 95)

VAN DEN HUL MC-10 £840
Fluid bass, finely-etched treble and highly tuneful. The MC-10 is a honey, pure and simple. (Jun 95)

ORTOFON MC 7500 £2000
Conclusive proof that there's hope for the world. CD lovers would die if they heard it. (May 94)

INTEGRATED AMPLIFIERS

MISSION CYRUS I/II S/H
Both versions give a detailed, articulate and dynamic sound. Worth keeping an eye out for second-hand.

DENON PMA-250SE £160
It might not have bags of grunt but the Denon can sound exceedingly natural and open. (Feb 97)

ROTEL RA-970BX £250
With its smooth and powerful sound; sings a seductive song with all types of music. (Oct 96)

PIONEER A-300R PRECISION £399
This is the A-300 tweaked. Rhythm and detail are first-class; the phono stage is not far behind. (Apr 95)

AUDIO ANALOGUE PUCCINI SE £595
This superbly-built Italian integrated has a lucidity and control which leaves others nowhere. Sound stage a wow. (Dec 97)

ROKSAN CASPIAN £695
Smooth, warm integrated with remote control that works happily into most 'speakers. (Dec 97)

SONNETEER ALABASTER £995
Builds on the strengths of the Campion with ample control, colour and drive. (Oct 97)

UNISON SIMPLY 2 £995
This single-ended valve amplifier is smooth, sweet & open. An extremely musical performer. (Oct 95)

UNISON SIMPLY 4 £1495
Sonically similar to the Simply 2, but with more power and control. (Oct 95)

MCINTOSH MA6800 £3735
The MA6800 not so much plays music as takes control of it, with effortless bass drive. (Sep 95)

PHONO STAGES

QED DISCSAVER £35
A true bargain that offers a cohesive, musical sound but avoid using it in thin sounding systems.

NAD PP1 £39.99
An unassuming little box that nevertheless gets on with it. Comes complete with wall-plug power supply. No provision for battery power.

ROTEL RQ-970BX £130
Superb-value entry-level phono stage with audiophile quality components and clear sound.

LFD MISTRAL PHONO STAGE £300
The Mistral has a warmth and involvement that make many pricier stages sound overpriced.

LEHMANN AUDIO BLACK CUBE £395
Capable of involvement, neutrality and insight normally the preserve of phono stages three to four times the price. (Oct 98)

SONNETEER SEDLEY £399
Combines transparency and fine dynamics with excellent rhythmic ability. (May 98)

ROKSAN ARTAXERXES X £950
With the Atessa PSU the Artaxerxes X MM/MC stage still shines. Great stage depth, neutrality and tonal colour. (Oct 97)

PRE-AMPLIFIERS

AUDIO ANALOGUE BELLINI £475
Showcases AA's characteristic mix of clarity and musicality and blasts the competition. (Apr 98)

XTC PRE-1 £1000
Almost valve-like in its smoothness, the line-level Pre-1 is warm and seductively clear. (Nov 96)

CHORD CPA1800 £1800
Clarity, insight and control are second to none - an addictive mixture. (Mar 98)

MARANTZ MODEL 7 £3500
A Sixties reissue, the Marantz pre-amp still sounds superb. Great phono stage. (Mar 97)

POWER AMPLIFIERS

QUAD II second-hand
Classic valve monobloc with many thousands still in use. Archetypal warm, smooth valve sound.

LEAK STEREO 20 second-hand
The Stereo 20 can sound impressively up-to-date, although power and detail are ultimately limited. The TL10, TL12 and TL12+ monoblocs are also very worthy contenders.

ARCAM 9 £400
With 70watts on tap, the 9P will drive most loudspeakers with a spacious and detailed sound. Good bass welly too. (Dec 96)

MISSION CYRUS POWER £450
This power amplifier is a real honey. Rich and smooth, but with a firm grip.

SUGDEN AU41P £530
Extremely competitive at the price with 100W of unusually smooth, full-bodied sound.

MUSICAL FIDELITY X-A200 £1000/PAIR
200watts of high-end monobloc power in a grooved tube. (Aug 98)

NAIM NAP180 £1060
Partnered with a NAC82, this has classic Naim control, and a superbly rhythmic presentation.

MICHELL ALECTO £1989
Crisp, clean and beautifully controlled. Partnered with the £1650 Orca a winning combo. (Oct 98)

CHORD SPM400 £1400
There's a sense of effortless power to the Chord that gives music real scale and presence. (Mar 98)

World favourites guide

CHORD SPM1200 £2995
Like the SPM400 but loads more power on tap. Will drive just about anything. (Mar 93)

XTC POW-1 £2000
As smooth and composed as the Pre-1, the POW-1 has bags of power and refinement. (Nov 96)

MARANTZ MODEL 9 £8000
Authentic reproduction monoblocs still more than cut the sonic mustard. (Mar 97)

TUNERS

LEAK TROUGHLINE second-hand
Our favourite way of listening to the wireless. A deliciously mellifluous sound will have you junking your transistor radio in seconds.

NAD 412 £190
The 412 is remarkably musical and natural sounding. Rich sound and full bass. (June 96)

SONY ST-SA3ES £250
Beguiling RDS tuner for the sonically discerning. Good ergonomics and sensitive too. (Apr 97)

MISSION CYRUS FM7 £300
Clear and lucid sound puts it up with the best. Superb build too. (Apr 94)

CREEK T43 £399
Excellent detail, separation and dynamics. A great little tuner and unbeatable at this price. (May 98)

ROTEL RT-990BX £500
High-quality Michi-based tuner with a sophisticated, forward sound with great imaging. (Apr 95)

NAIM NAT03 £595
The NAT03's warm, atmospheric sound is further proof of Naim's proficiency with tuners. (Sep 93)

FANFARE FT-1 £1295
In its native US the FT-1 is no mere tuner but a 'broadcast monitor'. Clear and powerful. (Mar 93)

NAIM NAT01 £1380
Perhaps the best solid-state tuner available. For better radio, go and live in the studio. (Sep 93)

CASSETTE DECKS

KENWOOD KX-3080 £160
A simple deck, but excellent-quality head and transport give top quality sound. (Oct 96)

AIWA AD-S750 £200
Sonically a very decent machine at the price. Comes fitted with Dolby B, C and the dead handy Dolby S. (Apr 96)

YAMAHA KX-580SE £250
The 'SE' tag is more than a marketing gimmick. Sound is solid and clear with Dolby S. (Sep 97)

AIWA AD-S950 £300
A stable transport, superb head and Dolby S make the AD-S950 an excellent all-rounder. (Feb 95)

PIONEER CT-S740S £430
A great piece of engineering from Pioneer, with first-rate sound. (Jun 96)

NAKAMICHI CR-7 second-hand
Kills all other tape deck and stamps on the graves. Like all Naka decks, sadly discontinued. (Aug 93)

LOUDSPEAKERS

TANNOY MERCURY M2 £140
A true audiophile bargain which embarrasses many more expensive boxes. Never mind the price, let your ears decide. (May 97)

KEF Q15 £199
These stand mounters offer impressive bass and excellent clarity but need a powerful amplifier to perform at their considerable best. (Feb 97)

MISSION 771 £170
Characteristically fast, punchy Mission sound from the Aerogel mid/bass and silk-dome tweeter. (Jul 98)

B&W DM 602 £300
Deep, strong bass, pure, projected and uncoloured midrange. Treble quality is a little metallic, imaging is precise. A lively, enjoyable sound. (Nov 96)

REL Q-BASS £350
Few subwoofers match the Q-Bass at the price. The tuning controls can be a bit of a fiddle, but once set up the rest is pleasure. (May 96)

CASTLE EDEN £469
Impressively vice-free 'speakers that offer great transparency and involvement. One of a select band that simply makes music regardless. (Mar 97)

EPOS ES12 £495
Strong, punchy bass is allied to finely detailed, articulate midrange and sparkling treble. (Oct 96)

REL STRATA £500
The Strata subwoofer is not a toy. It offers superb, true hi-fi bass depth and power, and opens up the sound stage depth in particular. (Mar 94)

HARBETH HL-P3ES £799
A fine example of good loudspeaker engineering. The top of the mini-monitor league. (Feb 96)

KEF REFERENCE SERIES ONE £995
Combine pin-point imagery and detail with a smooth, polite balance. Good, agile bass. (May 95)

HARBETH HL-K6 £1049
Clean, musical and classy - Harbeth have done themselves proud again. (Dec 96)

JAMO CONCERT 8 £1365
With their inch-thick cabinets and fabulous drive units, the Concert 8s are the most transparent stand mounters around. (Jun 97)

BKS D107 HYBRID MK II £1500
Unusual design with reflex loaded bass/mid driver and a ribbon tweeter. Granite side panels and a perspex/MDF sandwich for front and back. Can be a demanding load for an amp but natural sound of great clarity. (Dec 98)

EPOS ES25 £1505
Epos' best. Combines near-uncoloured tonality with characteristic fireworks in the rhythm department. Superb by any other name. (May 95)

TANNOY AMS8 £2700
Bold sounding pro active monitor with solid bass, clear midrange and delicious treble. (Aug 96)

QUAD ESL 63 £3450
A reference against which all other loudspeakers are judged, the '63s have superb imaging and genuine transparency.

KEF REFERENCE SERIES FOUR £3299
Superb bass and near-electrostatic sound staging make these involving loudspeakers a reference for others. Need a strong amplifier though. (Oct 96)

JBL S2600 £3500
Smooth, detailed and spacious with great dynamics and fine imaging. Capable of producing a superb performance when used in a big room. (Jul 96)

TANNOY WESTMINSTER ROYAL £14920
An incredibly dynamic, detailed full-range horn design with a rich sound.

MINIDISC PLAYERS

SONY MDS-JE510 £300
An impressive sound and unmatched convenience make this MiniDisc player an excellent buy.

KENWOOD DM-9090 £500
One of the best MD players yet. ATRAC 4.5 gives clean and very musical recordings from this Kenwood. (Jan 98)

SONY MDS-JA50ES £1300
The Sony can put the wind up Nakamichi cassette decks when used with better blank MDs. (Apr 98)

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AR Legend No arm		£148
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+ Air Tangent 2B	£12,990	£4998
Fidelity Research FR-64S arm		£268
Garrard 401 Chassis only		£150
Goldmund Studio / AirTangent	£6500	£3998
Linn LP12 + Ittok LV11+ AT-FC OCC		£850
Linn LP12 + Grace + AT (MM)		£425
Linn LP12 + Akito + Circus		£748
Linn LP12 (Blk) Ittok LVII with Lyra Lydia / Prefix / Armageddon Hi-Cap - absolutely breathtaking	£4000	£1858
Luxman PD555 Vacuum platter Belt drive - 2 arms - 33/45/78		£1498
Lyra Parnasus		£POA
Naim MC Board for 92 Pre	£80	£58
Nottingham Analogue Hyperspace with Mentor arm	£2300	£1498
Oracle Delphi/Dynavector DVXX1 /Koetsu	£1248	
Oracle Delphi II/Linn Ittok LVII		£1395
Oracle Delphi III/SME V/Cartridge	£4000	£1895
Oracle Alexandra MK111 (Cut for SME)		£748
Ortofon T-300 Transformer	£900	£495
Project 6 + Project arm + Sumiko Blue Point		£365
Pink Triangle Export (Ex/dem)	£900	£597
Revolver / Helius Scorpion / P77		£249
Roksan Xerxes Piano black with Artemiz & Garrott P77	£2000	£995
Technics SL1600 Auto/Direct Drive		£135
Thorens TD125		£195
Thorens TD150 + SME 3009 Series 11		£125
Van den Hul The Frog Cartridge		
NEW - Unused / boxed	£1500	£1198

AMPLIFIERS - SOLID STATE

Arcam Alpha 7	£250	£185
Arcam Zeta 1 (Ex-dem)	£999	£597
Arcam Alpha 9 Power	£400	£295
Arcam Delta 110 Pre	£700	£295
Arcam Delta 120		£250
Audiolab 8000A	£500	£365
Audiolab 8000LX	£470	£378
Audiolab 8000LX (Ex-dem)	£470	£397
Audiolab 8000S	£700	£495
Audiolab 8000M (Mono's)	£1800	£1100
Audiolab 8000Q (Ex-dem)	£1249	£897
Audiolab 8000PPA	£900	£595
Audio Research D200	£3248	£1997
AVI S2000 MP Pre	£799	£498
Chameleon 900S 2 x 300w pwr	£1000	£495
Chord SPM1000B (Ex-dem)	£2785	£1997
Classe 30 Pre-amp		
Balanced/Remote	£695	£450
Counterpoint Solid 1 Pwr	£1495	£675
Cyrus One		£150
Cyrus Two		£185
DPA DSP200 Line Pre (Ex Dem)	£499	£397
DPA Renaissance (Ex Dem)	£595	£447
Dynaco ST120 (Classic circa '76)		£328
Exposure X (Int)		£195
Exposure RC (Pre)	£999	£625
Exposure XXI/XVIII (Pre/Power)	£1245	£1245
Gryphon The Pre-Amp	£6000	£2000
Harmon Kardon AVP1a Processor	£2000	£495
Harmon Kardon HK620 Remote	£250	£165

Heybrook C3+P3 Pre/Pwr	£1425	£600
John Shearpe Pre/Pwr	£2300	£1295
Krell KAV300i (Intgrd) Mint	£2550	£1998
Krell KSA200B	£5500	£2758
Krell Ref KR5BP		
(6 comp balanced pre)	£3250	£2995
Leak Delta 30		£75
Leak Delta 70		£95
Lecson AC1/AP1 (Fabulous)		£275
LFD LSB + PA2 (Pre/Pwr)	£3800	£1498
LFD LS2/PA1 (Pre/Pwr)	£2600	£1198
Linn Kaim Pre	£1095	£750
Linn Kaim + Brilliant	£1850	£1095
Linn LK1 Pre		£250
Linn LK1 + LK280		£648
Linn Direktor (Ex-dem)	£795	£594
Linn Kaim Pre	£650	£494
Linn LK100 (Ex-dem)	£400	£288
Marantz PM66SE (Current)		£400
Meridian 101/103 Pre/Pwr		£238
Meridian 201 Pre	£760	£395
Meridian 501 Pre (Ex-dem)	£740	£597
Meridian 502 Pre	£1395	£895
Meridian 603 Pre/DAC	£1750	£794
Meridian 562V Pre+MM	£1095	£678
Meridian 562 Pre (Ex-dem)	£995	£797

NVA

EX-FACTORY SPECIAL PURCHASE

TDS Definitive State Mono		
Power amps	Each £6400	£3200
TSS Second State Stereo Pwr	£3700	£1800
TSS Second State Pre-amp	£1000	£500
TIS Integrated State Int-amp	£1500	£800
TTS Trans State CD	£3700	£1800
TES Emotive State CD	£2120	£1100

For several years, many 'knowing' enthusiasts have chosen NVA over more heavily promoted products. Now, as the result of the Far East recession, we can offer these World Class items at genuinely unrepeatable prices. STRICTLY LIMITED AVAILABILITY.

Michell Argo + Hera	£900	£595
Musical Fidelity A1 (Integrated)	£359	£225
Musical Fidelity A100 (Integrated)	£399	£225
Musical Fidelity Elektra E100 (Int)	£750	£475
Musical Fidelity P270/1 Power	£1395	£648
Musical Fidelity 3a Pre	£379	£248
Musical Fidelity 2a Pre	£299	£178
Musical Fidelity F16 (Ex-dem)	£2500	£1747
Musical Fidelity F19 (Ex-dem)	£4000	£2797
Musical Fidelity F25 (Ex-dem)	£1500	£1197
Myryad MI/20 (Ex-dem)	£599	£494
Naim NAC12		£165
Naim NAC32.5		£195
Naim NAC12S		£95
Naim NAC22		£145
Naim NAC42		£195
Naim NAP135 (2 x monos) Ex-dem	£3410	£2980
Naim NAP140 (Old Style)	£750	£450
Naim Hi-Cap (Old Style)	£720	£378
Naim MC Board for 92 Pre	£80	£58
Nakamichi 1A-3 (Int)		£150
Nakamichi 600 Pwr		£290
NVA AP50 (Integrated)	£650	£395
NVA P50 (Passive pre)	£250	£158
NVA Phono 2 + PSU	£550	£248
NVA A80 (Pwr Mono's + Cables)	£1600	£978

NAIM ALWAYS WANTED

Pioneer A400	£400	£165
QED A270 Integrated		£225
QED Systemline Kit + Mods (Ex D)	£3000	£1897
Quad 33/303 Pre/Power		£POA
Quad 405 Power-amp		£195
Quad 33 Pre		£65
Quad 77 Pre + 77 Power (Carbon)		£765
Rappaport Pre 1 (Pre)		£275
Rappaport Amp 1 (Pwr)		£550
Roksan L1 Pre + PSU	£1100	£758
Rotel RB970 BX Mk11 (pwr)	£159	£99
Rotel RC970 BX (pre)	£159	£99
Sonographe SC1 Pre	£1250	£450
Sugden AU51 (Pre)	£750	£450
Sugden Optima 140 (2X70w Intgd)	£770	£448
Thorens TTP2000 Mk1 Pre (Ex Dem)	£499	£397
Thorens TTA2000 Pwr (Ex Dem)	£599	£497
Threshold S300 (Nelson Pass)	£1500	£995
YBA 2 Pre-amp	£1700	£878

VALVE AMPLIFIERS

Art Audio Quintet (Monos)	£2000	£878
Audio Innovations 500 (25w Int)	£1100	£495
Audio Innovations 200 (13w Pwr)		£295
Audio Innovations P2 (Phono)		£495
Audio Note P3 (300B Power)		£1298
Audio Note OTTO	£1350	£795
Audio Research BLI Cnvr (Ex Dem)	£888	£587
Audio Research V70 Pwr (Ex Dem)	£4480	£2487
Audio Research VT-60	£2000	£1295
Audio Research LS7 Pre	£1550	£1098
Audio Research SP14 Pre (silver)	£3300	£1295
Audio Research D250 Power		£2498
Audio Valve Baldur 200+ (200 watt mono-blocks)		
UNWANTED PRIZE!!	£10,000	£5298
Audio Research Integrated	£595	£398
Avantic SPA II Vintage valves		£188
Balanced Audio Technology Pre-VK-3i		
Mint / Current model / Balanced	£2195	£1558
Cary SLA-70 Mk11 (Pwr)		£998
Croft Series 5 (Power)		£495
Croft Absolute Pre-amp	£2400	£1395
Copland CTA501 Power amp	£1800	£998
EAR 859		£1995
Gordon Welford (Pre) Hand made, hard wired		£448
Graaf 5050 Power (Ex Dem)	£2150	£1657
Graaf WFB 2 Pre (Ex Dem)	£1195	£897
Grant G100 Pre / Pwr		£650
Luxman LX33 (Integrated)		£698
Muse Model 300 (Mono powers)	£4400	£2898
Papworth Audio M100 monoblocks	£3600	£2600
Papworth Audio M200 monoblocks	£5200	£3998
PM Components MPL1 Pre plus		
2 x Mp211 Power amps (Ex Dem)	£5000	£1997
Tube Technology Prophet/Genesis	£4800	£2898

CD PLAYERS / DACS

Accuphase DP75 CD Player	£5995	£3998
Arcam Alpha 1 CD	£300	£185
Arcam Alpha 8 CD	£450	£350
Arcam Delta Black Box (DAC)		£148
Arcam Delta Black Box 5 (DAC)		£248
Audiolab 8000CD	£1000	£635
Audiolab 8000CD (Ex-dem)	£1000	£749
Audiolab 8000CDM Trans	£1400	£985
Audiolab 8000DAC	£1000	£550
Audio Alchemy Vac-In-The-Box	£249	£175
Audio Alchemy Drive 3	£695	£498
Audio Alchemy DACMAN(Ex Dem)	£149	£117
Audio Alchemy DAC-IN-BOX(Ex D)	£229	£177
Audio Alchemy V1 DAC		£168

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Plus ATNT	£3800	£1745
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AVI 2000MC Reference CD	£1300	£898
Cambridge Audio DAC Magic		£118
DPA Little Bit 2 (DAC)	£250	£148
Kinshaw Overture DAC		£195
Krell SBP64X DAC	£9900	£1798
Linn Karik (CD)	£1850	£1100
Linn Numerik (DAC)	£1500	£795
Marantz CD15	£3200	£1500
Marantz CD17	£800	£538
Marantz CD17 (Tricord)	£1130	£678
Marantz CD80		£230
Meridian 200	£818	£425
Meridian 203 DAC	£560	£195
Meridian 206	£995	£495
Meridian 263 DAC	£650	£395
Meridian 563 DAC	£865	£468
MicroMega Stage 5 (Ex-dem)	£750	£597
MicroMega Stage 6 (Ex-dem)	£950	£747
Monarch DIP Jitter Buster	£245	£188
Monarch DIP Jitter Buster (Ex-dem)	£245	£197
Musical Fidelity Digilog DAC		£140
Musical Fidelity A2 CD (Ex-dem)	£499	£397
Musical Fidelity E61 CD (Ex-dem)	£299	£247
Myryad T-10CD (Ex-dem)	£399	£294
Myryad T-20CD (Ex-dem)	£599	£494
Naim CDS System (Ex-dem)	£3940	£2995
Naim CDI	£2000	£1178
Naim CD2 CD Player	£2000	£1378
Orelle CD10T (Trans)	£800	£548
Orelle DA180 Mk11 (DAC)	£600	£378
PS Audio REF Link Digital Processor	£5500	£2248
QED Digit Reference	£450	£284
Rega Brio (Ex-dem)	£229	£174
Rega EXS (Ex-dem)	£599	£444
Roksan DP1 Trans		£598
Roksan Atessa (Trans)	£2300	£575
Sugden SDA-1	£800	£528
Teac VRDS10 CD Player	£770	£538
Technics SL-P1200	£1100	£498
Theta TLC	£230	£178
Theta TLC Jitter Buster (Ex-dem)	£229	£177
Theta Cromia HDCD DAC	£950	£797
Tricord Pulsar 1(DAC) (Ex-dem)	£1195	£658
TAPE DECKS / TUNERS		
A&R Cambridge Alpha Tuner		£75
Arcam Alpha Tuner		£75
Arcam Alpha 5 Tuner	£230	£168
Arcam Alpha 7 Tuner	£230	£165

Avantic BM611 Valve Tuner		£148
Circa 1960 (no decoder)		£395
Carver TX-116		£188
Cyrus Tuner (Original)		£158
Harmon Kardon TU950		£135
Kenwood KX-4520 3 Head HX-Pro		£98
Leak Trough Line 3		£328
Magnum Dynalab FT11	£550	£400
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B&O	Avant 32"	32" Widescreen with video - red	X	1	£4950	£3950
B&O	Beolab8000	Active Loudspeakers	X	1	£1950	£1650
B&O	CX 50	Aluminium bookshelf speakers	X	1	£325	£250
B&W	DM 580'S	Floor standing speakers	S	1		£200
CambridgeAudio	DAC Magic 2	Digital to Analogue Converter	S	1	£150	£85
Cannon	SB 20	Subwoofer	S	1		£100
Castle	Servern II	Loudspeaker of the year 1997 - mahogany	N	1	£580	£500
Celestion	A 1	Loudspeakers with stands black	X	1	£1100	£700
Celestion	A 2	Floor standing loudspeakers	X	1	£1500	£1195
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Kef	Q 55	Floorstanding loudspeakers	N	1	£500	£400
Meridian	551	Amplifier	X	1	£795	£550
Meridian	566	Digital to analogue converter	X	1	£1095	£649
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Meridian	562 V	Digital controller	X	1	£995	£700
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Target	MB3W 165	Wide modular equipment rack	X	1	£200	£100
Yamaha	APD1	RF Demodulator	X	1	£100	£70
Yamaha	DSPA 3090	Dolby Digital Pro-logic amplifier	X	1	£1600	£749
Yamaha	DSPA 590	1996 Pro-logic amplifier of the year	X	1	£350	£175
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Yamaha	DSPA 492	Pro-logic amplifier	X	2	£250	£180
Yamaha	DSPE 492	Pro-logic processor	X	2	£250	£190
Yamaha	DSPE 200	Pro-logic processor	X	1	£250	£125
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DAT'S

BRILLIANT

David Price looks at one of Sony's brightest ideas, the TCD-D3 'DATman' portable.

For keen amateur recordists the world over, 1992 was a very special year.

In the diminutive shape of the TCD-D3, Sony introduced their first ever DAT portable, offering digital recording better than CD on the move for under £600. Contrary to popular belief, though, it wasn't the first ever DATman. Denon pipped Sony to the post for that accolade, but buyers who waited six months for the latter weren't disappointed. Here was a remarkably complete and capable machine, one of those seminal designs which has never really been bettered.

Running from an AC adapter and without its bulky BP-D3 NiCad battery pack, the Sony was remarkably petite, smaller than all its rivals and even the model that replaced it two years later. Like all first-generation products from Sony, it was better made than it needed to be - the casing was beautifully pressed from grey metal rather than the plastic of the subsequent TCD-D7 and TCD-D8.

The TCD-D3 was remarkably easy to use. With top-mounted transport controls and a large, clearly-legible, backlit display mounted on the lid, there was none of the clutter of full-size DAT recorders. All the minor controls were easy to reach, with handy thumbwheels for manual recording level and volume, leaving push buttons for Start ID Write and Display mode. Sockets included headphones, line in and out, microphone in and mic phantom power.

What was really special about the TCD-D3 was its sound. Unlike other DATs, it had the unusual combination of a Bitstream Analogue-to-Digital converter with a multi-bit DAC, which made for a refined yet highly musical sound. Indeed, its DAC was so good that it bettered those inside most CD players, including, surprisingly, Sony's top one-box CDP-X777ES at £1200!

Hooked up to a decent electret condenser mic the Sony made superb live recordings; clean, smooth and meticulously detailed, it was a dream come true for bootleggers. A freshly-charged battery pack gave a useful two

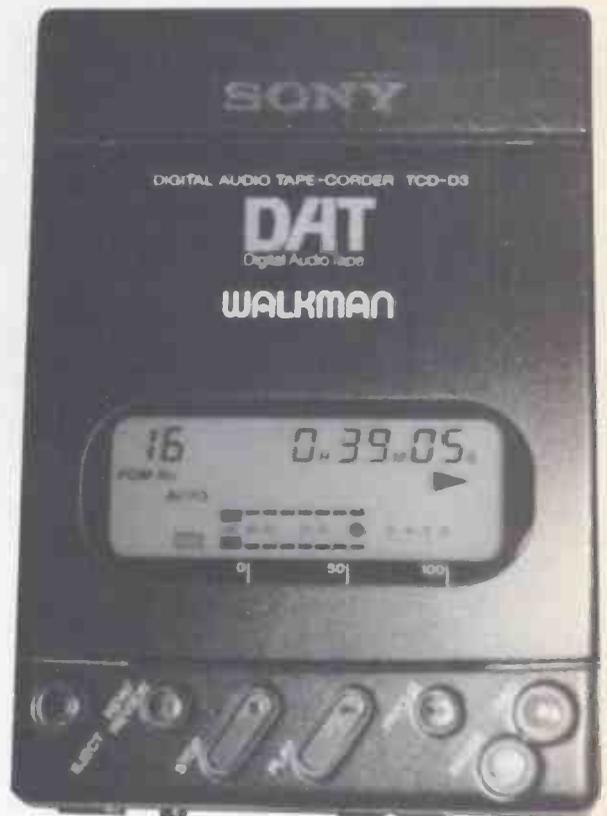
hours' recording time - quite enough for a long gig with several encores.

Via its analogue ins there was little change from the source, just a slight drying out and squashing up of the sound, with a gentle pulling forward of instruments at the very back of the sound stage. Digital copies were also to an extremely high quality, but the machine's range of digital inputs was limited. Rather than coming with TOSLink or co-axial jacks, special connecting leads were needed, and these were expensive. Still, the optional RM-D3K digital adapter gave co-axial and optical ins and outs, timer compatibility and full infra-red remote control with direct track access, if you had an extra £200.

Sony later offered the SBM1, which plugged into the D3's digital accessory socket and gave even better, Super Bit Mapped recording from analogue sources. For £400 this adapter would tease every last drop from DAT's 16-bit, 48kHz specification and the results were highly impressive, with an almost open-reel sound.

Although a very well-rounded product, the little Sony still had a few operational quirks, which weren't ironed out until the advent of the TCD-D7. There was no automatic recording level control, which was a nuisance if you wanted to record interviews or seminars without having to bother about levels. Nor was there DAT's useful date and time stamping, or the facility to run the machine from standard alkaline AA batteries. If you forgot to charge up your battery pack on the neat combined AC adapter/charger, you could forget about mobile operation.

In its defence, though, many DAT aficionados actually feel its successor was a retrograde step. The TCD-D7's headphone driver with digital volume control gives very poor sound quality compared to the D3's beefy all-analogue output stage. There's also the question of durability. The D3's transport wasn't very



tolerant of poor DAT tapes, sometimes even having problems with the thin tape used in DAT120s, but it was a robust, metal die-cast affair which seems to have stood the test of time better than the plastic items used in TCD-D7s and 8s.

Second-hand prices of around £250 aren't dramatically higher than a WM-D6 Walkman Pro cassette machine, making the TCD-D3 a bargain. Still, as with all DAT machines, make sure the one you're buying has been carefully looked after. If not, a new transport mechanism costs at least £250, and then you're looking at several hours of labour - DATs aren't exactly user serviceable!

Pick up a good example, though, and you'll wonder how you ever lived without the smartest, cutest, and most handy digital recorder ever. As a high-end in-car source, the ultimate Walkman, an external DAC, a compact home deck or a covert recorder of live concerts, it's unsurpassed.



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"Don't Murder the Music"

A one act short from David Chessell

ACT 1 SCENE 1 "THE PLAYERS"

Music; All music contains certain basic elements. These are rhythm, harmony, melody and form.

Rhythm: involves time--the duration, or length, of musical sounds. Tempo, the speed at which a piece is played, is sometimes associated with rhythm.

Harmony: concerns the building of chords--tones played together--derived from the scale on which the music is based. It also involves the order in which successions of chords accompany a melody.

Melody: probably derives from the inflections of the human voice. It involves pitch, or the relative highness or lowness of tone. When pitches are musically organized, they are referred to as scales.

Form: results from the way in which rhythm, melody, and harmony are put together. Good music has unity to satisfy a listener's ear and variety to maintain interest.

ACT 1 SCENE 2 "THE CULPRITS"

To re-create musical performance In a home environment attention has to be paid to the following:

The Rhythmic timing: The fundamental foot tapping element often lost in slow amplifiers due to over engineering and over control in search of lab results , "a high damping factor may dampen your enjoyment"

Harmonious integrity: this poor fellow is lost in amplifiers unable to reproduce not only the notes but the subtle shapes and harmonics present between , these harmonics tie the notes together to produce the layering and interaction of tones at all frequencies. (low frequencies are included).

Melodic interaction: The interaction of rhythm and harmony (the love scene) a flattering affair and when lost the love affair dies and the soul of the music is gone.

Form the dynamic structure: Many amplifiers flatten dynamic structure to achieve uniformity and softness, (invariably with feedback), where music produces uniform dynamics (expressive) in an unstressed form

ACT ONE SCENE 3 "AFFAIRS OF THE HEART"

suspect 1: Many designers undertake a love affair with design and not music , in a bigamistic fashion , over engineering using sub-circuit upon sub-circuit to try and fool the music into submission , the use of many (sometimes hundreds) components all worthless on their own to produce a result which passes the white coat test completely avoiding the subject of fidelity.

Suspect 2: others design in a similar fashion with exotic parts all carefully matched (not a bad thing) this expensive and time consuming exercise does reap some favor but at a price, whilst still providing a long path to fidelity, This path however is fraught with difficulty and not a good basis for a relationship.

The heroin: This honorable gentleman keeps his fidelity selecting just a few prize components for which to entice *music* (she is fickle) a simple yet elegant fellow amazes with truthful reproduction and entertains with his dynamic character and gentle heart above all he avoids loop feedback (a nasty fellow) altogether .

ACT1 SCENE 3 "THE MARRIAGE "

The service: we are gathered here to join a simple elegant fellow with an outstanding character, a dynamic personality and above all a gentle nature , together with a young vibrant girl full of life , with a harmonic nature and sensuous seductive manner .

We wish them all the best for the future and above all fidelity , hopefully a high one .

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WANTED: QUAD CD 67. Tel: 003 259 51 51 51 (Belgium) (Feb/I)

NAIM 72 PREAMP, moving coil & CD inputs £275. Silver plated OFC input lead £30. Tel: 0121 553 1121 (West Bromwich) (Feb/I)

KEF REFERENCE Model Four in Classic Rosewood £2290, Meridian 557 power amp £850, Meridian 566 20bit DAC £490, all can be delivered, all have original packaging, manuals etc. Tel: 01622 844 556 home, 0973 899 651 mobile (Mar/I)

ROKSAN L2.5 pre & DS1.5 power supply "high end" combination (new £2000). Great Xmas prezziel! £889 ono. Tel: 01245 250 779 (Essex)(Feb/I)

WANTED: TRIO L-08M monobloc power amps. Tel: Jon 0181 904 8023 eves and w/ end (NW London) (Feb/I)

QUAD ELECTROSTATICS. Tannoy Berkeley speakers both excellent condition. Also for sale, TEAC reel/reel (Tascam), Revox G58 reel/reel, Quad 405, Garrard 301, vintage Leak amps. Tel: 0131 332 7536 (Edinburgh)(Feb/I)

LINN KEILIDH speakers (walnut) composite bases and 4x4 metres bi-wired NAC 5 cable. £475. Tel: 01444 248 424 (Feb/I)

Sold.
TUNERS FOR sale. Naim NAT 02 new style £525 Meridian 104 brown case £100. Tone arm Mission 774 £75. Tel: Ray 01889 882 656 (Stafford area) (Feb/I)

REGA KYTE speakers, virtually new, hardly ever used: £100. Stands available too. Tel: 01623 871 950 (Feb/I)

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OPERA CALLAS Gold speakers. 6 months old, hardly used. Solid wood, great sound, but unsuitable with young kids. Cost £1050, accept £725 including free Target RA4 stands, worth £300. Tel: 01530 831 357 or 0831 565 010 (Feb/I)

LINN KEILIDH speakers, boxed with instructions. stands wood veneer. 2 years old, mint condition £425. Tel: 0116 270 5149 (Feb/I)

EPOS, CLASSIC ES14 black & dedicated standss, mint £395. Cyrus II and PSX power, mint £395 the pair. Tel: 01840 212 387 (Cornwall) (Feb)

SPENDOR SPIs £300. Bandor Pentachords £180. Garrard 301 SME 3009, V15, heavy resin plinth £300, Linn Ku stone stands £60. Atacama 8" stands £30. Tel: 01508 578 680 (Norwich area) (Feb/I)

ROGERS LS5/8 BBC professional monitor loudspeakers in black ash, mint condition. Includes two Quad 405 power amplifiers with active crossovers and ST76 stands. £3531 new, will accept £1750. Tel: 01233 750 407 (Mar/I)

IMF TLS 80 (pair) Transmission Line speakers with 4-way KEF drivers, walnut finish. £750. Tel: 01233 750 407 (Mar/I)

WANTED: NAIM NAC82, NAP250, BLACK SBL'S (latest boxes) cash waiting, units excellent condition, boxed, with invoices. Will travel reasonable distance. Seller must demonstrate. Tel: Ken 01992 893 355 after 7.30 pm. Mobile 07771 726 655 (Feb/I)

MISSION 773 SM moving coil cartridge 1 yrs light use £100. Lyra Lydian moving coil cartridge 3 yrs use needs re-tipping £100. Tel: Peter 01342 712 653 eves (Feb/I)

REVOX B250 Integrated amplifier. dual mono. 2x100w at 8 ohms. Touch button control. As new condition. Offers. Tel: Mel 0958 592 367 (Feb/I)

SNELL ACOUSTIC Type C (1984) loudspeakers with walnut veneer £500. Edison 12 valve power amplifiers X2. Professionally upgraded £200 each. Specialist built valve preamplifier with MC in classic named case £175. All boxed in excellent condition. For sale due to move. Tel: 01204 692 522 (Feb/I)

LOWTHER FIDELIO horns. PM7A, teak £475. Rotel 965BX CD £80. Genexxa LX5 pros, Liniem tweeter, with stands £70. Infinity SWW10 subwoofer 100w, quality £200. Pioneer 703 CD £80. Tel: 01827 261 082 (Tamworth) (Feb/I)

NEAT PETITE Mk3 loudspeakers, 4 months old cherry wood finish, boxed as new. Cost £795 will accept £550. Superb sound. Tel: 0996 166 571 (Feb/I)

UNISON SIMPLY 4 AMP, Proac 2.5 speakers, Cyrus disc, DAC master & (2) power supplies, Cyrus FM7 tuner £3200. Tel: 0161 764 3106 (Bury, Lancs) (Feb/I)

GOLDRING GL75 four speed cartridge, wood plinth, vgc. can be heard, heavy platter £200 ono. Tel: 01270 884 234 (Stoke) (Feb/I)

FOR SALE Audio Alchemy headphone amplifier £150. Heybrook Heylo Rosewood floorstanding 'speakers (£449) £229. Wanted: Alchemist Kraken Anniversary Mk1 power amp, must be good working order and condition. Tel: 01508 499 586 (Feb/I)

LINN SONDEK LP12/Lingo/Cirkus. 1993 model. Black with Ittock LVII/K9. Excellent condition. £850 ono. Hi-Fi magazines, World, News, Choice, What Hi-Fi, Stereophile 1994-1998. Offers Tel: 01233 641 993 (Feb/I)

NAIM 102 & power supply, Hi Cap, Nap 250, cherry Credo's. reluctant sale £2500. Tel: 01788 860 717 (Feb/I)

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DENON D77W(XD)	£700	£400
ELECTROCOMPANET EC1(S)	£1000	£650
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PIONEER PDS705(XD)	£300	£160
MUSICAL FIDELITY X-LP(N)	£130	£90
MUSICAL FIDELITY X-DAC	£300	£220
LOVELY UNIT, HDCD(N)		

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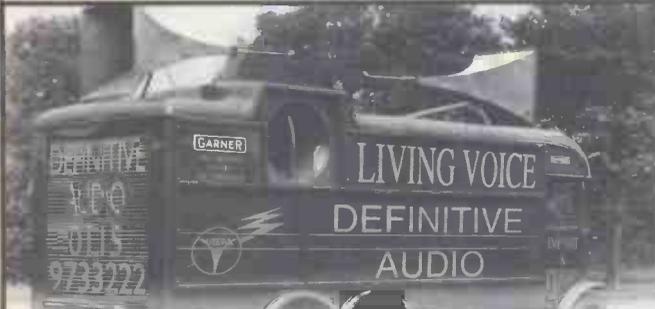
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Alan Sircorn, April 1998

Second Hand Items Include:

Item	Sale	New
MF A2 CD	£ 250	(£ 500)
Impulse H2 loudspeakers Ash	£1100	(£2250)
Impulse Taus	£2100	(£3100)
Kelly KT3 loudspeaker (new)	£ 850	(£1850)
Vitavox AK 157 Bass Driver (pair)	£ 450	(£ 900)
Carver Platinum (Hybrid/Ribbon/Dipole)	£ 800	(£3000)
Meridian 500i 562 with VNH 1st d/c	£ 980	(£1800)
Audio Innovations S.500 Integrated	£ 500	(£1200)
Audio innovations S.700 integrated	£ 800	(£1200)
Audio Innovations L2 Line Pre	£ 450	(£ 750)
Audio Innovations 200 Pre	£ 200	(£ 350)
Audio Innovations S.1000 SE silver monos	£1500	(£2500)
Border Patrol PSU	£ 395	(£ 595)
Naim SBL (Walnut)	£ 950	(£1970)
Naim NAC 72	£ 490	(£ 725)
Naim 250	£ 850	(£1665)
Naim CDS	£2800	(£3940)
Dali 104 MS	£400	(£ 650)
Orchid Precision PLL 1 Inc stands	£4000	(£7800)
Linn LP12, Avendale PSU, Helios Aurlus	£ 550	
Naim A5 S/Cable	£ 70	
Mana Ref Table x 1	£ 220	
Mana Mini Table	£ 120	
Mana Sound Stages x 3	£ 490	
Various high-end i/c & speaker cables	P.O.A.	

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PINK TRIANGLE Export GTI with SME IV, ATOC5 £950. EAR 834P with volume control £280. Pair Leak TL12 Plus amps rebuilt for triode operation £380. Tel: 01582 580 667 (Feb/I)

THORENS TD 160 turntable, Technics double cassette deck RS-TR232, JVC tuner JTV310, Yamaha amplifier A550, B&O Beogram 1102 turntable. Reasonable offers considered as whole or split. Tel: 0121 308 7146. (Feb)

LINN LK 100 power amplifiers for sale. Identical cases, passive 2-off bought September 1996 sell for £325 each ovno, 1-off bought October 1994 sell for £275 ovno. Tel: Nick 0161 429 0963 (S.Manchester) (Feb/I)

LINN LP12, Ittock, Asak, Affro (£1700) £450, Cyrus II & PSX, a classic, see World Favourites guide (£500) £310. Tannoy J9S, 125w, blk, lead filled (£500) £120. Tel: 0161 762 9884 (Feb/I)

AUDIO QUEST VIDEO Z digital interconnect £25. Ringmat XLR MkII £30. Ixos interconnect £15. Tel: 01633 667 346 (Feb/I)

LINN ACTIVE system - 1 month old. Boxed. Majic (phono) int. amp £650. LK85 power amp £450. Keilidhs (walnut and graphite bases) £450. LK400 biwire £60. Active Cards £250 Tel: 0141 649 8413 (Feb/I)

CADENCE VALVE preamplifier MC, MM, CD, tape loop, 2 line inputs. Hard wired ex. condition. £400 ovno. Also, Quad 33/405-1 (boxed) ex-condition £200 ovno. Tel: 01749 850 893 eves. (Feb/I)

QUAD 77 integrated amplifier £345. Quad 77 power amplifier £345. Tel: 01794 514 916 (Romsey, Hants) (Feb/I)

REGA PLANAR 3 & Elys cartridge, unwanted present. 3 hours use £240 (RRP £359). Naim Nait 3 amp & XLO type 0.1 custom interconnects £440 (value £835). Four Scanspeak 21W/8551 woofers, brand new £70 each (RRP £96.86). Delivery possible. Tel: 0161 256 0356 Mon-Fri after 6pm (Feb/I)

REVOX B77LS 4T excellent condition £450 ono. Rogers Cadett III valve amplifier with Rogers FM tuner and stereo decoder. £100 ono. Tel: Andy 01291 627 585 daytime, 01453 546 446 eves (Glos) (Feb/I)

AUDIO INNOVATIONS Series 1000 Mk3 monoblocks £795. Concordant Exhilarant preamp £475. VPI HW19 Junior turntable £450. Creek phono stage £70. Audioquest Quartz 0.5m interconnect £50. Tel: 01858 469 675 evening (Feb/I)

LUMLEY REFERENCE ST70 valve power amplifier, selling due to upgrade. Rcently serviced £1450 ono. Tel: 01323 412 003 after 6.30pm (Feb/I)

NAKAMICHI DR1 cassette deck, absolutely as new, boxed, one of the last ones to be imported into the UK. (see Hi-Fi World tape deck review Dec 1998) £450. Tel: 01282 692 584 (Feb/I)

ARCAM ALPHA 5 amplifier £110, Denon DCD695 CD player £100, Mission 760i speakers £65, Atacama SE24 stands £35. All boxed. Tel: 01375 391 874 (Grays, Essex) (Feb/I)

SD ACOUSTIC. SDI speakers. Excellent working order, large two way floorstander. very transparent, very efficient, matched pair £495. Tel: Mike 01246 209 578 day, 01246 280 755 eve (Mar/I)

PINK TRIANGLE PT TOO turntable, external PSU, Linn and Rega armboards, good condition, boxed, £300 ono. Tel: 01288 354 905 (Feb/I)

GARRARD 401 with FS power supply, latest bearing, superb plinth £250. Quad 34 pre amp £140. Leak Troughline II tuner £60. Leak Delta AM/FM tuner £50. Ferrograph F307 amp £60, Thorens 321 deck £90. Tel: 01539 728 327 (Feb/I)

MERIDIAN 205 monobloc power amps, just serviced by Meridian, mint condition, boxed. £450. Aiwa AD-F850 dual capstan 3 head cassette deck, hardly used, mint condition, boxed. £95. Tel: 0181 205 6778 (Feb/I)

MAGNAPLANAR SMGa speakers £310. Quad 33/303 pre/power (factory overhaul cost £150) £180. DPA Little Bit DAC £125. All boxed & in good condition. Happy to demonstrate. Tel: 01746 710 356 (Shropshire) (Feb/I)

LINN EKOS wanted, may consider with Sondek, for sale Naim new style 135s matched pair (recent) £2100, new style 250. £960 & Hi Cap £395. Tel: Paul 01924 271 043 (Feb/I)

EAR PREAMPLIFIER (passive line with 834mm phono) £230. Rotel RB981 power amplifier £170. Sugden A21 amplifier (1971) £90. Pioneer PDS802 CD player £90. Tandy Genexxa PROLX5 loudspeakers £50. Tel: 01234 824 682 (Bedford) (Feb/I)

MERIDIAN 208 CD player M30 active speakers, immaculate, cost £2800, accept only £890. Tel: 01428 725 367 (Feb/I)

NAKAMICHI 1.5 tape deck, hardly used, cost £360, accept £125. Tel: 01428 725 367 (Feb/I)

THORENS TD150 deck with SME 3009 Series II £125. Pair Mission 770s and stands £125. Excellent order. Tel: 01323 505 297 (Sussex) (Feb/I)

JBL L96 speakers £180. Yamaha CDX 1060 CD player £200. Sound Organisation floor stands (pair) £60 and speaker stands £45. All in mint condition. Tel: 0956 444 157 (Feb)

REVOX A77, half track model, domestic use, overhauled by agent £325; Era belt turntable, SME 3009, V15 £100; Leak mono Point 1+, TL12+, Goodmans speaker £50. Tel: 01675 463 465 eves (Feb/I)

THORENS 124 MkII in Martin Bastin plinth with 3009 and 1042 £400. 124 MkI offers. Lowther Accoustas PM6A £375. Quad II's £395. Armstrong integrated £50. JR149 speakers £125. Pair GEC KT66 offers. Many valve related books. Tel: 01524 423 516 (Feb/I)

PHILIPS CD610 £45. NAD 30201 £60. Micromega tuner £325 (£750 new). Pioneer PS CD player £135 (6 months old). B&W DM601 speakers £135 (6 months old). Pioneer A400 amp £125. Soundstyle X560 stand with 6 shelves £80. All boxed and in mint condition. Tel: 01225 791 026 (Feb/I)

JAMO CONCERT 8 as new £900. Target stands (£350) £150. DPA 2 box DAC (£2500) £600. Cary 955 valve CD player £550. Krell KA5 50 £900. Tel: 01386 446 756 (Feb/I)

SOUND ORGANISATION. Three LP racks (2 with cassette/CD shelf). One 3 shelf Hi-Fi table. All mint condition. Tel: 01772 251 226 daytime (Preston), 01704 551 554 evenings & w/e (Southport) (Feb/I)

Previously Cherished Items, Or something new from Choice

Clearance Items

	Choice Price	Original Retail Price
Audio Research D240 mk II	£ 1395.00	£ 3500.00
Chameleon Ruby Power Amp (200W)	£ 395.00	£ 1200.00
Alchemist Kraken x2 Stereo & Pre-amp	£ 595.00	£ 1400.00
Exposure V Active x over	£ 295.00	£ 995.00
EAD 7000 Transport	£ 895.00	£ 2495.00
Roksan ROK-DAC 1	£ 195.00	£ 495.00
AVI 2000 pre/ remote	£ 395.00	£ 900.00
Tesseract Tala pre amp	£ 695.00	£ 1495.00
Magnum P200	£ 895.00	£ 1895.00
ATC SCM 10 Black	£ 595.00	£ 1150.00
Alon IV mk II	£ 1500.00	£ 3500.00
Royd Priors	£ 395.00	£ 950.00
Sonus Faber Gravis Sub woofer + X-over + power amp	£ 1250.00	£ 3200.00
Kenwood 9010	£ 195.00	£ 500.00
Alon Adriana	£ 3500.00	£ 10000.00
Alon PW1 Subwoofer (Passive)	£ 295.00	£ 750.00
Musical Fidelity Electra Tuner	£ 250.00	£ 395.00
Gale 401	£ 250.00	£ -
Linn Kan	£ 250.00	£ 500.00

New in This Month

POWER AMPLIFIERS		
Micromega amp	£ 750.00	£ 1295.00
Audio Research CA50 Integrated	£ 2495.00	£ 3400.00
Audio Research VT50	£ 2095.00	£ 2895.00
AVI 2000 Monoblocks	£ 895.00	£ 1400.00
Copland 505	£ 1295.00	£ 1899.00
Micromega Tempo P	£ 750.00	£ 1250.00
Audiolab 8000A	£ 250.00	£ 600.00
Air Tight AT 1	£ 2600.00	£ 4200.00

PRE AMPLIFIERS		
Audio Research LS15	£ 2400.00	£ 3200.00
Copland 301 (Phono mm)	£ 795.00	£ 1249.00
Electrocompaniet EC4.5	£ 695.00	£ 1195.00
Audio Note M2	£ 650.00	£ 950.00

SPEAKERS		
Kef Reference 4	£ 2200.00	£ 3600.00
Acoustic Energy AE1 Sig & Stands	£ 1095.00	£ 2200.00
Quad ESL 63	£ 1795.00	£ 3500.00
Proac Tablette 50 (Rosewood)	£ 395.00	£ 800.00
Monitor Audio Studio 20SE Rosewood	£ 1195.00	£ 2350.00

TURNTABLES/ANALOGUE/VARIOUS		
Transparent Musicink Reference (RCA-RCA)	£ 1000.00	£ 2200.00
Transparent Musicwave Ultra Bi-Wire 3.6mtr	£ 1600.00	£ 3300.00
Lyra Parnasus (VdH tip)	£ 950.00	£ 1895.00

Power Amplifiers

Exposure XV	£ 450.00	£ 795.00
Jadis JA500	£ 7995.00	£ 21000.00
Boulder 102 AE	£ 2650.00	£ 3400.00
Pioneer A400	£ 175.00	£ 300.00
Conrad Johnson MF 2300	£ 1695.00	£ 2990.00
Audio Research M300 monoblocks	£ 4995.00	£ 10000.00
Boulder 500 AE	£ 3795.00	£ 5000.00
LFD PA1/LS1	£ 895.00	£ 1998.00
Audio Note P1 SE	£ 550.00	£ 950.00
Jadis JA 80 Monoblocks	£ 4995.00	£ 10000.00
Audion Golden Knights	£ 2250.00	£ 4000.00
Audion Silver Knights (Gold)	£ 1250.00	£ 2250.00
Jadis Dely 7 mk III	£ 3250.00	£ 4790.00
Krell KSA 200 B	£ 2495.00	£ 5550.00
Audio Research VT150 SE	£ 11995.00	£ 17000.00
Micromega Tempo 2 Integrated	£ 595.00	£ 900.00
Krell FPB 600	£ 8995.00	£ 12900.00
Krell KSA 250	£ 2750.00	£ 6700.00
Mark Levinson No. 331	£ 2995.00	£ 5000.00
Audio Note Ankoru Monoblocks	£ 8500.00	£ 14500.00
VTL Monoblocks	£ 1795.00	£ 4000.00
Mark Levinson 332	£ 5500.00	£ 6500.00
Michell Alecto	£ 895.00	£ 1300.00

Pre Amplifiers

Conrad Johnson PV12 (mm/mc)	£ 1995.00	£ 2590.00
McCormack Micro Line Drive	£ 350.00	£ 595.00
Audio Research LS3	£ 1095.00	£ 1900.00
Audio Research LS5 mk II	£ 2695.00	£ 5700.00
Meridian 541 Dolby Surround	£ 695.00	£ 1095.00

Conrad Johnson PV10 (mm/mc)	£ 895.00	£ 1250.00
Naim Nac 72	£ 450.00	£ 650.00
Burmeister 785	£ 395.00	£ 900.00
Audio Research LS2	£ 1495.00	£ 2798.00
Angstrom 200 (Home cinema controller)	£ 1800.00	£ 3495.00
Audio Research LS7	£ 1095.00	£ 1620.00
Rotel RC995 (Balanced out)	£ 395.00	£ 550.00
Audio Synthesis Passion	£ 395.00	£ 600.00
Musical Fidelity Nu-Vista (422 sealed)	£ Offers	£ 1200.00
Michell Argo/Hera	£ 550.00	£ 900.00

Quality Speakers

Acoustic Energy AE1	£ 550.00	£ 795.00
Ensemble PA1	£ 995.00	£ 2000.00
Alon V mk II Blk	£ 2500.00	£ 5000.00
Wilson 3/2 (Black)	£ 5995.00	£ 15000.00
Alon Lotus SE	£ 2500.00	£ -
Sonus Faber Extrema + Stands	£ 4250.00	£ 7000.00
Wilson 5.1 (Piano White)	£ 11500.00	£ 19000.00
Thiel CS1.5	£ 1595.00	£ 2700.00
KEF Reference Model 101/2 (Walnut)	£ 350.00	£ 795.00
Mini Grand	£ 2995.00	£ 7600.00
Acoustic Energy AEGIS 1/ Stands	£ 295.00	£ 590.00
Martin Logan SL3	£ 2795.00	£ 3499.00
Tannoy D700	£ 1750.00	£ 2500.00
B & W 801 Series 2 (Black Ash)	£ 2200.00	£ 4000.00
Thiel CS2.3	£ 2600.00	£ 3600.00
Apogee Stage	£ 995.00	£ 3000.00
Totem Staff (Cherry)	£ 750.00	£ 1150.00
Audionote AN-e/B	£ 795.00	£ 1520.00
Totem Mite (Cherry)	£ 395.00	£ 549.00
Totem Rokk (Mahogany)	£ 495.00	£ 650.00
Linn Kabers (Walnut, Passive)	£ 1150.00	£ 2200.00
Sonus Faber Electa Amator	£ 1495.00	£ 2992.00

CD Players & DACS

EAD DSP 1000	£ 695.00	£ 1495.00
Audio Alchemy DDE V1.0 + psu 1	£ 150.00	£ 300.00
P.S. Audio Ultralink	£ 795.00	£ 2390.00
EAD 9000 Series III HDCD	£ 2995.00	£ 6000.00
M C Cormack DAC-1	£ 450.00	£ 995.00
Acuphase DP90/91	£ 9950.00	£ 22000.00
Forsell Air Ref Transport mk II and Forsell Air Ref dac	£ 8995.00	£ 13800.00
Mark Levinson 30.5/31	£ 11500.00	£ 24000.00
Meracrus Transport	£ 1750.00	£ 3995.00
Meridian 566 DAC (20 Bit)	£ 895.00	£ 1095.00
Micromega CD3 Transport	£ 995.00	£ 1500.00
Micromega BS DAC	£ 295.00	£ 500.00
DPA PDM 1 mk III	£ 550.00	£ 1000.00
Meridian 200/ 203	£ 495.00	£ 1300.00
Marantz CD94/94A	£ 595.00	£ 1600.00
Meridian 563 18 bit	£ 450.00	£ 900.00
Sony CDP/DAS R1	£ 3995.00	£ 8000.00
Roksan Attezza CD Player	£ 800.00	£ 1500.00
Audio Research CD 2	£ 2495.00	£ 3500.00
Micromega Duo CD 2	£ 895.00	£ 2000.00
Krell Studio 2 DAC	£ 1295.00	£ 3198.00
Teac T1 Transport (Black)	£ 395.00	£ 525.00
Mark Levinson No. 39	£ 4250.00	£ 4995.00
Mark Levinson No. 35 Dac	£ 3500.00	£ 8000.00
Mark Levinson No. 31 Transport	£ 3500.00	£ 8500.00
Micromega Duo CD2 Transport	£ 895.00	£ 2000.00

Turntables & Analogue

Linn LP12/ Avondale/ Akito	£ 595.00	£ 2000.00
Piere Lurne J1/SL5	£ 1500.00	£ 4500.00
Piere Lurne J1/Sowther mk III	£ 1800.00	£ 4500.00
Forsell Air Force One	£ 11995.00	£ 25000.00
Kinshaw Overture Phono	£ 195.00	£ 395.00
Systemdek II XE 900/ RB 250	£ 350.00	£ 650.00
Quad FM3 Tuner	£ 195.00	£ -
SME IV	£ 750.00	£ 980.00
Clear Audio Sigma	£ 450.00	£ 600.00
Linn Klyde	£ 450.00	£ 600.00
Ortofon MC 7500	£ 1250.00	£ 2500.00
Pink Triangle PT Too Ref Bearing, platter, clamp	£ 950.00	£ -
Stax Lambda Nova Signature/ SRM-TIS	£ 995.00	£ 1195.00
Golding Erica	£ 75.00	£ 100.00
Audio Technica AT-OC9	£ 250.00	£ 400.00
Rega Planar 3/ RB 300/ Elys	£ 250.00	£ 450.00
Townsend Rock/ Excalibur	£ 650.00	£ 2000.00
Clear Audio Reference turntable & TQ1 Arm	£ 4500.00	£ 6500.00

STOCKIST OF:

Acoustic Energy, SME,
Alon, Soundstyle,
ATC, Straight Wire,
Boulder, Tara Labs,
Bryston, Target,
C.A.T., Totem,
Chord, Trichord,
ClearAudio, Trilogy,
Elemental Audio, van den Hul,
Graham, VPI,
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QUAD II (pair) and Quad 22 original control unit, original condition £475. Thorens TD124 £65. Tel: 01202 825 438 (Dorset) (Feb/I)

PAIR OF YAMAHA NS1000 M speakers & stands. Good condition £350. Tel: 01279 718 325 after 5pm. (Feb/I)

NAIM 2/4 crossover (new style) £295. Nakamichi 1000ZXL (fully serviced) £1195. Lexicon CPI surround sound processor £545. Roksan TMS turntable and power supply £1950. Naim SBL £1250. All in excellent condition. Tel: 0385 560 669 (Manchester) (Feb/I)

ACTIVE SUBWOOFER (Yamaha YSTSW80) 80 watt. Purchased December 97 perfect condition, still under guarantee, £179 new, will accept £125. Buyer collects. Tel: Mike 0118 987 3402 (Reading) after 6.45 till 9pm (Feb/I)

PIONEER ELITE DVL-90 combi DVD/LD/CD. (List £1495) as new boxed plus AC3 LDs: Broken Arrow, HEAT, Independence Day, Michael Collins, Mission Impossible. All for £950. Tel: 01945 463 077 (Feb/I)

ORELLE SP-150 power amplifier. 75W per channel. Boxed and in mint condition. £275. Tel: 01483 420 660 (Guildford). Email: m.attard@btinternet.com (Feb/I)

KEF 107 black ash, excellent condition £1050. Albarry M408 50W monoblocks £325. Rappaport preamp, passive line, active phono £75. Tel: 0121 472 8746 (Birmingham)

QUAD ESL63, late model, teak/brown, £1050. Thorens TD160S turntable £100 and SME3009II arm £40. All in excellent condition. Tel: 01491 651 278 (Feb/I)

ATC model 50SL active speakers current spec £4200, Quad 77/707 pre power, with remote control £1000, Spendor LS3/5A speakers in black with stands £400, Musical Fidelity FCD CD player with valve output stage £650. Tel: 01977 643 629 (Feb/I)

AVI S2000 A/MP, 250w stereo power amp £800, latest line pre amp & remote £500 ono. Siltech HF8 phono-BNC OSM £70, LAT IC 100D 0.5m £30, NAC A5 tri-wire 7m pair £90. Focal drive units pairs T90TI, T90TDX, SN412 DBL, SK013L, 10V516 30% list. Tel: Alec 0181 888 5858 eves. (Feb/I)

MERIDIAN 500 transport 566 20-bit DAC and 518 digital processor. The 518 has a high quality digital volume control and can be used as a digital pre amp. Placed between 500 and 566 direct connection to a power amplifier can be achieved with significant gains in sound quality. Offers around £2400 (cost over £3500). Tel: 01795 662 547 (Feb/I)

MERIDIAN 200, 203 disc player. Trichord clock modification. Trichord Pulsewire digital interconnect. Excellent condition, boxed, £350, Tel: 0121 344 3598 after 6pm (Birmingham) (Feb/I)

FOR URGENT Sale: Lumley VTA1030 valve amplifier, mint condition £400 ono. TDL RTL3 floorstanding loudspeaker, mint condition £300 ono. Tel: Shahruil 0116 212 0783 or Email: sixtwos@yahoo.com (Feb/I)

WOODSIDE / RADFORD SC26/STA35 pre/power (exc) £1100. Rare Beard BBP 100 MM/MC phono £250. Quad 33/303/FM2 combo (exc) £150. Revox A77 £175. Sony TC 630 R/R £50. Ferrograph R/R (exc) £70. Boxed Thorens 125 deck only £30 Garrard 301/3012 SME plinth £225. Tel: 01452 750 242 (Feb/I)

ARCAM DELTA 70 CD £225. AVI CD £475. Meridian 200 transport £350, 206 DAC £225. Pink Triangle Ordinal DAC £400. Pink Triangle Export turntable Moth 250 Glanz GMC10E £450. Tel: Keith 01825 733 176 (East Sussex) (Feb/I)

SD ACOUSTICS SD1 speakers plus Naim cable mint £400 ovno or consider swap for decent subwoofer. Also Parastat cleaning brush MkIIa, mint, offers. Tel: 0171 791 1395 (Feb/I)

CREEK 4140 S2 exc. cond. £100. Philips CD850 exc. cond. £100. Linn Index inc. stands. Immac. £150. Tel: Steve 0181 308 9155 or 0411 620 689 (Feb/I)

MICROMEGA DUO CD3 transport & Duo BS2 DAC (£3000) £895. DPA PDMI Series 2 DAC (£895) £225. KEF Reference Series 105 loudspeakers £495. Transparent digital interconnect (£250) £100. Nordost Super flatline Gold bi-wire speaker cable 3m pair £95. PX considered (tuner/cassette). Tel: 01450 860 676 (Feb/I)

NAIM SBL speakers. Black ash, mint condition. £795 ono. Tel: 01443 405 347 (Feb/I)

LP12, EKOS Mk2, Cirkus, Lingo £1350. Ekos Mk1 £550. Michell Argo/Hera/150 £650. Naim SBLs (latest) £950. Epos ES11 & stands £300, ES14 & stands (new) £475. Micromega Stage 4 (unused) £400. Tel: 01952 502 097 (Telford) (Feb/I)

WANTED: SNELL Type K speakers, Huygens or Heybrook HBI stands. LFD or DNM interconnect. Offered: Mission 753 speakers, excellent condition, 1 owner, boxed £295. Tel: 01642 542 395 day, 01429 429 953 eves (Cleveland) (Feb/I)

MICHELL ARGO pre amp £350. Michell 150 head amp £200. AVI integrated amp £450. Musical Fidelity The Pre Amp & Typhoon £300. Mission Cyrus 2 & PSX £250. Musical Fidelity MVT Pre Amp £350. Arcam Delta 60 £125. Pioneer A400X £125. Inca Tech Claymore £125. Sugden AU51P £500. Tel: Keith 01825 733 176 (East Sussex) (Feb/I)

MICROMEGA DRIVE 3 CD transport with Audio Alchemy DDE 1.1 power supply 3 and all leads £365. CR Developments Kalypso 35wpc integrated line valve amp £175. Tel: 01522 871 258 (Feb/I)

EPOS E11 & stands £275. Linn Kans & stands £200. Linn Sara's & stands £325. TDL Studio 0.5 £275. Pink Triangle Ventrical Acoustic 3 £425. Tel: Keith 01825 733 176 (East Sussex) (Feb/I)

SPENDOR S100 speakers. Black - with specially made target stands. Excellent condition. Original boxes and manual. last retail price £1650. Accept £750. Tel: 01844 208 751 (Feb/I)

ARCAM ALPHA 7 CD £195. Arcam Alpha 8 amplifier £200. Acoustic Energy AE109 speakers £220. All boxed ex. condition. Tel: 0181 600 1170 (Hertfordshire) (Feb/I)

QUAD 22 power amplifier with control unit. Almost as new, original ports, hardly used. recently discovered in old grammar school closet £800. Tel: John 01494 524 955 ext. 241. (Feb/I)

8810 LINEAR Line Studio Monitor speakers (pair). Black ash. Barely used with original packaging. Superb quality sound. max output 125 watts. 12" woofer, 5" midrange, 3" tweeter. (£1700 new) 4 months old £1000 ono. Tel: 01784 452 145 (Feb/I)

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Linn Kelidh Triactive Cards boxed	s/h	750	295
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Linn LP12 Cirkus, Trampolin, Lingo, Aro, Arkiv	s/h	4020	1795
Linn LP12, Lingo, Ittok, K18	s/h	2500	895
Linn LP12, Valhala, Basic Plus	s/h	1400	450
Linn Sara & Stands	s/h	900	295
Lumley ST70 Triode switchable	x/d	2300	895
Marantz CD63 SE	s/h	400	150
Martin Logan Sequel 2	s/h	3500	1795
Meridian 104 Tuner	s/h	n/a	150
Meridian 208 CD pre phono & MSR	s/h	1650	495
Meridian 541	s/h	1200	495
Mission DAC5 DAC	s/h	300	95
Naim 01 New Style	s/h	1780	1095
Naim 140 6 months old	s/h	770	495
Naim 180 12 months old	s/h	1090	750
Naim 250 New Style	s/h	1705	1095
Naim 32.5	s/h	450	250
Naim 52 plus PS	s/h	4750	2395
Naim 62 New Style MM/MC	s/h	450	250
Naim 72	s/h	827	395
Naim CDS	s/h	4000	2195
Naim Hi-Cap New Style	s/h	720	450
Naim Hi-Cap old Style	s/h	720	350
Naim Naxo 3/6 New Style	s/h	650	295
Nakamichi BX300E	s/h	600	295
Proac Response 2 & Stands	s/h	2000	895
Quad 66 & remote unit	s/h	850	395
Quad ESL 63 Black & Stands 1992 Boxed	s/h	3650	1495
Rotel RC 971 line pre	s/h	150	75

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REVOX B77 tape recorder complete with w/shop manual, tapes etc. Hardly used. Sale due to bereavement. £570 ono Tel: 01705 691 035 (Portsmouth) (Feb/I)

MARANTZ CD52II £90. MIT terminator interconnect £60 (£130). QED digital £10 (£20). Puresonic Silver interconnect £25 (£70). Audioquest Indigo 2x3 metres £60 (£120). QED Profile Silver 12 two x 4 metre bi-wire £60 (£120). Cable Talk 2.1 bi-wire 2x4 metres £60 (£120). Tel: Bill (Oxford) home 01993 851 508 work 01865 792 020 (Feb/I)

NAIM CDX as new. 1 year old. Still Guaranteed etc. £1900. Audio Research LS2. Balanced. Boxed. as new (rrp £2800) £1200. Audio Research D240. Boxed, manual, as new, mint condition (rrp £3000) £1200. Krell KPS 30i, as new, mint condition (rrp £5000) £2250. Audio Research LS7, as new, mint (rrp £1700) £850. Audio Research SP9, mint, boxed (rrp £2000) £900. DPA Enlightenment DAC/drive, new 24 bit upgraded DAC/drive £1350 ono. Audio Research SP11 including PS mint £1450
Chord Cobra interconnect 2 phono - 5 pin locking Naim plug £10. Heybrook Quartets, walnut, boxed, as new. (rrp £650) £460. DPA Renaissance CD player. Under guarantee. Black finish - superb. £600 ono. Carriage no problem Tel: 01792 280 061 (Feb/I)

AUDIO SYNTHESIS Pro passion all Vishay passive pre amp £250. Stax ELS81 electrostatic speakers, needs serious amplification £450 ono. Moth passive preamp £60 ono. Can dem above items. Decca cartridge, gold, blue, red and grey £55 each inc p&p. Wanted Naim NAT 01 tuner old style, Randall research interconnect, Blue Heaven speaker cable. Tel: 0181 455 0689 after 7pm (Feb/I)

KRELL KAV500 power amplifier, full 5 channel configuration. Six months old. Mint condition, as new. Cost £4995. Accept £3500. Sony JA30es Minidisc recorder. Mint condition £250. Tel: 0113 240 2043. Email: tompledge@msn.com (Feb/I)

KRELL KAV 250P £1150. Chord 1000B power amp £1450, Quad FM4 tuner £250, TEAC D500/P500 CD player £550, Target R1 stands £125. Tel: 01977 643 629 (Feb/I)

DPA RENAISSANCE int. CD £600 (cost £995). DPA Enlightenment drive £450 (cost £775). DPA DX32 Enlightenment DAC £475 (cost £825). All 9 months old, mint. Tel: 01278 653 283 (Somerset) (Feb/I)

PINK TRIANGLE Da Capo DAC 1307 filter cost £1650, accept £695. Audiolab 8000P £295. Audiolab 8000C pre £195. Spondor SP2 speakers £250. Denon DCD 3560 £395. Denon DCD 1560 £250. Tel: 01634 268 660 (Feb/I)

SONNETEER ALABASTER class A integrated amp. 50 watts, silver, gorgeous sound and build, 14 months guarantee. (£900) accept £600. Mission 752F speakers, mint, all boxed. £350. Tel: 01703 905 264 (Feb/I)

MISSION 751 Freedom speakers in oak Primavera. On sand filled Atacama stands. Mint condition £180. No offers. Tel: 01765 600 450 (N.Yorks) (Feb/I)

AUDIO INNOVATIONS First Audio 2A3 triode amplifier as new £500. Audio Innovations L2 pre amp £350. Pioneer PD75 CD player £300. Heybrook HB2 speakers £90. Used GEC KT66 valves good emission £25 each. Tel: 01935 891 342 (Feb/I)

FOR SALE: 7591A Nos Sylvania valves (original boxes). £45. Restek MPA 5 pre amp £120. Wanted: Fidelity Research tonearm 64S/12S in good condition. Tel/Fax: Pierre 33 (0)1 47 01 14 52 (France) (Feb/I)

LUX MQ3600 valve amp £950. Lux 304 valve pre amp £350. Sony CD 338 ESD £200. Epos 14 speakers & stands £300. Royce Spectrum turntable & Mission 774 arm £200. Custom made transmission line speakers (built red mahogany) veneer & spike base. £170 01932 889 547(Feb/I)

CADENCE 40 watt valve monoblocks. Excellent dynamics & s/stage at a knock-down price! Cost £1800 new, asking £850 ono. Very reluctant sale. Any reasonable offer considered. Tel: 01793 763 934 (Feb/I)

LINN KABER Pass £850. 2 x Linn LK 280 power £425. Linn LK1 pre £150. CD Linn Mimik II £600. All leads £2500. Tel: 01233 645 226 (Feb)

MISSION 753 black boxed £360. Quad 44 405 Mk2 boxed £380. Marantz CD52 MkII SE boxed £90. DAC in box £60. DACmagic 2i boxed £55. Nordostt Blue Heaven 1m £60. Optima 6 shelf midi rack gold boxed £140. Tel: 01943 864 097 after 7pm (Feb/I)

QUAD ESL63 with stands immaculate little used £1200. Messa Baron power amp, startling! £1700. Pink Triangle Pip 2 £1000. NAD 3150PE amp & NAD CD player £450. Fuller Audio Sultan speakers £450. Consider p/x for good CD player. Tel: 0468 301 670 or 0133 266 3339 (Feb/I)

MARANTZ CD94 hardly used but works OK £130. Quad 306 power amp £110. 12-0-12 and 18-0-18 volt Toroidal mains transformers £6. Tel: 01323 737 850 (Eastbourne) (Feb)

AUDIONOTE CD3 compact disc player, mint, boxed. Hardly used £1250. Neat Petite speakers MkIII as new. £499. Grado 325 head phones. Mint condition £150. Tel: 01952 406 759 (Feb/I)

CABLES: AUDIO Note AN-V, 1m £50, AN-B, 4.5m bi-wired £50. VdH The First digital 0.6m £30. Supports: Target 3 tier £25, Audiotech 4 tier £30, Tel: 01962 774 218 (Feb/I)

NAIM CREDO speakers, external crossovers, cherry, boxed, £600. Tel: 01327 261 527 (S.Northants) (Feb/I)

KEF REFERENCE Two loudspeakers,, Rosetta Burr, 1 year old, immaculate condition £2000 new, asking price £1200 ono; QED Profile 8, 5 metre terminated pair £20. Tel: 01792 536 143 after 6pm (Feb/I)

CUSTOM 300B, choke input filter, silver caps etc. Superb transparency & dynamics £1100. Klipsch La Scala £1600. Various phonostages & preamps cartridges & cables. Micromega drive & DAC £700. Tel: 01253 402 557 or 0468 881 681 (Feb/I)

PIONEER A300R Precision, boxed, manuals, 6 months warranty £235. Heathkit FM4U valve tuner as new £25, Rotel RC 970 BX MkII pre, mint, £55. Wanted: old Japanese DD turntable top of the range must be mint, no silly prices. Tel: 0141 580 9167 or 07801 587 407 (Feb/I)

KRELL KAS Reference monoblocks, 4 boxes. Two main amplifiers, two power supplies, 2 years old, boxed, mint, cost £29,500 new. Offers at £20,000. Krell KAV300CD player, latest spec with remote, boxed, mint, cost £3500 new. Offer at £2700. Krell KSA 300s amplifier, mint, cost £9500 new, offers at £6700. Tel: 0171 349 9675 (Feb/I)

A selection of our ever changing offers for sale (all fully guaranteed)

Equivalent Sale New Price Price

AMPLIFIERS

Musical Fidelity Pre 2A MM/MC pre amp (vgs) s/h	-	169.95
Musical Fidelity X-Pre valve pre-amp (new)	-	200.00
Musical Fidelity X-ASD monoblock power amps (new)	-	500.00
Musical Fidelity A.1 class A int. (vgs) s/h	350.00	189.95
Musical Fidelity A.1 (original class A int) (2 in stock) (vgs) s/h	350.00	189.95
Myriad HI 120 Remote Int. (Phono Stage/Upgrade) (mint/as new) s/h	700.00	499.95
Morden MCA int. amp (num. modules) (vgs) s/h	-	199.95

Papworth M100 100 watt valve monoblock power amps (mint/as new) s/h	3800.00	2000.00
Audion Silver Nights (2008) Class A monoblock power amps (mint/as new) s/h	2250.00	1395.00
Audio Innovations Alto into amp (mint) s/h	330.00	225.00

Audiolab 8000B remote int. (mint) s/h	750.00	429.95
Audiolab 8000P 2 x 100 watts power amp (late model) (g.c.) s/h	750.00	499.95
Audiolab 8000A int. (mint) s/h	500.00	329.95
Arcam Alpha 5 int. (vgs) s/h	240.00	149.95
Arcam A50 (black) int. (vgs) s/h	-	45.00
Leak Stereo 30 int. (vgs) s/h	-	99.95
Lumley VTP 1000 valve line pre-amp (vgs) s/h	400.00	299.95
Luzman LV 1040 U hybrid valve/SS int. (vgs) s/h	500.00	349.95
Chameleon Ruby power amp (2x200 watts) (vgs) s/h	1200.00	449.95
Quad 34 pre-amp (brown) (vgs) s/h	388.00	199.95
Quad S20P poweramp (professional) (vgs) s/h	600.00	299.95
Quad 405 1 power amp (vgs) s/h	-	199.95
Quad 44 pre-amp (vgs) s/h	700.00	249.95
Quad 405 1 power amp (vgs) s/h	-	199.95
Quad 33 pre-controller (vgs) s/h	-	89.95
Kushaw Overture Int. (mint/as new) s/h	435.00	249.95
Pioneer A400 (original) (2x50watts) int. (g.c.) s/h	280.00	179.95
Pioneer A400X (2x50watts) int. (vgs) s/h	280.00	179.95
Sugden CS1 pre-amp (vgs) s/h	-	89.95
Rotel RB 946/B1 (2x60watts) power-amp (vgs)	-	149.95
Kenwood DP3080R remote int. (vgs) s/h	250.00	169.95
DPA DSP 2005 pre-amp (vgs) s/h	495.00	299.95
QED C300/P300 pre/power amps (f.c.) s/h	700.00	299.95
SAE Mark IV CH 2x100watts American power amp (g.c.) s/h	loads	169.95
Marantz PM80 2x80watts int. (mint) s/h	400.00	249.95
Marantz PM34 2x40 watts int. (g.c.) s/h	150.00	99.95
Marantz PM40 SE (int.) (vgs) s/h	250.00	139.95
Naim NAC 62 (Kboards) / NAP.90 pre/power late style (mint) s/h	1000.00+	500.00

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STD 305M c/w Myriad Unigrip/Galdring Eban cart (vgs) s/h	loads	199.95
Roksan Jenev/AB 300/Ely/Christy PSU (mint) s/h	loads	499.95
Mitsun 775 SM/774 arm/VMS 20E (vgs) s/h	loads	399.95
Reveler Rebel c/w arm/VAT cart (mint) s/h	-	149.95
Musical Fidelity X LP (The One At The Price) MM/MC NEW	loads	1300.00
Synco P13 (passive) Silver Wired Tone Arm (mint/boxed etc) s/h loads	loads	229.95
Project 6.1/1 arm/tondion (vgs) s/h	390.00	290.00
Q.E.D. R232 /arm/RATA R230 (g.c.) s/h	200.00+	109.95
Rega HL/RS 300/tondion cart (vgs) s/h	325.00+	189.95
Linn LP12 armboard (for Linn/Alphason/Zeta etc) (mint) s/h	-	20.00

A selection of our ever changing offers for sale (all fully guaranteed)

Equivalent Sale New Price Price

Linn LP12 (altn) / Alphason delta/ K18 II (vgs) s/h	1700.00	595.00
Linn LP12 (walnut) /Bask arm) k.9 (vgs) s/h	1500.00	495.00
Hi-Fi News Walnut II (walnut/mount for cartridges) (vgs) s/h	65.00	49.95
Deca International unipoint tonearm (g.c.) s/h	-	49.90

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Mission 7331 (black) (mint/boxed) s/h	330.00	229.95
Wharfedale Diamonds 7.2 (black) (new)	140.00	99.95
Celestion SL 65 (black) (f.c.) s/h	400.00	169.95
Tannoy 625 ALF 100watts active sub (mint/as new) s/h	600.00	299.95
Linn Helix LS 150 (vgs) inc. stands (black) s/h	280.00	179.95
Linn Helix II/Ku-Stone stands (black) (vgs) s/h	350.00	199.95
Monitor Audio R300 MD (black) (vgs) s/h	200.00	159.95
Kel Q15 (Uni Q drivers) (few weeks old) (mint) s/h	130.00	89.95
Kel Coda 7 (mint) s/h	130.00	89.95
Kel 105.4 (external X-over) (G.C.) s/h	1800.00+	499.95
Yamaha NS10 (studio monitor) (mint/as new) Rare s/h	300.00	229.95
IPW Monitors c/w stands (black) (vgs) s/h	250.00	139.95
Denon SE E 313 (Rosewood) (mint) s/h	160.00	99.95
Royd Sapphire II (oak) inc. stands (mint) s/h	300.00	169.95
Royd Merlin (black) inc. stands (mint) s/h	400.00	229.95
Ruark Talsman II (medium oak) (vgs) s/h	700.00	399.95
Canon S.35 inc. stands (vgs) s/h	300.00	169.95
Canon SU.15 mini-runs (mint) s/h	110.00	74.95
Gale 301 (black) (vgs) s/h	300.00	169.95
Cyrus 302 (black) (vgs) s/h	350.00	149.95
Abogee Caliper (piano black) with bases (Restoration project/need finishing) (g.c.) s/h	3500.00	500.00
Miller & Kreier YK.711 Active-Sub (mint) s/h	450.00	199.95
Heybrook Point 5 Bi-wire (black) (vgs) s/h	179.00	89.95
Spendor SP.2 (walnut) (vgs) s/h	450.00	229.95
Tannoy 603 inc. stands (mint) s/h	200.00	139.95
Foundation Heavy 18" stands (vgs) s/h	80.00	59.95
Lots of LS. stands in stock including Target/Lovan/Alphason etc	-	-

TAPE DECKS/TUNERS ETC:

Arcam T.21 F.M Tuner (black) (mint) s/h	-	79.95
Denon DRH.700A 3 head/HX Pro etc. (g.c.) s/h	250.00	159.95
Leak Troughline 3 stereo valve F.M Tuner (vgs) s/h	400.00+	169.95
Nakamichi BX 125 (f.c.) s/h	140.00+	99.95
Pioneer E.203 R.D.S. Digital Tuner (vgs) s/h	-	99.95
Quad FM.3 F.M. Tuner (2 in stock) (both mint) s/h	-	99.95

A selection of our ever changing offers for sale (all fully guaranteed)

Equivalent Sale New Price Price

Yamaha KX 1020 3 head/DBX/HX Pro etc (vgs) s/h	400.00	189.95
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COMPACT DISC PLAYERS/TRANSPORTS/D.A.C.S.

Arcam Delta 250 transport/Black Box 50 DAC (mint) s/h	1250.00	795.00
Arcam Alpha (remote) (g.c.) s/h	500.00	199.95
Audio Innovations Alto (black) remote (mint) s/h	400.00	249.95
Cambridge Discmagic 1/ Discmagic 1 (vgs) s/h	500.00	269.95
Marantz CD.65 II remote (vgs) s/h	300.00	189.95
Marantz CD.42 (f.c.) s/h	300.00	199.95
Micro Mega CD3 top loader (transport) (Acrylic) (vgs) s/h	1500.00	795.00
Philips CD1 210 (interactive) (mint) s/h	400.00	109.95
Technics SL PS 770D remote (mint/as new) s/h	250.00	189.95
Technics SL PG 520A remote (vgs) s/h	200.00	119.95
Technics SL P550 remote (vgs) s/h	-	129.95
Teac VRDS.7 (mint) s/h	600.00	379.95
Kenwood DP 2060 remote (g.c.) s/h	200.00	119.95
Denon CDC 925 remote (mint) s/h	-	109.95
DPA little bit 3 D.A.C. (vgs) s/h	350.00	199.95
Denon CD.92 (f.c.) s/h	799.00	-
Musical Fidelity X-Ray 24796 player (superb player) (new)	-	300.00
Musical Fidelity X-Act DAC (new)	-	130.00
Musical Fidelity X-Act DAC (new)	-	130.00
Musical Fidelity X-Dac (HD/CD) DAC (new) (ex-dem)	300.00	200.00
Musical Fidelity X-100 (missing Link) CD/Line buffer (ex-dem)	120.00	90.00
Pioneer PDR 901 (stable platter) remote (vgs) s/h	500.00	269.95
Pioneer PDS 703 (stable platter) remote (vgs) s/h	450.00	179.95
Pioneer PD.7100 (no remote) (vgs) s/h	-	99.95
Rega Planet c/w Remote and Rega Neutrik cable (mint) s/h	535.00	399.95
Rotel RCD-855 Remote (vgs) s/h (two in stock)	-	109.95

OTHER ITEMS OF INTEREST

Mordant Short Decoder One (Dolby Pro Logic Processor) (inexpensive route to home cinema) (mint) s/h	400.00	149.95
Technics SB GX350 remote Pro Logic tuner amp (mint) s/h	330.00	199.95
Yamaha DSP A671 (stable platter) remote (vgs) s/h	250.00	169.95
Musical Fidelity X-Tone (new)	-	129.95
Alrpod AP2 arabic solenoids (mint) s/h	320.00	139.95
Alphason Class 4 shelf mini stand (ideal for X Series) (mint) s/h	100.00	69.95
Yamaha DSP-E1000 remote pre-logic processor/amp (mint) s/h	700.00	249.95
Shn Acoustics Jigum/Polymer LS stands (20") (g.c.) s/h	150.00	79.95
A few Target stands left (5 shells) (ex-dem)	-	POA

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AT 110 E	£27 £14	AN2, AN 70 £12.00
AT OC 9	£280 £210 EX	Dual DN 145 E, DN 165 E £14.00
Denon		Goldring G800 Super E £14.00
DL 110	£70 £55 EX	JVC DT 55, DT 60 £10.00
DL 304	£190 £160 EX	National EPS 24 CS, P 30 D, P 33 D £10.00
Goldring		Ortofon FF 15 E II, VMS 20 E II, OM 20 £14.00
1012 GX	£76 £50	Pioneer PN 210, PN 220, PN 240 £10.00
1022 GX	£94 £62	Shure N 75 C, SC 35 C, N 75 ED T2, N 75 EJ T2 £12.00
1042	£115 £76	N 95 ED, N 95 EJ, N 75 3 (78) £14.00
Erolca (LX or H)	£102 £78 EX	VN 35 E £16.50
Elite	£200 £153 EX	N 95 HE, N 97 HE, VN 35 HE £22
Excel VX	£446 £342 EX	Sony ND 142 G, ND 150 G, ND 155 G £10.00
Grado		CN234 £12.00
Prestige Black	£44 £24	*** OVER 500 STYLI TYPES STOCKED ***
Prestige Gold	£134 £74	originals
Ortofon		ORTOFON DJ PACKS (CARTRIDGE + 2 STYLI)
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MC 15 Super II	£120 £102 EX	Concorde Nightclub SSS Pack £106 Stylus £27
MC 25 FL	£210 £178 EX	Concorde Nightclub EEE Pack £82 Stylus £33
MC 10 Supreme	£263 £224 EX	Concorde DJ SSS Pack £82 Stylus £21
MC 20 Supreme	£330 £280 EX	HEADPHONE SELECTION
MC 30 Supreme	£392 £338 EX	GRADO Prestige Series
Rohmann	£725 £645 EX	SR-40 £45
Shure		SR-60 £75
V 15 V XMR	£265 £178	SR-80 £90
SC 35 X	£32 £24	SR-125 £135
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		Milly Permacean Record Rleaner £12.00 £8.00
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Leak Stereo 20 grey, part rebuilt	£195	
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TDL RTL3 floorstand speakers, 3 years old, mahogany finish, excellent condition. £220. Van den Hul CS122 speaker cable, 4x5m lengths (bi-wired) £175. Tel: 01494 473 789 (High Wycombe) philb@sybase.com. (Feb/I)

KEF 104/2 black, bi-wired, £550. Quad ELS57 black, perfect, genuine pair £400. Quad II, genuine pair, Holco resistors otherwise unmodified, with 22 control unit and manuals £385. Any demonstration. Tel: 01623 812 455 (Mansfield) (Feb/I)

NAIM SUPER Cap, £1350, SNAIC-17, £120, SNAXO 2-4, £400, all boxed, 1 year old. SBL's with passive crossovers, light oak, latest spec, £950. Tel: 01923 857 348 (Feb/I)

ACOUSTIC ENERGY AEI & stands. £300. Tel: 0115 925 7796 (Nottingham) (Feb/I)

UNISON RESEARCH Simply 2. 4 months old, boxed, mint. Reason for sale: upgrade bug has bitten! £595. Heybrook HBI MkII bargain, boxed, exc. £75. Tel: 0113 252 2820 (Leeds) (Feb/I)

TRANSCRIPTOR HYDRAULIC Reference, Technics, SPI0, Audio Note, transformer, Audio Note M2 pre amp, Troughline, TIM OP decoder, Trio K917, Tascam 34B, Meridian monoblock, Studer B62, TVA, Tannoy Golds, Radian 12. Lots more. Tel: 0181 443 0557, 01992 620 905 (Feb/I)

MARTIN LOGAN Quest loudspeakers, excellent £2250. Tandberg 3016A 90 amp power amp, excellent £1100. SME V arm, excellent boxed accessories £795. Nakamichi Dragon, mint, boxed, serviced, receipts £1275. Tel: 01747 853 372 (Feb/I)

WANTED: ARAGON 4004 power amplifier also Leak Stereo 50 or 60 gold or black in good condition. Tel: Tim 0121 236 1174 daytime (Mar/I)

LEAK STEREO 20 with pre. £250. TL12+ pair £300. Troughline £50. Also Armstrong, Rogers and Tripletone valve amps. Connoisseur and Thorens turntables. Various prices and condition. Tel: 01502 560 869 (Feb/I)

AUDIO RESEARCH Ref 1 pre amp (black) mint £5750. Audio Research V 70 power amp (black) mint £1500. Lynwood mains cleaner (rack) six outlets £195. 4 shelf Target AER equipment stand £100. 3 shelf £75. 3 Arjay Record and CD combination storage units various sizes £40 to £1 each. Tel: 0171 702 4984 after 6pm (Feb/I)

GALE 401c, walnut, including stands £95. Sugden A48, £70, Revox G36 £100, Thorens TD160 super, SME arm, Ortofon cartridge £85, Ariston RD80, Linn arm, Arcam P77 £75. Tel: 0116 271 6132 (Feb/I)

CROFT SERIES 4 Preamp with Russ Andrews mods + Series 3R's OTL amp latest spec £1300 ono. Ortofon T-20 MC step-up £40 + Carver MC7 step-up £55. Tel: Steve 01784 464 574 or 01932 577 900 (Feb/I)

NAIM IBL passive speakers black ash, as new. £375 ovno. Tel: 0181 751 2478 (Feltham) (Feb/I)

ROGERS LS5/8 BBC professional monitor loudspeakers in black ash, mint condition. Includes two Quad 405 power amplifiers with active crossovers and ST76 stands £3531 new, will accept £1750. Tel: 01233 750 407 (Mar/I)

MUSICAL FIDELITY A1001 integrated amplifier. RRP £2500. As new condition £1300. Tel: 0181 452 1452 eves and w/e Feb(I)

IMF TLS 80 (pair) Transmission line speakers with 4-way KEF drivers, walnut finish £750. Tel: 01233 750 407 (Mar/I)

AUDIOLAB 8000T tuner £550. Audiolab 8000A amp £300. Rega Kytes £125. Royd Minstral speakers £150. Quad power amp Quad preamp, Quad FM tuner £200. Cambridge Audio DAC Magic £75. Tel: 01606 862 175 (Feb/I)

MARANTZ CD 63 KI Signature, Technics SU-A-900 Mk2 amp, Ruark Icon speakers, Marantz ST-17 tuner, Audioquest Emerald/Quartz interconnects, QED 4x4 speaker cable, still boxed, 1st class condition, £1600 brand new, offers open. Tel: 01332 678 529 (Feb/I)

ELECTROVOICE HEAVY-DUTY pressure drivers with horns 250Hz-8KHz suitable for mid-range DIY or PA use £150 / pair. Garrard 401 in SME plnth, 3009 tonearm and Ortofon MC £250. All very nice condition. Tel: 0181 672 1636 (Feb/I)

SME SERIES Five arm, gold writing and factory fitted silver wiring. 12 months old £950 (£1750) Conrad Johnson PV Eleven preamp. Zero Feedback, triode circuits, SE version £750 (£2800) Tel: 0181 325 2585 (Feb/I)

NAIM NAC72 preamp, mint, boxed with manual £425. Monitor Audio Studio 12 rosewood speakers with plinths. Mint and boxed £700. Tel: Mike 0171 894 7030 day, 01622 872 761 eves (Feb/I)

ROGERS STUDIO Seven speakers for sale. In walnut and hardly used. Slight unnoticeable chip in one corner, hence only £420. Tel: Davie 01546 603 592 after 4. (Feb/I)

WANTED: TANNOY 625. Tel: Alf 01908 602 194 anytime (Jan/I)

PARMEKO EX-BBC 15" studio monitor speaker by SL&S Ltd. 1959. 15 ohms impedance. Good condition, unbelievable sound. Very rare, collectors item £200. Two Bang & Olufsen MMC 205 PU cartridges, one new, other good. £20. Tel: 01563 572 917 or mobile 0411 348 832 (Kilmarnock, Scotland) (Feb/I)

WANTED: MISSION 753 speakers, rosewood, prefer original version. Must be unmarked and perfect working order. Tel: 01341 422 111 (Gwynedd, N.Wales)(Feb/I)

MERIDIAN 207 CD Transport & DAC/Pre-amp. John Bowers Active-1 speakers. 2x approximately 7m van den Hul interconnects. £400 or offers. Tel: 01703 813 105 (Southampton) Feb(I)

VAN DEN HUL The Second interconnect £120. Musical Fidelity AI £110. Tel: Tim 0117 9246 297(Feb/I)

WORLD AUDIO design K588 I PSE valve amplifier, £500. Linn Kairn pre-amp, with phono stage, complete, boxed £700. Castle Clyde bookshelf speakers, £50. Target SE24 speaker stands, £45. All mint condition. Tel: 01252 870 861 (Feb/I)

EX - DEMONSTRATION EQUIPMENT

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ARCAM ALPHA 9 INTEGRATED AMPLIFIER	£500	£395
CYRUS PRE PRE AMPLIFIER	£648	£475
LINN LK100 POWER AMPLIFIER	£650	£450
BANG & OLUFSEN MX6000 28" TELEVISION (BLUE)	£1550	£1250
ROTEL DCD-950 COMPACT DISC PLAYER	£250	£180
YAMAHA DSP-E1000 7 CHANNEL PRO LOGIC PROCESSOR	£700	£295
PROJECT 6 TURNTABLE (INCL. ORTOFON CARTRIDGE)	£500	£395
REL STORM 100W ACTIVE SUBWOOFER	£695	£550

EX - DEMONSTRATION LOUDSPEAKERS

MISSION 731 PRO BLACK FINISH	£140	£99
REGA KYTE BLACK FINISH	£198	£125
REGA EL8 SPEAKERS BLACK FINISH	£298	£195
EPOS ES22 SPEAKERS CHERRY FINISH	£1185	£785

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AUDIOLAB 8000P POWER AMPLIFIER	£650	£495
CYRUS 3 AMPLIFIER	£498	£350
TRICHORD GENESIS COMPACT DISC PLAYER	£570	£375

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Primare A20 Amplifier 60w.p.c new unopened box	£800 - £600
Primare D20 CD Player New boxed	£800 - £600
Primare D20 and A20 ex dem mint con the pair for	£1600 - £1100
Myryad MA 120 Power amp new	£475 - £250
Mirage M1 bipolar Speakers if you have the power, these are awesome. Very large floor standing 150cm high 50cm wide, not for married wimps.	£6000 - £1500
Mirage mbs bipolar satellites with stands to clear	- £250
Kora Design 30 Class A valve integrated amplifier	£1850 - £1350
Kora Design 50 Class A valve integrated amplifier	£2695 - £2050
Kora 100SB 80w monoblocs Balanced input & se	£5350 - £4350
Densen DM 10 75w Integrated amplifier, mm phono	£1500 - £1000
E.A.D.T 1000 CD Transport Coaxial and AT&T	£1495 - £700
Mirage omni polar speakers Hear the semi active om6 bass to 18kh no problem room sensitivity 91dB. wake up, its time for a change	
Mirage bipolar Subwoofers. The BPS 400. 18kh at 125dB will that do	
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PV12AL pre-amplifier, 6 months old boxed etc. mint condition £1250 ono. Audiostatic DCI electrostatic loudspeakers black 6 months old boxed etc. £1200 ono. Newcastle Hi-Fi. Tel: 0191 285 7179 closed Monday. (Feb/I)

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OLD DAYS VINTAGE/AUDIO.
Wanted, Tannoys amps/speakers, Lowther amps/speakers. Leak 12.1, Charles amps, Radfords, corner speakers, GRFs, etc. Also wanted, triode early valves, KT66, PX4, PX25, DA30, DA60, DA100, balloon shaped VAL/VES/ST etc. Tel: 0171 349 9675 (Feb/I)

REVOX G36 £500, Revox E36 £300, Revox PR99 £650, Studer A80 £800, Studer B62 £400, Technics SP10 £280, EMT 948 £500, EMT 950 £750, Uher 4200 RM £280. Tel: 01246 235 024 Fax: 01246 550 421. (Feb/I)

REFERENCE CABLES at trade prices. MIT MH750 (25 feet) bi-wire (£1650) £995. MIT 350 CV terminator Proline twin (20 feet) balanced lead (£1995) £1395. MIT Reference digital 1 metre interconnect (£325) £205. All boxed and mint. Tel: Audio Visual Concepts on 01628 440 873 (Feb/I)

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STUDIO 12 Stereo Decoder for Troughline tuner. Assembled and aligned PCB with instructions £18.50. Boxed, mains powered outboard unit ready to use £56.50. Tel: 01736 798 393 (Apr/I)

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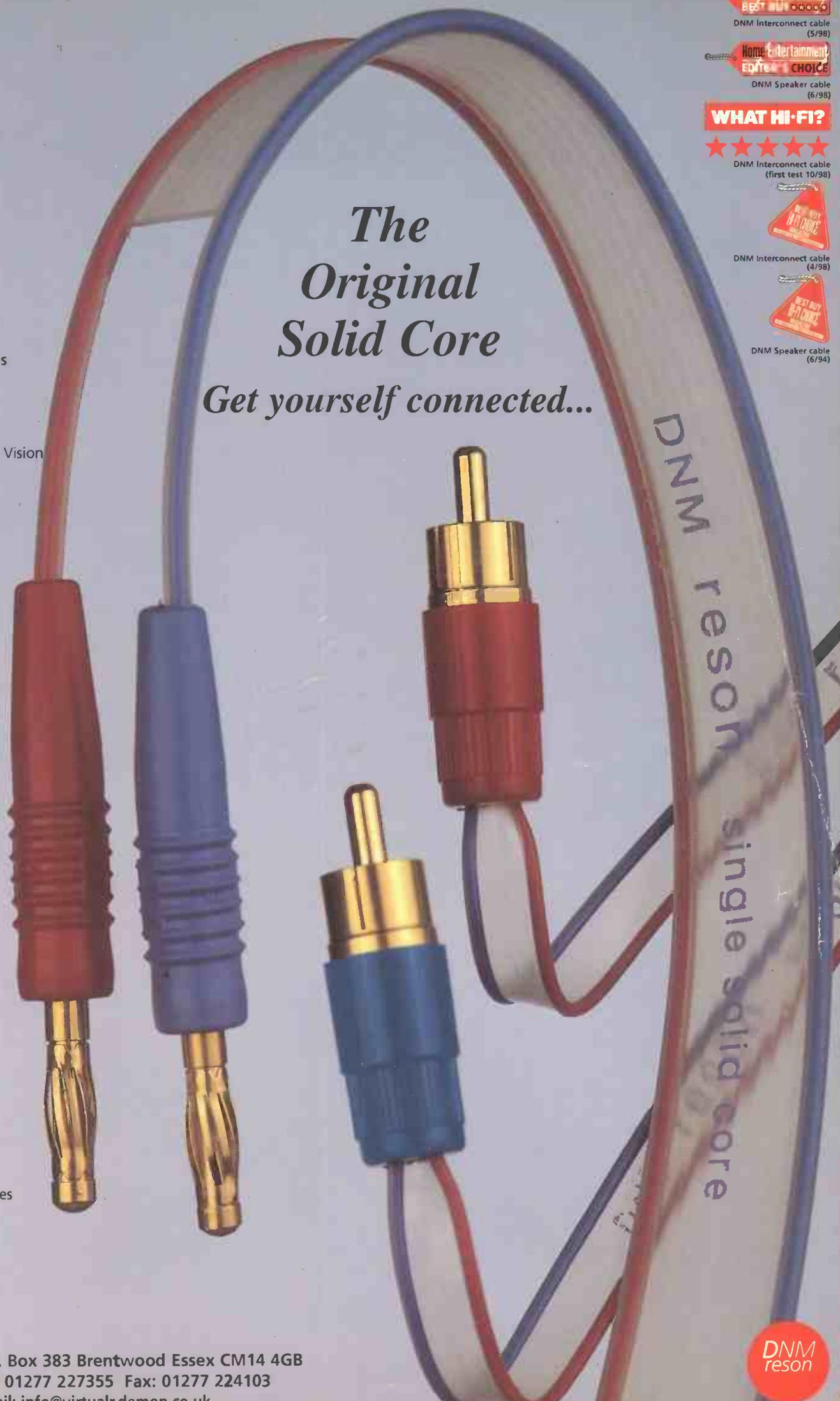
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