



SON MONOR PBD-V30 Pocket DVD/CD Player

DIGITAL DIAMOND

Rio MP3 Portable for Net Music

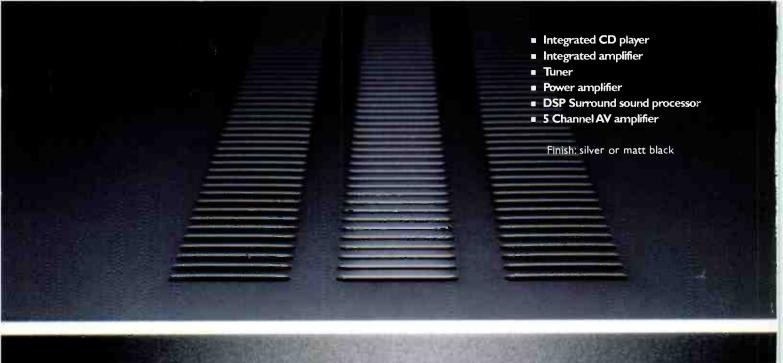
Computer Audio Supplement No1 with this issue (Overseas inside)



E337-13PD NZZI



VERDICTS ON MORE THAN 1999 COMPONENTS











I BMI





ROKSAN

Caspian whichever way you look at it....

Roksan Caspian system — January '99 Best Buy

CD player/amplifier/speakers



Caspian — '98 winner Best Buy Integrated/Power amp from £1000



Caspian — '97 winner

Best amplification
component up to £1000



...its award-winning

Roksan was formed in 1985 to offer sound reproduction systems of the highest quality for the most discerning of music lovers.

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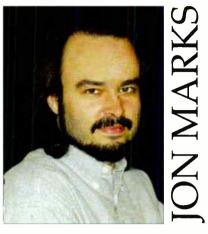
ROKSAN

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www.roksan.co.uk

ell, it's been a long time coming but at last it's here and it could transform the way many people buy and listen to music, especially tunes on the move. Is it Super Audio CD or 24-bit, 192kHz Pulse-Code Modulation we're talking about here? Nope, it's that hot topic amongst computer audiophiles and record company lawyers - MP3 music down-loaded from the Internet.

While such heavilycompressed songs have been
flowing over phone lines and
into PCs for a few years now,
it's the emergence of portable
machinery for replaying them
which has really set the cat
amongst the pigeons. Record
companies fear piracy and loss
of revenue on a massive scale
as PC-equipped consumers
simply visit web sites instead of
their local record shops to
obtain their music.

As well as the major questions as to the future of today's software distribution chain, lovers of hi-fi have been



asking themselves how MP3 portables such as Diamond Multimedia's Rio actually sound. After all, with no moving parts surely these tiny players could be something worth waiting for? Turn to page 13 and you can find out if they threaten conventional tape and MiniDisc machinery.

Equally portable but less likely to change the face of hi-fi as we know it is Sony's PBD-V30 portable DVD player. This cunning piece of miniaturisation is just as comfortable playing video discs as it is CDs, and it makes

a surprisingly sweet sound whether on the move or in a more domestic setting.

Of course, if you're an analogue Luddite like HFW's staff, vinyl is probably the main format in your system. The ways of spinning LPs are many and varied, and one of them involves the superblyengineered and aptly-named 2001 from Basis. Cheap it ain't but when it comes to sound quality this is truly a turntable to take black plastic into the next millennium.

Hewn from thick, precisionmachined slabs of perspex, this belt-drive with its out-board motor and silicone-filled suspension pods has a solid, purposeful look mirrored in a sound quality best described by words like "effortless" and "natural".

Whatever the replay medium of your choice, with so much happening in the world of hi-fi, especially the new digital super-formats on the horizon, these are indeed interesting times we're living in.

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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Loudspeakers from Vienna Acoustics
Turntables from Pro-ject
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Distribution by Henley

Your Hi-Fi system should be as pleasing to the eye as it is to the ear. Spoil yourself with the latest affordable masterpieces from Austrian craftsmen



PAP MUSIC

Papworth Audio Technology, noted for their high-power valve amplifiers, are expanding their list of models. The three newcomers in the MOSFET Series are two integrateds, the MVH-200 and MIA-200, and a power amp, the MPA-200.

As the initials suggest, MVH-200 (reviewed on p29 this month) is a MOSFET/valve hybrid while the MIA-200 is pure solid-state. Both are priced at £1200, with an infra-red remote control as a £100 option. And if you already have a pre-amp, the MPA-200 (again, no valves here) will set you back £1100. The power output common to all three is, you've guessed it, 200watts.

In addition to the above, the valve range has been extended to include the M300 monoblocs with their KT88s and the PPA6 pre-amp, which now includes remote control.



Papworth Audio Technology 1 Cambridge Court, Papworth Everard, Cambs. CB3 8RG Tel: 01480 831666

KEEP TAKING THE TABLETTES

ProAc's new loudspeaker duo was recently unveiled at the Bristol Sound And Vision show. Smaller of the two was the £649 Tablette 2000. 50% larger than the existing Tablette 50, it has a bigger mid/bass driver and an upgraded crossover and tweeter.

Joining the 2000 is an entry-level (£999) floor stander, the Studio 125, with its 6.5in. mid/bass driver and soft-dome tweeter. Both models are magnetically shielded so they can be used close to TV sets.



DNA Marketing New Street, West Sussex GU28 0AS Tel: 01798 343414

AR RETURN IN STYLE

The name Acoustic Research has been absent from these shores for some time now. However, Recoton UK have announced details of their impending return in the shape of the Phantom on-wall 'speakers, none of which is thicker than 4in.

Whereas all of the Phantoms have 1in. titanium tweeters, only the two top models use low-mass MagAlloy driver technology in their dome midrange units to help lift sensitivity to 88dB-90dB levels. Prices range from £400 per pair for the 5.2 to £1200 for the 8.3.



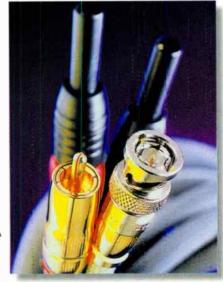
Recoton UK
Towngate 8us. Centre,
Lester Road,
Walkden,
Manchester M38 OPT
Tel: 0161 702 5001

FAST CONNECTION

Not content with their recent releases of hi-fi and A/V electronics, TAG McLaren are now turning their hand to the world of wire with their Cables AvantGarde.

First to be launched are the F3-10-ANA analogue interconnects, the F3-10-DIG S/PDIF digital interconnect and a 'speaker cable, the F3-10-SPK. Again, the boffins at TAG claim to have looked to their motor racing experience to "examine the influence of directionality" through extensive testing.

The interconnect consists of a twisted pair of screened, 9mm-diameter solid-core conductors made of 99.99% pure copper. A 1m set will cost you £145, with each additional metre at £44.



The digital cable carries a price tag of £90 when terminated with RCA connectors (£110 if it's BNCs) and comes covered in a PVC and protective mesh covering.

F3-10-SPK can be supplied with a variety of connectors - spade/spade, BFA/spade and BFA/banana plug, all of which are available in gold-plated versions. Prices are £180 for a 1m pair (spade/spade), £250 (BFA/spade) and £270 (BFA/banana plug). Additional metres are charged at £72 a pair.

TAG McLaren Audio Ermine 8usiness Park, Huntingdon, Cambs. PE18 6EY Tel: 0800 783 8007







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FEATURED SYSTEMS

Audio Analogue Paganinni CD	£750	Musical Fidelity X-Ray CD	0083	Krell 250CD CD Player	£2490
Audio Analogue Puccini SE Amp	£635	Musical Fidelity X-P100 Pre	0083	Krell 300i Integrated Amp	£2495
Sonus Faber Signum Skrs	£1249	Musical Fidelity X-AS100 Pwr	0083	Martin Logan Aerius i Spkrs	£2199
		Wilson Benesch Orator Spkrs	£2900		
System Price	£2634	System Price	£5300	System Price	£7184
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Statistics for 1997 show that well over 400000 visitors attended, and the organisers are expecting even more eager audiophiles to attend this year. These high hopes are partly due to the fact that the emphasis in IFA '99 is on the convergence of entertainment systems with the world of information technology. So, for the first time, visitors from the world of IT will be attending as well.

The whole shebang takes place at the Berlin Trade Fair And Exhibition Grounds. Further information is available from the sources below.

Tel: +49 30 3038 2066/+49 30 3038 2087

e-mail: ifa@messe-berlin.de web: www.ifa-berlin.de

BIG NEWS FROM DOWN UNDER

What springs to mind when you think of New Zealand? Rugby, Kiwi fruit, glaciers? Well, now you can add high-fidelity to the list, as NZ's Plinius high-end amplifiers are available in the UK.

Absolute Analogue are currently bringing in seven of Plinius' models, which include two integrateds, two pre-amplifiers (one phono) and three power amps.

All three of the SA power amps are class A designs built after apparently 13 years of research. The company's bold claim is that the amps are capable of "driving and controlling any loudspeaker on the market". They also say that, in their quest to deliver "the very essence of music", the topology of the circuits closely

resembles the behaviour of "real musical waveforms", a goal achieved through the use of asymmetrical circuit building blocks.

All models feature audio-grade parts and short signal paths - apparently the layout involves virtually no wiring. Prices range from £995 for the 2100i integrated to £5850 for the SA250/3 power amp.

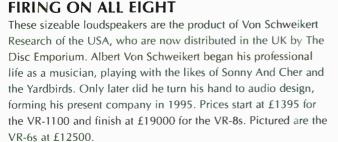
Absolute Analogue PO Box 1532, Fordingbridge, Hants. SP6 1BU Tel: 01425 654488



MYRYAD HIT THE BIG TIME

With the current slump in the hi-fi market and speculation of the beginning of the end of specialist high-fidelity as we know it, it's good to receive some news to the contrary. Hampshirebased Myryad Systems have announced a 300% increase in turnover from 1997-1998 on their hi-fi and AV components.

Myryad Systems 2 Piper's Wood, Waterberry Drive, Waterlooville PO7 7XU Tel: 01705 265508





The Disc Emporium 144 London Road, Knebworth, Herts. SG3 6EY Tel: 01438 816699

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Powerful 16-Bit Microcontroller

The 16-bit Siemens C161RI microcontroller camirols the AV32R and its Set-up Wizard provides most comprehensive on-screen user interface, making set-up extremely simple, without printed manuals.

3 96kHz/24-bit DACs

With its multiple 96kHz/24-bit DA-converters, the AV32R is equipped to handle the finer resolution and more spacious sound recordings of DVD Audio.

4 Minimal Jitter/ TAGtronic™ Sync Link

The precision twin phaselocked loop reduces jitter to an absolute minimum, while the unique TAGtronic™ Sync Link sends a signal to products designed for this advanced technology (e.g. the forthcoming DVD32R) to synchronize its clock to the master reference within the AV32R. DVDs will sound better than ever before.

5 Future-Proof

All sof ware is stored im Flash Memory and is entirely user upgradable, with upgrades downloadable from the Internet via a PC and the TAGtronicTM Communications Bus. This bus also allows the easy transfer and sharing of information for multi-room installations and powerful communication between components.













6 Learning Remote Control

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Gold-Plated Multi-Layer PCBs

The gold-plated multi-layer printed circuit boards control return currents, provide controlled impedances and minimize couplings, with the ground planes split between audio amd digital processing.

8 Mixed Technology Construction

Surface mount components for fast digital circuitry and leaded components for perfect audio signals, to optimize performance, requiring both reflow and wave soldering production techniques. Anything less would be inferior.

9 Broadcast-Quality Videa and Premium Grade Audio Companents

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KGVIcLaren audio



DAB VIBES

After nigh on 12 years since the launch of the Eureka 147 project the waiting is, at long last, over. The race to release the first DAB tuner has been won by Arcam. The Alpha 10 Digital Radio Tuner was launched on Monday 15th March and is now available from dealers.

Inside the 10 DRT, after the digital signal decoding, D/A conversion is carried out by a Crystal Semiconductors IC. This is fed from a mains transformer with multiple secondary windings followed by eight supplies for the various analogue and digital circuits.

A&R Cambridge Pembroke Avenue, Waterbeach,

Alpha 10 DRT up to £799.99

Cambridge CB5 9PB Tel: 01223 203200

FOUR!

American cable specialists Nordost describe their Quattro Fil as "a cable of true aerospace, state-of-the-art technology". This bold statement is based on a design which incorporates a Teflon microfilament wound around the conductor to support an extruded Teflon tube. The result is a predominantly air dielectric that ensures fast signal propagation at a velocity of over 93% of the speed of light. Keeping out interierence nasties is a dual-layer, floating ground shield.

All this could be yours for a meagre £1250 (1 metre terminated pair). Additional half metres are £250, with balanced XLR terminations carrying a £30 premium.

Nordost UK Ltd First Floor, Unit 7, Aber Park Industrial Estate, Aber Road, Flintshire CH6 5EX Tel: 01352 730251



Alongside the large rotary tuning knob and selection of pre-

the signal strength. All of this brings the price of the

sets is a display which shows the transmitter ID, data rates and

NEXT MONTH'S ISSUE

This is merely a thin cross-section of the audio wonders to be unveiled in four weeks:

MUSICAL FIDELITY X-P100/X-AS100

Can this pre/power combo match the sonic achievements of the rest of the respected X series?

ALCHEMIST KRAKEN CD

This new two-box from Alchemist arrives from outer space and lands in our dock-

ing port for the attention of our Spocklike ears. Will its dynamic looks be matched by a dynamic sound?

CASTLE INVERSION 15 LOUDSPEAKERS

Something slightly different from the Yorkshire loudspeaker stalwarts. These stand mounts incorporate unusual

tapered cabinets and Castle's in-house carbon-fibre drivers.

DENON DRM-555 CASSETTE DECK

Manufacturers continue to produce cassette decks amidst talk of MiniDisc's rise to stardom. The DRM-550 proves there's fight in the old tape yet.

WORLD'S BEST AMPLIFIER UNDER £1,000?



MVL INTEGRAL A2

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- 100 Watts per channel RMS (8 ohms, both channels driven).
- **SS*2 FREQUENCY CONTROL.** Improves speaker performance by adjustable matching of frequency response.
- **SS 3 PHONO STAGE.** Improves sound quality from Vinyl whilst reducing surface noise and rumble.
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HI-FI WORLD MAY 1999



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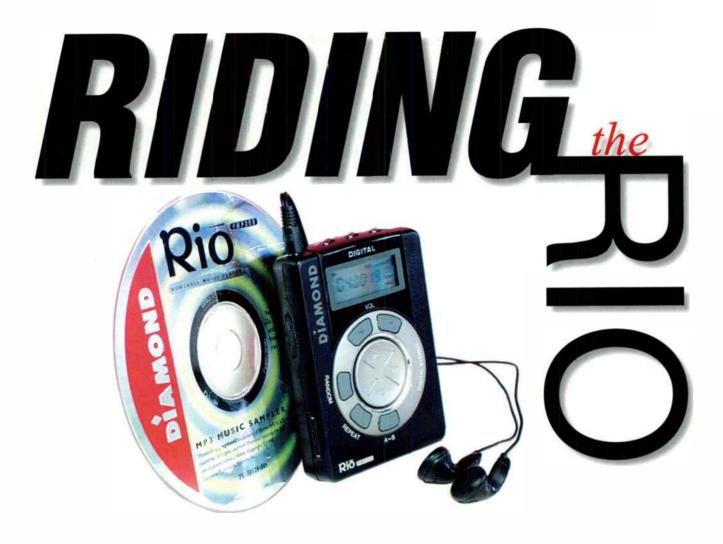
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- SS®1 TAPE Eliminates tape hiss on analogue cassette/tape whilst increasing frequency range.
- SS^{*}5 CD Enhances playback quality of CD by removing 'digital edge' yet retaining original attack.
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- SS[®]7 MINIDISC Improves quality of record / playback on MD from all sources.
- SS 8 FM Improves quality of FM / AM receivers.
- SS 10 DAB Improves quality of Digital Radio.
- SS 13 NICAM Improves quality of NICAM receivers.
- SS®15 DAT Improves quality of record / playback on DAT.

MVL A2: £895 inc. VAT Option Pack: £354 inc. VAT. For more information ring 01953 850800







One of hi-fi's major headline-makers is Diamond Multimedia's Rio MP3 portable. Noel Keywood puts the Rio under the measurement microscope and then assesses its sonic strengths.

ince a US court injunction attempting to restrain its sale, the Rio must be the most controversial personal stereo ever; some even claim it spells the end of the music industry monopoly. But does it offer decent sound for £180, or is MP3 music a joke? Would you actually be better off ignoring all the hype and buying a portable

MiniDisc recorder instead?

Possibly.
Wherever the Rio (or similar machines from Saehan and Pontis) comes up for discussion, people inevitably compare it with MiniDisc, so that's what I want to compare it want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, so that's what I want to compare it with MiniDisc, where MiniDisc, which MiniDisc, where MiniDisc, which M

that's what I want to do here, looking at performance rather than politics. The Rio attracted the wrath of the Recording Industries' Association of America (RIAA) because it was the first stereo of its type to be introduced to the US market by a US company, Diamond Multimedia, maker of computer sound cards and such like.

The concept of an

MP3 portable
originally came
from Korean
company Saehan
a year or so
earlier and wasn't
new. But
Diamond got all
the publicity and
the Rio is the only

player we could find on sale in London, within a few stores, in early 1999. Expect to see models from Samsung and Saehan of Korea, Pontis of Germany, Creative Sound Labs of the USA and many more introduced through the course of this year.

Prices will doubtless fall, but the 32-64MB of computer flash memory these stereos use to store music does not come cheap, so they may not fall as much as you might hope or expect.

THE RIO UNWRAPPED

Open the box and inside you find the Rio, tucked into a restraining holder. It's small and light, measuring 92mm high, 70mm wide and 20mm deep and weighing a mere 70gms. Accessories include earphones, a PC serial-port adaptor, an umbilical lead that runs from this adaptor to the Rio, a single AA-size battery and a slim owner's manual.

The Rio can only be loaded with music from a host PC. It cannot be connected up to a hi-fi system, so there are no phono

leads. You do get a couple of CDs, though, one with Diamond's own Rio management software, plus MusicMatch Jukebox which loads data-reduced music into the Rio, and contains MP3 songs. Both are destined for a computer's CD-ROM drive; the songs disc will not play in a conventional audio CD player. Connection to PC is via a flat, multi-pin connector; the headphone outlet is a normal 3.5mm jack socket, like any Walkman's.

READY FOR REPLAY

There are normal Start, Pause and Stop controls, but Fast Forward/Reverse and Skip are combined. Trying to nudge the sound forward caused the player to skip to the next track, a minor nuisance. By the way, fast forwarding is silent - you do not hear the music speeded up.

The top of the player carries a useful Menu function that shows how much of the internal memory has been filled (or the external memory, if fitted). Various equalisations can be selected to offer different tonal balances; Normal and Classic were acceptable while Jazz sounded muffled and Rock obviously had a lot of bass boost applied.

The Rio can repeat a track section, the whole track or all the tracks in its memory. There's a random shuffle mode too, and you can even get it to play short intros from each tune. A small LCD display gives track number, playing time, volume level, data rate (128/80/60 kbps) and battery life (12 hours). Diamond warn that the Rio consumes power even when switched off - in effect it goes into

THE MATTER OF MEMORY

a nuisance. The memory

stand-by mode. To

preserve the battery it

should be removed, which is

retains its contents however.

External memory cards are available for the Diamond, but not in pre-recorded

form. You cannot at present buy prerecorded media for these players, although Pontis of Germany plans to offer it and Saehan of Korea suggest music could be down-loaded from a docking station that looks a bit like a vending machine. But the cost of memory makes even pre-recorded Minidisc at £16 a shot look cheap.

A 16MB external flash-memory card for the Rio, offering just 17minutes' extra storage time, is likely to cost around £40 on the UK high street. Pre-recorded memory cards burdened by artists' fees, recording costs, etc, would therefore cost at least £45, so I can't help feeling pre-recorded software is a long way off. You can certainly forget about buying such things at a station or airport to pass the time during a long journey: the Rio needs to be close to a computer to get its fix. Of course, you could dump down from MP3 files stored on a laptop, or from the Internet through it.

The Rio comes with 32MB of flash memory as standard, enough for 34 minutes' replay at the maximum data rate of 128kbps, which gives the best sound. This is often described as being of "CD quality" but that's what you might call 'optimistic' by audiophile standards, as I will explain later. Playing time can be doubled by halving the MP3 file data rate to 64kbps with a consequent loss in

quality. Although playing time can be extended by using external memory it is not only expensive but also adds to the Diamond's bulk.

NETTING THE SOFTWARE

I had no problems
loading Multimedia's
own Rio management
software or
MusicMatch
Jukebox into my PC.

The manual supplied is brief and explains only the Rio's controls, saying little about the software. Diamond's management software was poor in my view - it has peculiarly small visual representations of equipment



The Rio comes with earphones, a PC serial-port adaptor and umbilical cord for downloading songs.

fascias, tiny active buttons and obscure operating procedures. Luckily, the Jukebox software worked well once I'd grasped its modus operandi.

The MusicMatch programme acts as a database of MP3-encoded music files, from which can be assembled a playlist that is then dumped down into the Rio. Music in MP3 form can be added direct to the database from the Internet or from a CD-ROM of MP3 songs such as that supplied with the Rio. It can be "ripped" from a conventional music CD loaded into the computer's CD-ROM drive as well. This means there are plenty of ways of getting music into the Rio and, in spite of the fact that it is, technically, illegal to copy your own CDs to a personal or car stereo for your own use, nowadays the music industry is not prepared to make an issue of it (remember the "Home Taping Is Killing Music" campaign?)

There's no shortage of MP3 songs on the Internet - they run into hundreds of thousands, and a large number of them are quite legal since they're promotional freebies from unknown bands trying to get recognised and sell their music direct. Try www.mp3.com which claims to have 1000 songs available, as well as

information on players, MP3 technology and a lot more.

Ripping songs from music CDs takes a little time. Exact speed depends upon the computer used but a 10-minute track should take around five minutes to complete on a Pentium II running at 233MHz. However, downloading can be slow, depending upon how busy the Internet is, the state of your own connection and other factors. A five-minute track recorded at 128kbps took me around 20minutes to download, at local call rate, running at a slow 3-5kbps download rate. A typical file size is 4MB.

ON THE TEST BENCH

Does the Rio measure up to its main rival, MiniDisc, which uses ATRAC data-reduction to give excellent sound quality and an impressive set of measured performance figures? ATRAC reduces files to one-sixth of their uncompressed size; MP3 nearly doubles this to one-tenth, so it throws out considerably more information which will obviously have a greater impact upon sound quality. But this is a test of how the Rio handles MP3, not of MP3 itself.

Bear in mind that the Rio is one of the first portable MP3 players to become widely available. It's an early example of a new technology and generally such things have a few rough edges.

I hit the Rio with a set of standard CD test tones from CD-ROM and it ran into trouble immediately. It objected to reproducing full-level tones in both channels at once (L+R, which gives a centrestage, mono image) and the outcome looked dire. Playing the MP3 test files through the computer's sound card showed the problem came from the software, not the Rio.

Two other coders I tried suffered the same problem, but not CDCOPY by Markus Barth. This piece of software was difficult to configure and slow (track time x0.3 or thereabouts) and buggy (it could



A circular control panel rocks about its centre to provide CD-style control functions such as Fast Forward, Fast Reverse, Track Skip, Stop, Play, Pause and Power Off. Touch pads control volume, Track Repeat and other functions. Along the top are buttons for EQ and Menu to show memory state.

only see one of my CD drives and hung up if asked to find the other) but it encoded perfectly.

Whilst a full-level tone on both channels is a standard test signal, it is not a common condition for music on disc.

Although music is often compressed up to the top

compressed up to the top
of the dynamic
range of CD,
peaks run close to
0dB but do not hit
it. And peaks may
approach full level but
they are short-term in
nature. Average music
levels run from around
-15dB down to -40dB; at
these levels the Rio worked
well and looked impressive in
many ways, even if it wasn't
perfect. From -3dB downward
was minimal distortion, good

there was minimal distortion, good channel separation and low noise (-94dB). Providing music does not hit full level, there should be little sign of roughness in the sound, good stereo imaging and no audible hiss using the software supplied.

Frequency response displayed a smooth treble fall above 1kHz, output reaching 16kHz before dropping like a stone. However, employing the tight parameters used to gauge CD, the Rio returned a frequency response of 10Hz-3kHz when fed a signal from the MusicMatch software supplied. The treble droop (-4dB at 16kHz) gave the player an innately warm sound, which at least ensured the Rio did not sound sharp or tizzy. It also suited the earphones supplied, compensating for their innately bright, sharp presentation.

The Rio's performance figures might not reach the standards set by CD or MD, but they aren't so bad either. The absence of distortion and quantisation products looks good and means that clean recordings from CD stay clean in MP3, avoiding digital harshness and glare. This puts the Rio well ahead of cassette, if not the now-defunct Digital Compact Cassette (DCC), which behaved like MiniDisc.

LETTING RIP

Since there is so much room for tweaking the ripping software in terms of bit-rate,



rip speed and such, MP3 is a bit of a moving target in performance terms. For proof, just take a look at the "Definable Parameters" of AudioCatalyst, from Xing **Technology Corporation** (www.xingtech.com) -

"Variable Bit-Rate Encoding: 32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320kbps Encoding up to 20kHz Down-sampling **Naming Convention** Leading/Trailing Silence Rip Offset, Start and End (Windows version only) **ASPI or MSCDEX ripping** (Windows Macintosh version utilizes the AppleCD driver) Rip method (burst and jitter-corrected rip methods) DAE speed Normalizing volume using a file or straight percentage (Windows version only)"

Rippers/encoders like AudioCatalyst are for propeller heads as they make just about every recording parameter available for adjustment. Note that Xing claim their ripper reaches 20kHz, higher than the 16kHz limit imposed by Bravura Software's Jukebox (www.musicmatch.com).

MP3 ripping/encoding software falls into two categories: easy to use, all-in-one solutions like MusicMatch and highlytechnical and flexible alternatives that are more focussed, lacking a database and play-list construction for example. Compilation and loading of files into the

Rio from the latter must be carried out through the Rio's management software.

SOUND QUALITY

In use, how the Rio sounded depended upon the level of the signal being fed to it. I noticed a 'swimmy' quality and vague image positioning from many CDs. At times it seemed not to want to reproduce stereo, but this was due to the presence of strong centre-stage information, our spectrum analyser showed. At other times, with lower levels from a CD, music sounded fairly clean and well defined, with solid image positioning right across the sound

stage, left to right. Measurement showed the Rio, together with its software, possessed wide channel separation when it was not overloaded by strong centre-stage signals; this was the deciding factor in stereo performance.

All this changed with CDCOPY software. Highly-compressed Rock tracks with heavy centre-stage bass, like Billy Idol's 'White Wedding', hung together perfectly. Images were steady and well defined, bass clean and solid. The MusicMatch software supplied with the Rio auto-configures, works first time and is very flexible. In my view Diamond made the right choice in supplying it. CDCOPY is for PC-heads and I had to fight to make it work on my computer, but it offers superior sound quality and measured performance.

With the MusicMatch software there wasn't much detail to be heard, nor a lot of atmosphere, because low-level signals (below -70dB) don't get coded. This hardly matters when using the Rio with headphones in a busy environment, but it does become apparent when it's hooked up to a hi-fi system. I assessed the Rio using Sennheiser headphones as well as working through a system connected to the Rio's headphone output. Since it will deliver 900mV at full volume there's sufficient signal to drive any amplifier's Aux or CD inputs. The earphones supplied were poor, giving virtually no bass; expect to replace these if you're after decent sound.

So how does the Rio compare with a MiniDisc player? In sound quality, it doesn't - not at present. MiniDisc uses less compression, has a wider, flatter frequency response on a par with CD, possesses better clarity, more dynamic range and is freer from minor coding artifacts. But it takes only a minute or two on the Internet to uncover a torrent of data on MP3, plus alternatives like Yamaha's VQF (http://www.vqf.com). With this level of interest, and with thousands of files to download, the Rio obviously has access to a world of software MiniDisc can only dream about. You must own a PC to

> which will exclude many people. By the way, although there's plenty of software for Macs at present, the Rio

access it, of course.

will operate with PCs only.

The Rio has some teething problems,

there's no doubt about that. It is every bit an early example of a new technology in this respect. MiniDisc has better sound quality, and MP3 - at least through the Rio - is not exactly CD-like. But unlike MD and CD, MP3 is an open technology, not a proprietary one. It might be a little uneven now but tomorrow, in the fast-moving world of computers and the Web, it will be different, very different - and certainly much better. In the meantime, the Rio - its headphones apart - offers fair sound that anyone used to cheap, portable cassette should be happy with

Version 2.5 supplied with the Rio had a clearer interface than this later 3.1 version. Price is \$29.99 from

www.musicmatch.com

Diamond Multimedia PMP300 Rio £160-£180 **Diamond Multimedia** 610 Wharfedale Road, **Berkshire RG41 5TY** Tel: 0118 944 4400 www.diamondmm.com

WORLD VERDICT



Promising start for a technology in its infancy. Presently no threat to MD in sound quality.

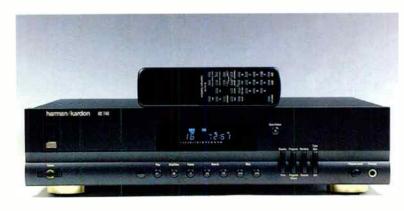
SUT SE HABM'S MAX

Simon Pope plays host to the new HD740 CD player from harman/kardon.

nbeknown to many, American outfit harman/kardon have a couple of spots allocated to them in the hi-fi hall of fame. Founded wayback-when in the design-obsessed Fifties, the company was the first to manufacture a hi-fidelity receiver in 1954. This was followed in 1971 by the first cassette deck with Dolby B and the first 'high-current' amplifier in 1980. There's been a lull in electronic milestones since then but h/k are keeping their hi-fi hand in with a new range of components. This consists of three integrateds, a receiver, a twin cassette deck, two CD multi-players and three single CD machines, the middle-priced of which is the HD740 at £300.

Cosmetically, harman have traditionally never strayed very far from the inoffensive and so it remains with the '740, surprisingly the replacement for the HD730 reviewed back in August '96. There has been little change on the plentiful feature side too, and there are some commendable internals to boot. Behind the metal fascia are dual 20-bit Burr-Brown PCM1802K DACs with 8x oversampling which can be side-stepped with the coaxial digital output.

Having wired up the '740 to loudspeakers from Heybrook and Veritas (with amplification from Musical Fidelity, Crimson and Audio Analogue), my initial impressions were that this wasn't the most neutral of players. It has an extremely rich and sophisticated character, especially with Classical as I discovered with Bach's Mass in B Minor and Shostakovich's Tenth Symphony. The lengthy string phrases that are the bread and butter of the Bach were beautifully



relayed and the violins' middle and lower registers had a full, almost valve-like tonality.

The Bach is a close mic'd recording of a smallish group, which contributed to detail and imaging. For example, the two voices in the Domine Deus were positioned nicely to each side of the sound stage to create a vivid sense of width. Their long, exquisite phrases were carried through smoothly with little veiling of the voices. This refinement extended into the treble where strings and flutes were bright but not harsh. In addition, the sharp tone of the Baroque trumpets, which can take your sideburns off with certain equipment, was here well controlled.

Shostakovich's Tenth includes modern percussion which this player reproduced as sparkling and clean, albeit with a slight sheen which resulted in a somewhat processed sound. The much larger orchestra showed up another chink in the HD740's armour too, one lurking in the low frequencies. There wasn't enough oomph on tap, so large-scale recordings such as

this lost out on impact and weight.

Moving on to more studio-based fare with some Rock and Dance, I found the '740 picking up points for its rhythm. Beck's 'New Pollution' had a driving momentum which, together with the aforementioned smoothness, confirmed that the h/k can be quite a musical performer.

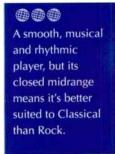
The guitar Rock of Radiohead's The Bends didn't make such a sweet match, the Achille's heel of the '740, a lack of midrange transparency, making its presence felt. As a result, the opening track sounded compressed, the guitars swamping the vocals and the kick-drum failing to propel the music along as it should have done. Still, the h/k kept a tight reign on rhythms so this album never became loose or flabby.

The HD740 is definitely an improvement on its predecessor in the involvement stakes - nothing that I played sounded boring or laboured, and its mixture of drive and smoothness will win this machine fans, especially on Classical. If you want neutrality and intricate detail, however, it's less likely to hit the spot

harman/kardon HD740 £299.99

Gamepath 25 Heathfields, Milton Keynes, Bucks. MK12 6HR Tel: 01908 317707

WORLD VERDICT



Sensational Selection at



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NATIONWIDE



THE TRUTH NOTHING BUT

Veritas are new kids on the loudspeaker block. Simon Pope checks out their pedigree.

B efore turning his hand to audio design, the co-founder of Veritas, John Hullah, spent 20 years as a respected acoustic guitar maker. Seeing as acoustic guitars and loudspeakers are both basically wooden boxes that emanate sound waves, there is a fairly close relationship between the two, no strings attached (ouch!)

To find out what a switch from one end of the musical production chain to the other means in hi-fi terms, we selected a pair of Veritas' 7s, the company's entry-level, two-way stand mounters at £1245. Finished in a classy piano black, the 7s come with a pair of snazzy dedicated stands on slate plinths. An extra £200 buys you the same 'speakers supplied with external crossovers built into the stands.

When it comes to build there is no questioning the Veritas' calibre. Each cabinet is constructed with a core of 18mm MDF completely encased within an outer box of 10mm solid hardwood. They look very stylish indeed and the 28mm enclosure walls do a good job of reducing cabinet coloration. Any remaining doubts as to rigidity can be rapidly dispelled by a quick knuckle-rap on the side, which will result in a bout of swearing followed

by a few days of swelling. Presumably Mr. Hullah's guitars didn't weigh in at anywhere near this amount unless his clients had the fore-arms of Popeye!

There appears to be no scrimping when it comes to the bits that make the music in the cabinets, either. The crossovers are all made with polypropylene capacitors and aircore coils hard-wired to the twin terminals. The two drive units are a specially-made Morel 5in. DPC cone (with a 3in. voice coil) and a Seas 1in. textile-dome tweeter.

After the first few days' running the Veritas in I got to know a few of their characteristics and traits before starting the serious listening. With the help of a Roksan Caspian CD player as source and amplification from Musical Fidelity, Crimson and Audio Analogue, the scene was set.

From preliminary auditioning it was obvious that the Veritas' fortes were in neutrality and detail rather than out and out power. With their relatively low sensitivity they need a bit of pushing on the amplification front but when this is duly sorted you are greeted with an engaging sound that manages to mix detail and subtlety with musical involvement.

Spinning Leftfield's awesome Leftism CD the Veritas 7s showed

World Radio History

their love of a wide, well-mixed recording. They managed to tease apart the two stereo channels but still maintain that vital sense that what was occurring in the left channel was very much connected with the goings on of the right.

It can be a fine line between neutral and clinical for some 'speakers but the 7s had the knack of staying on the right side. 'Afro-left' was bristling with detail, tiny additions to the main electronic percussion brought to my attention as an integral part of the artists' canvas of colours. The Veritas revelled in the lean, dry production of Leftism, producing a very clear and articulate sound.

When it came to the all important bottom-end, the curtailed extension you'd expect from the smallish cabinet failed to materialise. On tracks where there was a genuinely deep, pumping bassline the Veritas literally showed what they were made of. Their construction made for substantial (if not truly thunderous) bass that was as tight as a convention of accountants. With more lightweight floor standers, for example, you tend to get plenty of bass, but it almost invariably lacks the control, speed and impact which are so vital to musicality.



No such difficulties here.

With vocal and guitar-based Rock courtesy of American boppy-Punk trio Green Day, the 7s confirmed a slightly bright top-end which I had previously suspected in cymbals and vocals. In fact, with Rock recordings there was a definite emphasis in the treble and midrange but, as is the case with Jamo's Concert 8s, it wasn't obtrusive because of the quality of the drivers.

Further proof of the 7s' calibre came in the deft handling of the drum kit; everything from the thudding kick-drum to the closemic'd toms and shimmery ride cymbal was as pure as the driven snow. Lead vocals were just as pristine as they emerged from between the 'speakers to the rear of the sound stage, establishing an acoustic with a satisfying sense of depth.

My weakness for large Austro-Germanic Classical compositions meant the Veritas were in for a tough time when it came to faithfully representing the scale and depth of an elephantine orchestra. The predominantly string and wind

HI-FI WORLD

opening of Mahler's Ninth Symphony (played by the Gustav Mahler Youth Orchestra under James Judd) was reproduced with plenty of detail, the phrasing and vibrato in the strings and woodwind impeccable.

Disappointingly, on this recording the Veritas failed to flesh out the sound stage width fully due to their tight, dry bass. The situation improved with the first climax, where the cymbal crash opened things up spatially, but I was still left feeling it could have been broader. Counterbalancing this was the way the 7s relished the tonal colour and character of each instrument.

With this in mind I probed the Veritas' resolution of the subtle differences between the voices of an unaccompanied choir and a string quartet. The modal melancholy of Herbert Howells' Sing Lullaby performed by the Cambridge Singers had a life-like vibrancy and transparency. The bulk of the sounds in choral music are located in the middle of the frequency spectrum and again the insight of the Veritas was without fault apart from a little

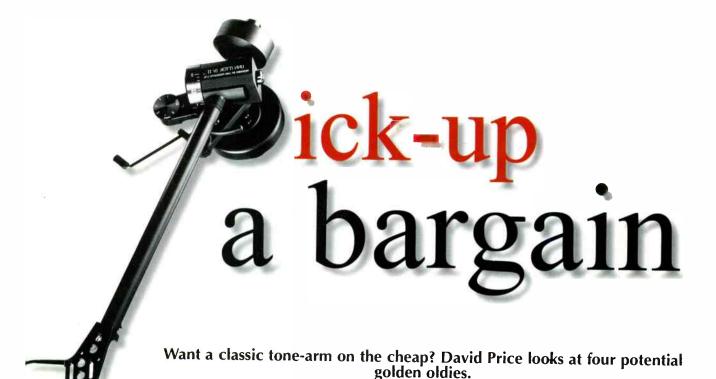
thinness in the upper ranges of female voices.

Ravel's string quartet played by the Alban Berg quartet yielded much the same results as had choral works - chords were rich and rounded and individual melodies very easy to follow. All the instruments had natural tonal signatures and the loudspeakers' clarity coupled with a realistic sound stage gave the impression of almost being in the Wigmore Hall, without the coughs and dropped programmes of course.

If you're looking to invest in a small pair of stand mounts which, major on detail, control and freedom from cabinet coloration, the Veritas 7s are appealing newcomers. Yes, they are fairly expensive for the size (Opera manufacture hardwood loudspeakers for less), but the build is excellent (as are the matching stands) and they work very well in small rooms. Another plus point is their even-handedness - Rock or Classical, the Veritas are happy with either. The only flies in the ointment are the lack of bass depth and that occasional midrange thinness. Otherwise, full marks all round

NR25 71 WORLD VERDICT ---The Veritas 7s combine neutrality and detail with fluidity and sophistication. **IUNE 1999**

Review



LINN ITTOK LVIII

By many people's reckoning the Ittok was the world's first super-arm. Originally manufactured for Linn by the Denon Parts Company of Japan (no relation to the electronics brand), it was designed by a certain Mr Ito to Linn's specification back in the late Seventies. The Tik-Tok (as fans called it) evolved over the years with various detail changes (such as a new counterweight), until it reached its LVIII incarnation in 1989. This last version of the Ittok was undoubtedly the best, featuring Ekos-style glued arm-tube joints. By this time, the price had risen from the original £230 to over £450.

Arguably the first arm to espouse the maximum rigidity principle, the Ittok is built for strength. Its large-bore alloy arm tube is glued to a perforated magnesium headshell and a robust bearing assembly which houses standard ball-races plus a tool-steel central shaft. Very finely aligned, these bearings offer a single, rigid coupling right

right through to the arm pillar with its threepoint fixing.

The sliding brass counter-weight is decoupled from the rear end-stub by hard rubber bushes; thumbwheels set the spring-

applied tracking force and bias. Cabling is very low capacitance and inductance copper, terminated with gold-plated Linn phono plugs. With an effective mass of 12gms, the lttok is in the medium to highmass category, meaning it will work well with most MCs and MMs alike.

One of the Ittok's best platforms is Linn's own LP12, with which it enjoys a real synergy. But it's actually extremely effective on any decent turntable, suspended sub-chassis or not. Its slightly forward, lively character tends to complement most smooth-sounding, capable belt drives. After hearing designs from a previous generation such as Grace's G707, the Ittok's unusually tuneful and very powerful bass articulation is immediately apparent. Later super-arms like the Zeta

Linn's Ittok is never less than a highly musical performer.

bettered it in the latter respect but never the former. Moving up the frequency scale, the midband is detailed and open with good depth perspective. It images well too - far better than the LP12 it usually partners - but is still a touch

vague about the centre compared to the Syrinx PU3 or Zeta. The Ittok's real strength is its musicality. To this day it's one of the most enjoyable non-unipivot designs around, investing anything it plays with a sprightly bounce. Dynamics are also strong, and although quite a way behind the likes of the SME V in absolute terms, the Ittok always manages to sound more expressive that its peers.

This isn't the world's most perfect arm though. Treble could ideally be more refined - it's rather forward and splashy compared to the best of the rest, but still does the job well enough. The maxim about not partnering the lttok with bright moving coils

(such as Audio Technicas, for example)

holds as true as ever. Bass, although very fluid, can be lumpy and lacks the clout of the Zeta or SME V. Detail retrieval isn't a forte either, tending to be cloudy in the midband and fuzzy in the treble. The Linn is such an involving listen, however, that most people simply don't notice.

The lttok is readily available secondhand and prices are low. Unfortunately, due to it being relatively delicate it's easy to buy a pig in a poke. The very last LVIII is undoubtedly the one to have, but is difficult find - pay up to £300 for a mint



WORLD VERDICT



Extremely musical but hardly the last word in refinement. Market oversupply keeps prices low and makes for some superb used bargains.

SYRINX PU3

Back in late 1981, Scot Strachan unveiled his Syrinx PU2 to an unsuspecting world. In spite of its promise it was flawed in several important areas such as resonance characteristics, ease of use and build quality. Enter the PU3 in 1983, substantially redesigned to achieve ultra-low resonance and simple set-up. At £291 it wasn't cheap, but its performance and flair were such that it seemed a bargain.

Aesthetically a bit of an odd one, the PU3 is reckoned to be the first tone-arm to feature a cigar-shaped arm-tube to reduce resonances. Strachan once lamented the fact that few people gave him credit for this bright idea even when someone pointed out that Isambard Kingdom Brunel had actually used it in his bridges a while before! Despite the beefy looks it has a surprisingly low effective mass of 9gms which will get the best out of higher compliance moving magnets as well as most moving coils. Cartridge weight range is 4gms to 12gms.

Off-set adjustment is accomplished by unclamping the arm-tube at its boss and moving the whole assembly fore and aft on a screw. Tracking force is set via a threaded counterweight and then locked with a concentric thumbwheel; bias is the common weight and thread on a falling lever. And in

the best traditions of tweaky kit, neither adjustment is calibrated! Bearings are tightly-toleranced items, internal wiring high-purity copper with a PVC dielectric.

Sound quality is extremely good overall, with a particularly lucid and organic midband. Whereas arms like the Zeta give epic versions of every record you play on them, the PU3 is altogether more subtle and cohesive. By contrast, bass is lighter and slower with less energy and articulation. Although extremely detailed, the Syrinx is never 'in your face'; instead it conjures up instruments in all their tactile, vibrant glory.

Critics of the PU3 might call it warm and coloured, with a slightly fat, overblown sound; from where I'm standing it's a true star. The PU3 is a great way to unlock the music in the groove rather than the merely cerebral. Eminently natural, it draws the listener in rather than making them focus on the song's recording quality or the disc's surface noise.

The Syrinx PU3 is a fine used buy providing the example you choose has been carefully kept. Pay £200-£250 for a well-preserved specimen, much less for a clunker. The PU2 Gold is another possibility as it's the most developed incarnation of the 3's predecessor, but they're fiddly to set up and use, and often drift out of tune. Pay £80 for a good PU2g.

ALPHASON HR100S

Just when it seemed that every super-arm worth the name had thick, straight arm-tubes like Linn's Ittok, Alphason's HR100S appeared in 1983 sporting classic S-shape geometry. And this wasn't the only departure from fashion as the HR100 used titanium in its arm-tubing for maximum strength and rigidity, as SME had done with the Series III and Technics with the EPA500H five years earlier. Even more unusual was its thin, flat-plate headshell which was ingeniously formed from the end of the arm tube.

The Alphason's concentric gimbal bearings are of hardened tool steel. The counterweight system is more flexible than many, with a balance weight sitting on a carrier that can be screwed forward or backward on a hard nylon carrier and then locked by a small screw. As one complete forward rotation of the carrier applies 0.25gm, the system obviates the need for a stylus balance to set the tracking weight.

Three counterweights are available to cope with a wide range of cartridges. In standard guise, the HR100S will accept 4gms to 12gms. Bias is by the old SME-style thread and weight, and is also calibrated. The effective mass is quoted at 11gms, making this a medium-mass arm capable of handling most cartridges. Early



World Radio History



The Alphason's gimbal bearings look old-fashioned but work very well.

arms were wired with decent, low-capacitance (95pF) copper; from 1985 the MCS version came with the worthwhile option of Mono-Crystal Silver wire for a small price premium.

The Alphason's sound is a bit of a conundrum. In some respects it's absolutely superb, in others sadly lacking. In terms of detail, focus and refinement it will run rings around an Ittok or a Syrinx. Midrange neutrality is another high point, instruments reproduced with a master tape-like solidity. Sound staging is naturally proportioned, with no restrictions to either width or depth perspectives. Likewise, bass is punchy and even, never sounding leaden like a Zeta or lightweight like the Grace.

In so many ways the Alphason is a real class act. The problem is that it isn't so gifted at music making - vocals lack power and projection, rhythms are deconstructed rather than visceral and dynamics lack impact. Everything on the record is there in the listening room but it never really sparks the imagination or gets the feet tapping. The Alphason is just a touch too smooth, a teensy bit bland. In fairness, many will value the Alphason's strengths more than, say, the Ittok's. Lovers of Classical and choral music, for whom the ability to recreate a recorded acoustic is paramount, will prefer it to the lumpy, splashy lttok or the euphonic Syrinx. But boogie merchants, be they into Jazz or Rock, should look elsewhere.

Second-hand Alphason prices are keen these days. Build was patchy on the very early models, but generally to a high standard after 1984. Construction materials are far more robust than many rivals, meaning you don't need to be quite as paranoid as when buying an Ittok, for

example. Prices range from £150 for an early non-MCS to £300 for a mint MCS with all its original accessories.

WORLD VERDICT @ @ @





Beautifully-engineered arm with a very refined sound, but not as musical as some.

ALPHASON ZETA

If ever there was a battleship tone-arm, the Zeta is it. Launched in 1982 at £399. build was heroic, with a huge arm pillar housing top-class bearings, large-diameter arm-tube cut from 20-gauge alloy and a solid, one-piece alloy headshell with a milled-flat underside. The counterweight comprises an alloy housing with three mild-steel weights inside, a removable insert allowing a total cartridge weight range of 17gms. Wiring is copper Beyer microphone cable, although later Zetas came with the option of vdH MCD502 for a £90 premium. Physically, the arm resembles the Mission 774SM, which happened to be made in the same London engineering works, GB Tools.

A classic example of a heavyweight tone-arm, its 16gm effective mass makes it best suited to low-compliance moving coils. Setting up is a tad fiddly as there's no spring-applied tracking force adjustment. This is good news for sound quality since there are no extra bits of metal inside the bearing housing to vibrate. Unfortunately, it also makes setting the tracking weight a more fussy business requiring a decent stylus balance. The counterweight is locked in place by a grub screw. Likewise the arm height adjustment, while bias is applied by a

thumbwheel on the arm pillar which is uncalibrated.

On audition the Zeta is a gem. It's a great all-rounder with a very strong, even and taut bass, superb midband performance and clean, extended treble. Dynamics are superb, with a tremendous feeling of power and grip. The Zeta's resolution is class-leading too, letting the listener focus on a single strand in the mix and follow it effortlessly right through the song. This, plus its superb dynamics and commensurate rhythmic ability, mean it's always a compelling listen.

The Zeta has few weak points. You could say it lacks the tonal richness and warmth of some rivals - in fact, detractors call it dull. There's a sense that its upper midband is a touch coarse, and its critics draw attention to its overlarge bearing housing as a source of unwelcome resonances. They also claim, wrongly in my opinion, that it has an artificial way with music. True, it's big and butch and pulls no punches, but it's also a real music maker, if not quite as beguiling as the best unipivots.

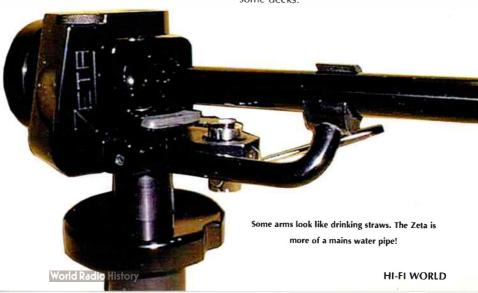
The Zeta is popular second-hand, its robust construction doing no harm at all to used values. This, plus the fact that it was one of the most expensive around until the advent of mega arms like the SME V, means it's pricey. Early samples go for around £250, but sample consistency was patchy in those days. Although the vdH wiring does little extra for its sound quality, these later versions are the ones to go for. Pay £350-£450 depending on condition.

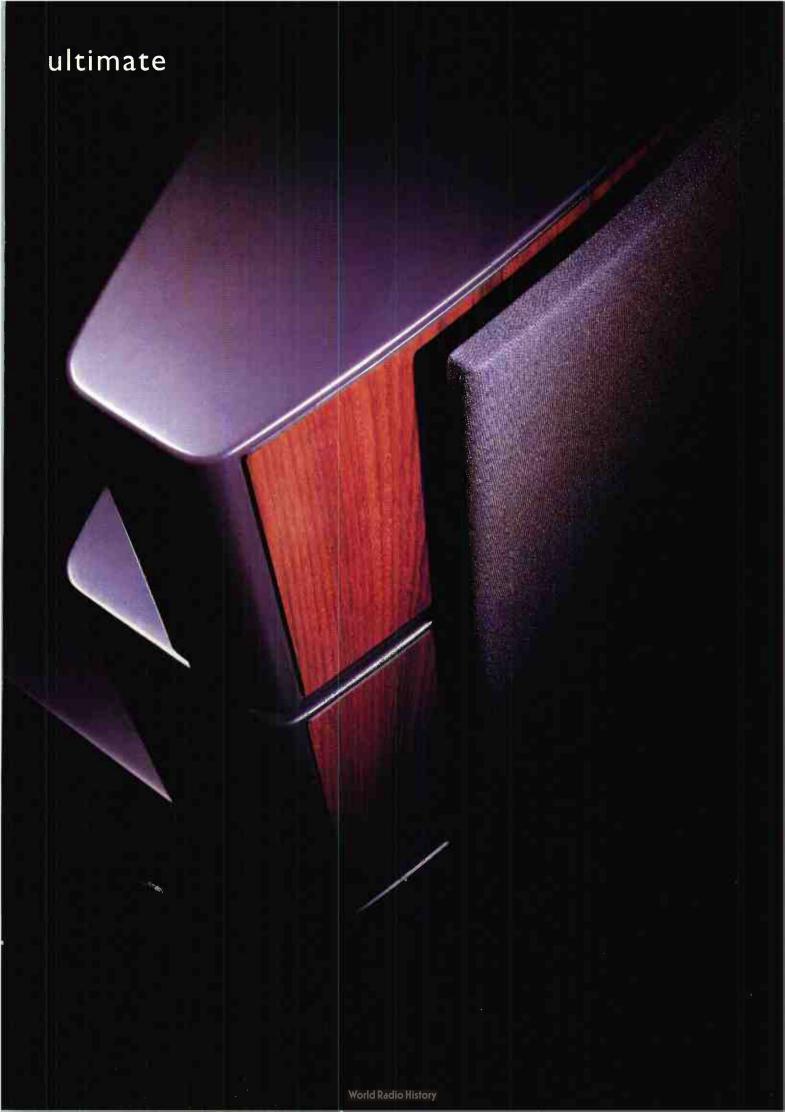
WORLD VERDICT





Superbly dynamic, powerful sound. Fiddly to set up though, and too heavy for some decks.





One Thing at a Time

Richard White goes all cryptic with One Thing's stereo decoder.

he Leak Troughline tuner is excellent; the stereo decoder is not. Solve this problem and any high-quality mono tuner (Leak; Rogers; Pye; Quad) can get a whole new lease of life. Not only but also, many stereo tuners have 'standard' decoders fitted almost as an afterthought. These too can benefit hugely from a better-specified modern decoder. One Thing's Stereo Demodulator sustains an honourable line and is available in an outboard version as illustrated, in kit form for DIY, or as a 'factory-fitted' upgrade to your own tuner.

For newcomers to the tuner scene, multiplex is a method for combining two or more signals in such a way that they can be unravelled again when required. The technique was developed as being the most retro-compatible when FM stereo broadcasting standards were set years ago.

A simple analogy (fig.1) shows the basis of the idea. So long as the two sets of points are correctly synchronized, the two groups of trucks can be sent along the single line alternately and re-switched at the other end with no-one any the worse off. A great part of the secret of successful operation is making sure that the points switch at the right time: if this gets out of synch, it is easy to see that the separation which is the object of the exercise might degenerate into an

unseemly mixture or a series of pileups, resulting in no signal/trucks getting through at all.

Whatever refinements are adopted, the 'switch' synchronization is governed by a pilot tone transmitted (by the broadcaster) with the encoded stereo signal.

Because the basic requirements were decided long ago, modern-day decoder designers are more concerned with ensuring that the technology gives the best possible performance within the given limits: low noise is an important factor, as is stability of separation.

One Thing's decoder is unusual inasmuch as it does not amplify the incoming signal before decoding it, so the overall gain is less than unity (or 1x). The manufacturer says that this hasn't been an issue so far: most

tuners are capable of pushing out the requisite 320mV multiplex signal without needing an additional amplifying stage and the effect that can have on the sound. If there is insufficient signal for decent stereo, the beacon fails to light and you have the options of switching to mono for lower noise or maybe using the handy Blend control to pick an optimum in-between point.

Tuning in to Radio 3 for what is probably the least meddled-with signal on the dial, I was astonished at how good the broadcast was.

Everything from chamber works to full orchestra to plays to news leapt into life. A gloriously rich spread of crisp, clear stereo sound wafted forth whichever way the dial was pointed. Even the ultra-compressed commercial stations sounded vaguely human for a change.

In use, I found that I simply forgot about the One Thing - ungrateful I know! My admiration tended to settle on the tuner and (gasp!) the programmes. Given the steady improvements in stereo broadcasting over the last 30 years, I don't think my tuner has sounded better in its life.

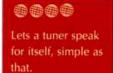


One Thing Stereo Demodulator

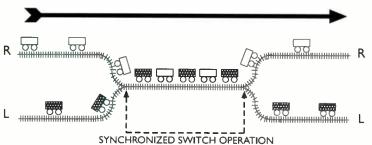
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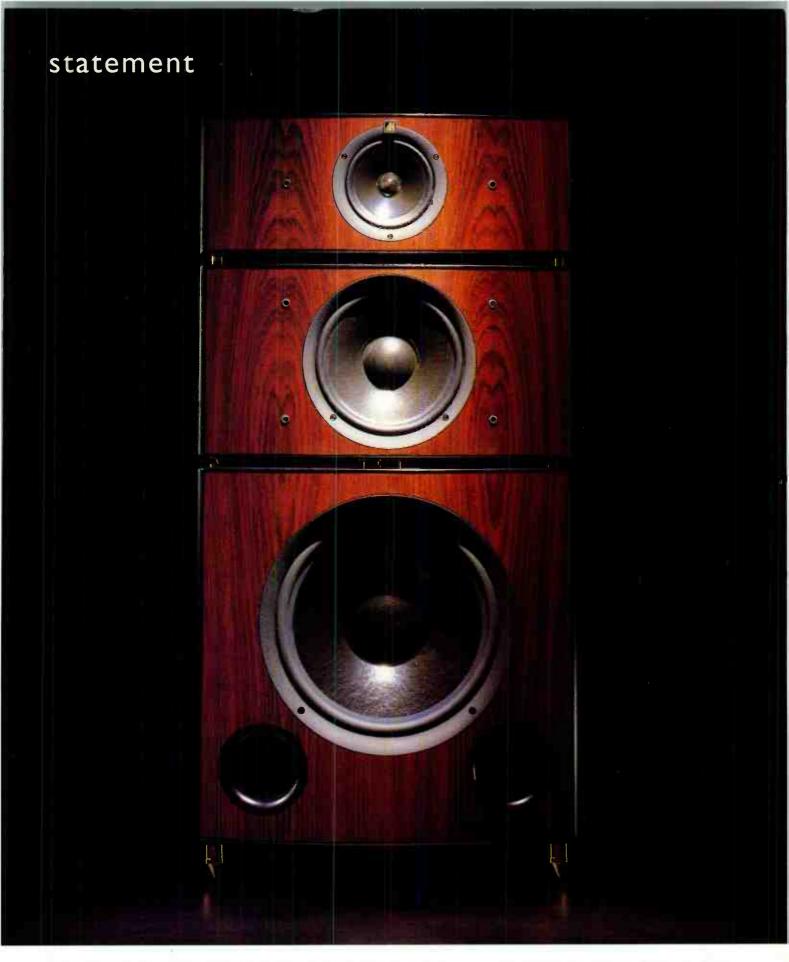
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WORLD VERDICT



Measured Performance see page 127





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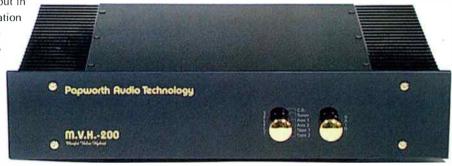
Reference Series Model 109 The Maidstone



Jon Marks quizzes Papworth's MVH-200 and MVL's A2+ in the search for a top integrated amp.

ne of the toughest questions facing audiophiles on the upgrade path is where should one box become two? This can apply to CD replay, but in this instance it's amplification under examination as we decided to test the mettle of two top £1200 integrateds to find out if your money is better spent on single chassis or double. The contenders are Papworth's

same manufacturer, only this time there are six and they're rated at 100V. Alps is the name on the volume pot again. Where the Papworth was Natacha Atlas' Gedida, with its mix of Arabic rhythms, synthesizers and Drum 'n' Bass. Its production isn't the smoothest ever stamped into



The MVH-200 is very well built, its lacquered heatsinks and gold knobs lending it an air of class.

WE'RE GOING IN

classy MVH-200 and

MVL's A2+.

The Papworth's inputs run to four line-levels, two Tape in and a Tape out. Loudspeaker terminals number a pair per channel. Turning to the MVL, I discovered a real socket-fest there are loops for CD-R, MiniDisc, Tape and DAT. The rest cater for Phono, CD, DAB, FM, VCR and Line In/Out for bi-amping. Each of these has been treated to MVL's Sound Sentinel stages, tailored to boost the sound of their respective sources.

UNDER THE BONNETS

Making up a large part of the MVH-200's mass is a chunky Talema toroidal. Supplying the ECC88 valve in the input stage (which is mounted hard up against the source sockets) is a second, small E/I transformer. The Alps Blue volume pot and selector are both shaft-driven from the glass front panel to keep signal paths short. Finally, the two pairs of 10000uF 80V reservoir caps are soldered directly onto the power stage boards to ensure short supply lines.

The MVL A2+ uses caps from the

has very large fins on its heatsinks (which are fairly microphonic), the A2+'s are extremely short, suggesting a high-efficiency mode of operation. Like Crimson Electric's amps, ribbon cabling is widely used for point-topoint wiring. One unusual feature was the mystery black box stuck to the right side wall of the chassis, which presumably contains some of MVL's to-be-patented circuitry.

SOUND QUALITY

When it came to putting the A2+ and MVH-200 to the test, the system consisted of a clocked Kenwood '9010 transport feeding Pink Triangle's latest Cardinal DAC. The MVL's phono stage was partnered with a Trio L-07D and a DNM Rica MM. Loudspeakers were Magneplanar's SMGa panels.

Over the course of a long weekend, the Papworth made itself a welcome addition to my system as it turned out to be a musical, dynamic and involving amp. One disc where these traits were especially obvious

a CD, a fact which the MVH-200 made no attempt to conceal. However, rather than dwelling on the brash percussion and occasionally lumpy bass, it got on with making the most of the music. The result was tapping feet on tracks that ranged from the up-lifting 'Ezzay' with its energetic fiddles and hand claps all the way through to the final number, 'One Brief Moment', with its orchestral intro followed by a laid-back bassline which comes perilously close to limping along on most amplification.

Musicality is a vitally important part of hi-fi's recipe but something which gets the pulse racing only to yield sound staging of beermat dimensions and imaging so soft-focus that all you're left with is an amorphous blob probably isn't going to last long in anyone's system. The Papworth was granted a long-stay visa thanks to its insight and transparency, both of which gave recordings plenty of spread and depth, especially relatively unprocessed acoustic ones.

A very prime example of the above was Whistler's eponymous guitar Indie. 'If I Give You A Smile' came through with an impressive realism which didn't dissolve into confusion as things got busier towards the end of the song, the Papworth having no trouble keeping a firm grip on the individual instruments. And, as 'Closing Time' with its acoustic guitar and vocal intro proved, it did this without compromising delicacy or small-scale dynamics - this isn't an amp which turns everything into a massive crash-bang performance regardless of whether it's Dance or Chamber

Ironically, it was the Paladin Ensemble's Trios For Four on Linn Records which started to uncover a few hiccups in the MVH-200's presentation. As our measured performance had hinted at with its distortion spectrum, there was a slight extra brightness to the Papworth's sound which tended to bring Rock

spread. To be fair, this is what happens through most amps, but there is a little more to be squeezed from this disc.

MVL's A2 basic integrated reviewed last month left the right impression on everyone who heard it, and it even managed to knock Audio Analogue's outstanding Puccini SE off its No1-below-£1000 perch (although the A2 has the advantage of a £250 price premium). The question now was, could that amp with the addition of the whole range of Sound Sentinel inputs rise to the challenge of its £1250?

Returning to Natacha Atlas'
Gedida was once again an enjoyable experience - 'Ezzay' had a spaciousness, vibrancy and drive which had me prodding the Repeat button on the Kenwood transport's remote a fair few times. Image focus was also well up there with the best at this price, each strand of the mix clear in itself but woven homoge-

nudges up the volume at this point. Strangely, this isn't all that noticeable through a lot of amplification.

Whistler found the A2+ in equally fine form. Despite a measured performance for the MVL which suggested loads of distortion and a commensurately hard, sharp sound, it had a natural smoothness and lucidity that made this disc an addictive listen. The sweetly-sung but bitter lyrics never suffered any undue sibilance or harshness, and there was an almost tangible sense of space between images that set up the sort of warehouse sound staging you'd expect from pricier integrateds or pre/powers.

This theme continued into the Paladin Quartet and the Elgar, where strings were incisive but not excessively brash. And the 3-D presentation of both orchestra and quartet proved the MVL was just as competent with depth perspectives as width, not a combination solid-state is renowned for. Other feathers in the cap included an appealing ebb and flow to the Elgar along

with a scale and sense of lack of strain - the A2+ never sounded as if it was struggling to keep up on crescendoes.

HEAD TO HEAD

These two integrateds both have considerable strengths, particularly when it comes to musicality. The MVH-200 adds a touch of emphasis at both ends of the spectrum to enhance detail and weight, a trick which worked a treat on Dancier, Rockier numbers; on Classical it didn't gel quite as well, violins picking up a slight steely edge and cellos losing some of their speed and focus.

MVL's A2+ had a more subtle impact on the music flowing through it. Compared with a battery-powered DPA 50S and a pair of Musical Fidelity X-A200 monoblocs, there was some marginal dynamic compression, but then this three-box outfit costs over twice as much as the MVL. If you're after a genuinely transparent, natural and effortless performer, the A2+ is currently at the top of the pile

Papworth MVH-200

£1200

Papworth Audio Technology 1 Cambridge Court, Papworth Everard, Cambs. CB3 8RG Tel: 01480 831666

MVL A2+

£1250

MVL Technology Northfield Mill, Wymondham, Norfolk NR18 0DF Tel: 01953 850800



The A2+'s front-panel controls include treble and bass adjustment.

percussion and Classical strings (and recorder for that matter) up towards the front of the sound stage while instruments with less high-frequency output stayed further back.

This explained a suspicion I'd had that this amp's depth perspectives, good though they were, weren't entirely natural.

Confirmation came in Elgar's violin concerto. Now, this isn't the most open or ebullient of recordings anyway, but through the MVH-200 it had a faint air of mugginess as the orchestra stayed put well behind the Magneplanars and missed out on its full front-to-back

neously into the whole within a sound stage which was properly layered front to back. And in spite of the overall electronically-processed feel of this album, the A2+ demonstrated a winning way with harmonics as it did an excellent job of allowing through those of strings plucked and bowed.

Evidence of the MVL's adept handling of dynamics came just after two minutes into 'Ezzay'. Maybe he'd had a hard day, perhaps it was that spicy pizza and seventh can of Red Stripe at 4am, but for some reason it sounds as if the engineer gets a bit fader-happy and accidentally

WORLD VERDICT



MVH-200 Very solid, enjoy-

very solid, enjoyable amp but not the smoothest topend or most open sound staging.



A2+

Seamless, natural and very open, the A2+ sets the pace at the price.

Measured Performance see page 127



X-A RANGE.

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FRONT PANEL.

MILLED METAL KNOBS.

RUGGED, NON-RESONANT
METAL CASEWORK.

JUST IMAGINE HOW GOOD THE ELECTRONICS MUST BE.

MUSICAL FIDELITY

CREEK IN THE



Jon Marks discovers the attractions of Creek's OBH-14 combined DAC and passive pre-amp.

s the millennium closes, some forward-thinking audiophiles are raising an eyebrow to the increasingly rare newcomers on the outboard budget DAC scene; after all, Super Audio CD and 24-bit. 192kHz are due to arrive as the 1s on all the calendars change to 2s. Surely, anything that decodes measly 16/44.1 is an electronic has-been which should be gathering dust in a junk shop? Labelling CD museum fodder is jumping the gun a wee bit, though. Neither of the new formats is here yet and there's a hell of a lot of CDs out there in addition to older players whose innards are a fair way from the cutting edge.

Unlike most of the breed, the small, black box which houses Creek's £239 OBH-14 convertor doesn't just exist to crunch the numbers from a transport or integrated player. It hosts a volume potentiometer and single analogue source input too. While others have been here before - Monarchy's Model 18 DAC has more inputs as befits a pricier product - I doubt any have done it so discreetly.

"Tiny" didn't describe the size of this project's finances judging from the parts quality, however. Inside the case are Philips polystyrene caps, Os-Cons (albeit not the audiograde types) and Elna Starget electrolytics. Op amps are that trusty stalwart, the 5532, and the DAC Crystal's 4390 24-bit sitting downstream of the 8412 interface receiver.

Teaming up with the OBH-14 was one of Kenwood's venerable



but heavyweight DP-X9010 transports (clocked to bring it up to date). Amplification was MVL's A2S Integral amp driving Magneplanar's SMGa panel loudspeakers. Giving the Analogue/Digital button on the Creek's fascia something to do was a modified Pioneer DV-505 DVD player.

Fired up straight out of the box, the OBH-14 had a rather bright but plodding presentation which proved to be quite hard going for my ears. I duly left it plugged into the Kenwood on repeat for a couple of days, periodically checking that it was loosening up. After 48hours of burn-in, the Creek was sounding considerably more fluid and musical; where Beck's Mellow Gold album had been a real battle before, now the man's mad genius ("Get crazy with the cheesewhizz!") made some sort of weird sense in spite of the fact that, on most of the tracks, he seems to be trying to eat a cardboard box and sing through a breeze-block wall at the same time.

If electronics can hack it with Mellow Gold, they can hack it with just about anything, so I wasn't

surprised to hear the OBH-14 sail through dEUS' The Ideal Crash with no problems. Again, this album isn't what you'd call easy listening but at least it has some clear, crisp production to its credit, a fact which the Creek highlighted with its stable, expansive sound staging and accurate imaging. 'One Advice, Space' had its lilting bassline intact, above it vocals and cymbals unmarred by the grain

and lack of tonal colour for which some players have given CD a bad name. The only area in which the Creek lagged slightly was the bottom end - a tad more speed, extension and definition would really have iced the cake.

Bringing the pre-amp side of the OBH-14 to bear, I was greeted by a presentation not too dissimilar from that of another OBH, the '12 passive pre. Along 30cms of interconnect (keep it short with passives) the music flowing from the Creek had evidently lost some of its space, detail, dynamics and control over the fixed output. The bonus is not having to splash out on a separate pre - as long as you only have a single analogue source and don't want to make recordings from it, that is.

Seeing as its £239 includes the beefier of Creek's two PSUs, the OBH-2, a passive pre and an extremely able DAC, the OBH-14 has a lot going for it. If you've got a budget transport or an older CD player that could do with a breath of fresh air in the convertor department, it pulls ahead of even Midiman's killer Flying Calfo

Creek OBH-14/OBH-2

Creek
2 Bellevue Road,
Friern Barnet,
London N11 3ER
Tel: 0181 361 4133

WORLD VERDICT



Measured Performance see p127

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ACTIVELY ENGAGED

Simon Pope is on a mission to find the best affordable active loudspeakers. Next stop, Yamaha's MSP5s.

n the world of domestic audio more and more people are taking a lesson from the professional side of things and going active. Of course, domestic active loudspeakers have been around for a long time. but only ever in limited numbers due to their cost. Now, the growing flood of such designs intended for homestudio and multi-media use means the situation's changing.

As converts will know, the benefits of going active can be numerous. Fabulous midrange and treble clarity alongside bass slam like a fore-arm smash from Giant Haystacks (God rest his soul) are just some of the tasty attributes attainable in the best packages. Unfortunately, a three-way cabinet packed with expensive drivers and six-channels of amplification doesn't come cheap. On the other hand, Yamaha's MSP5s are inexpensive two-ways intended for a life as monitors in home studios.

Some may find the MSP5s look a little spartan for the front room. The sturdy enclosure is punctuated by a titanium-dome tweeter peeking from behind a plastic phase plate and metal grilles cover the mid/bass drivers. Round the back, the input connections are either XLR (balanced) or 0.25in. jack (unbalanced). For lowest signal degradation, I plugged the source directly into the unbalanced sockets via a length of The Chord Company's Chameleon with appropriate terminations.

Powering up Roksan's Caspian CD player, I started with a selection of beefy Rock recordings (lucky neighbours!) Having checked that the volume controls on each monitor were matched I pressed Play and was confronted by a punchy, forward sound with sharply-focused imaging. With the Foo Fighters' 'Colour And The Shape', the various

instruments were precisely located in the sound stage. Vocals were very clear and powerful as they emerged from centre stage front, just the right spot in a typical mix.

The Yamahas proved that, with an active set-up, small boxes needn't automatically mean small bass - kickdrums were firm and very fast, not boomy or sluggish. This theme continued into the midrange where it was less welcome, guitars and vocals 'in-vourface' and unnaturally loud. And thanks to the metal tweeter, treble wasn't the sweetest. Reaching for the level adjusters on the rear panels (+1dB/-1.5dB for either driver) improved matters slightly and took a bit of the razor-edge off the sound. One point worth remembering is that it is not always preferable for professional gear to make everything sound good since the prime purpose of monitors is to expose any flaws so that they can be corrected.

Mahler's Seventh Symphony, incorporating DG's '4-D' digital recording technology, actually had a surprising elegance to it through the MSP5s. The third movement's ghostly flickers of strings and stark timpani strikes showed a degree of control which was not always present with Rock. Once again, the sound stage was commendably deep and imaging accurate, but despite this I somehow got the feeling that Classical wasn't the Yamahas' cup of tea; their cool tonal balance robbed the orchestra's

playing of some of its innate vibrancy.

Photek's skeletal Drum 'n' (a little) Bass was next in line and, with their domestic hat on, the Yamahas responded better to the inherently clinical character of this music. Not searching out the phrasing of voices or fingerwork, they had the chance to concentrate on the notes and rhythm alone. The bass drum pounded away meatily whilst the other intricacies in the music flitted about in the mix, creating a barren sound that left goose pimples on my goose pimples.

As a pair of domestic loudspeakers Yamaha's MSP5s could cause system hiccups with their hard midrange and treble if your cables and source come from the same school. Link them with laid-back cabling and a warm source which better suit their professional roots, however, and you'll discover they're transparent, powerful little bruisers that would do the job very nicely at a rave of about 40 people. Party on!

Yamaha MSP5

£449

Yamaha Kemble. Sherbourne Drive, Tilbrook, Milton Keynes MK7 8DL Tel: 01908 366780

WORLD VERDICT



The Yamahas are ruthless to poorlyproduced material and can sound cold, but their detailing is impressive.

Measured Performance see page 127

VA CD PLAYE)SPEA A PHONO STAGE WORTH £1900

This month's prizes are a Copland CDA 266 CD player, Mission 772 'speakers, a Dynavector DV20X-H cartridge and a Musical Fidelity X-LP.

t long last it seems spring is finally here - and so are the prizes for this month's big give-away! Variety is the key to June's competition - there's something for everyone whether they be CD-lovers or digi-phobes.

If it's the silver disc that spins your world you could be in with a chance of winning Copland's £1200 CDA 266 player. This Scandinavian's minimalist fascia bears a drawer (with its matching Open button), a discreet display and just two knobs, one for On/Off, the other for Play, Pause and Skip. To reduce front-panel clutter, more complex procedures are controlled from the remote.

As well as looking good the Copland sounds pretty impressive. This much was evident in February 1999's issue



where we discovered that this player has a rare ability to let music speak for itself. The bottom-end came in for special praise, Ion Marks commenting that the double-bass on Blues tracks "had a pungency and twang that came as breaths of fresh aural air". Since the CDA 266 is fitted with Pacific Microsonic's PMD-100 HDCD filter, its upper frequencies and transparency were equally class-leading. Playing both Eric Bibb and Stravinsky, it produced "delicacy and tonal colour married to scale and power."

The winning performance doesn't stop at HDCD as the

Copland is equally at home with standard CDs.

Whatever the fare, it responds with powerful

bass and control plus a clear, pure treble.

The next two prizes are a double-treat for vinyl-spinners. Dynavector's DV20X-H Black is a high-output moving coil designed by Prof. Noburu Tominara, who first broke the low-output MC mould back in the Seventies with the Ultimo 10X.

Aluminium features prominently in the DV20X-H's construction - the body is milled from a solid billet and the cantilever formed from a pipe. David Price was converted from the out-set, commenting "As soon as its stylus hit the groove, I was struck by how different the Black was to most moving coils".

MC cartridges have built up a reputation for their imaging and dynamics, both of which the Dynavector has in abundance. The Black also possesses an addictive musical richness reminiscent of Goldring's evergreen 1042 allied to the unmistakably crisp, fast top-end typical of an MC. David summed up by putting the Dynavector at the top of its class since it often sounded as musical as many high-end moving coils.

Where there's a cartridge you'll find a phono stage, in this instance Musical Fidelity's X-LP. This switchable MMMC equaliser is housed in the trademark X series cylindrical chassis and powered from a wall-plug. As far as sound quality is concerned, the X-LP came up trumps after Richard White found it very hard to fault in the May issue whatever the music.

Shifting from sources to 'speakers, our loudspeaker candidates are the new 772 stand-mounters from Mission. The key to the success of these elongated stand mounters is the quality of the drive units fixed to the sculpted front baffle. The 130mm mid/bass boasts an Aerogel cone with a stylish silver phase plug at its centre while the tweeter is a 25mm silk-dome unit whose face-plate has leaf-springs moulded into it to isolate it from cabinet vibration.

We encountered the 772s back in April 1999's issue where we discovered that one of their strengths was striking 3-D imaging. Combined with a talent for sound staging, this managed to bring a real sense of life to good acoustic recordings. Another forte was the smooth, natural tonal quality which silk and Aerogel drivers are renowned for.

Unlike the majority of small stand mounters, the 772s don't suffer from anaemic bass because of restricted enclosure dimensions. The narrow front baffle is matched by greater depth than normal, which also reduces midrange coloration due to reflections off the rear wall. The icing on the cake is bi-wirability, which opens up the 772s' sound even further.

X-LP

MUSICAL FIDELITY

If you wish to bag one of the above, simply answer

the questions below correctly and complete the tiebreaker in no more than 30 words. Stick the form (or a photocopy) on the back of a sealed



envelope or postcard and send it to the address below by June 4th:

June Competition Hi-Fi World Magazine, Suite 29, Imex House, Kilburn Park Road, London NW6 5LF

COMPETITION ENTRY QUESTIONS

1) Which digital filter does the CDA 266 use?

A. ACDC C. HDCD B. EIEIO D. ABBA

2) What material is used in the mid/bass cones of Mission's 772s?

A. Hair gel C. Kevlar
B. Paper D. Aerogel

3) From which country does the DV20X-H cartridge originate?

A. Denmark C. UK
B. Japan D. USA

4) Which metal is used in the Dynavector?

A. Brass C. Titanium
B. Aluminium D. Steel

5) What is Musical Fidelity's X-LP?

A. A phono stage C. A CD player B. A DAC D. A turntable

COMPETITION VERSE (obligatory)

Complete the following in less than 30 words

If a lady cares to scribble for our bumper prizes deal,
Then a Miss might find a Mission quite a catch,
Else a Copland to be coped with, or a shiny X-LP'll
Keep the Dynavector's needle up to scratch...

COMPETITION WINNERS

April's lucky winners of the VPI record cleaner and Clearaudio turntable are: D. Cottrell of Bridport, Dorset and R. Browne of Fleetwood. Congratulations!

ex display clearance

attitud dida

sevenoaks ex display clearance

Only limited quantities of these products are available from the Peterborough and North London outlets below, see numbers in brackets, and once sold are generally unrepeatable - so be quick! All are complete with packing, accessories & full warranty. Please confirm availability before travelling.

Acoustic Energy	AE100i	(3) Speakers	£199	£129	Mission	701	1) Speakers	£159	€12
	AE109	(1) Speakers	£349	£249			6) Speakers	£169	£12
	AE120	(1) Speakers	£499	£299			3) Speakers	£229	£15
	AE107	(1) Centre Speaker	£149	£119			4) Speakers	£349	£19
	AE505	(5) Speakers	£849	£399		752FPV	1) Speakers	£648	€44
	AE509	(5) Speakers	£999	€499			1) Speakers	£798	€54
	AE520	(2) Speakers	£1199	£599	Monitor Audio		1) Speakers	£899	£49
	AE1	(1) Speakers	£795	€499			1) Speakers	£249	£15
Arcam	AE2	(1) Speakers	£1095	€599			1) Speakers	€699	£44
Arcam	Alpha MCD Alpha T7	(4) CD Multiplayer	£449	€299	Musical Fidelity		1) DAC	£129	€7
	Alpha T8	(1) Tuner (1) Tuner	£229 £279	£179 £229	Myryad		9) CD Player 9) CD Player	£399 £599	£24
	Alpha One	(2) Amplifier	£229	£179			6) Tuner	£399	£34
	Alpha 10	(1) Amplifier	£799	€639			7) Amplifier	£399	£24
	Alpha 10P	(1) Power Amplifier	£599	£479			8) Power Amplifier	£299	£19
	AV50	(2) AV Amplifier	€699	€459	Neat		1) Speakers	£799	€59
Audiolab	8000C	(2) Pre Amplifier	€579	€399			1) Sub Woofer	£1249	£99
B&W	DM302	(3) Speakers	£149	663	Panasonic	DVDA350	2) DVD Player	€549	£37
	DM601 (Not S2)	(7) Speakers	£199	£149	Ploneer		9) CD Player	£459	€29
	DM602 (Not S2)	(9) Speakers	£299	£199			8) Amplifier	£399	€24
	DM603 (Not S2)	(8) Speakers	£499	£349			9) Tuner	£299	€17
CC3		(2) Centre Speaker	£149	€99			1) CD-RW Recorder	£479	£39
	CC6 P4	(9) Centre Speaker	£229	£149			4) Cassette Deck	£339	£19
	Solid S100	(1) Speakers (1) Speakers	£674 £129	£499			1) MiniDisc Recorder	£249	£19
	Solid C100	(1) Centre Speaker	£129	£89 £89			9) DVD/Laser Disc 1) Television	£899	£69
	Solid PB100	(1) Sub Woofer	£349	£249		THE RESERVE AND THE PERSON NAMED IN	1) Processor	£3299	£249
Castle	Isia	(1) Speakers	£249	£159	Polk		1) Centre Speaker	£249	£17
	Harlech	(2) Speakers	£879	£499	REL		1) Sub Woofer	£374	£29
	Kendal	(2) Speakers	£399	£249		THE RESERVE AND ADDRESS.	4) Sub Woofer	£594	£39
	Severn II	(1) Speakers	€579	£399			3) Sub Woofer	£694	£49
Avon	Avon	(2) Speakers	£729	€429	Roksan		1) CD Player	£894	€69
	Howard II	(1) Speakers	£1199	£799			1) Amplifier	£694	£49
	Eden	(1) Speakers	£499	£299	Rotel		1) Power Amplifler	£199	£16
	Кеер	(1) Centre Speaker	£249	£159			3) Power Amplifier	£299	€24
Cyrus	AV Master	(3) AV Processor	€697	£449			3) Pr Amplifier	£149	£12
	SL	(2) Amplifier	€399	£299			4) Pre Amplifier	£225	£19
Denon	AVC2800	(1) AV Processor	£799	£559			2) CD Player	£179	£14
	DRM550 DRW580	(1) Cassette Deck	£159	£129	0		1) CD Player	£249	€17
	DRM650S	(1) Twin Cassette (1) Cassette Deck	£199	£129	Ruark		1) Speakers	£1649	£99
	TU260L	(6) Tuner	£199 £119	£149 £89	Shearne		1) Spoakers 1) Amplifier	£239 £689	£19
	TU215RD	(2) Tuner	£149	£99	Sitearite		1) Amplifier	£799	€59
	TU425RD	(2) Tuner	£199	£149	Sony		1) DVD Player	£499	£37
	DCD-S10/II	(1) CD Player	£1299	£849			5) DVD Player	€599	£44
	PMA-S10/II	(1) Amplifier	£1399	6883	Talk Electronics		1) Amplifier	£499	€38
	AVR2700	(3) AV Receiver	€599	£499			1) Power Amplifier	€599	€38
	DVDS2000	(1) DVD Player	£599	£399	Tannoy	MC	1) Centre Speaker	£99	€5
	DVD3000	(2) DVD Player	£699	£549		Mercury M2	1) Speakers	£139	£9
	DMDM7	(1) MiniDisc Recorder	£329	£249			2) Speakers	£229	£16
	DM7/DRR	(2) Mini System ex spks	£579	£529	Teac		1) Amplifier	£279	£23
	DF88	(1) Mini System ex spks	€569	£499			1) MiniDisc Recorder	£349	€29
Epos	ES12 ES30	(5) Speakers	€549	£449	appendix reasons		1) CD Player	£239	€18
Empanya	25	(1) Speakers	£2549	£1499			1) Mini System ex spks	€599	€49
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	Super 15 (MC)	(1) Amplifier	€899	£489	Yamaha		1) Sub Woofer 9) AV Amplifier	£299	£19
KEF	Q95C	(2) Centre Speaker	£199	£129	Tamana		9) AV Amplifier	£329	£19
	Q35	(1) Speakers	£349	£199			2) AV Amplifier	£1599	£124
	605	(1) Surround Speakers	£199	€129	11.00		2) AV Processor	£249	£14
	Ref Model 1	(1) Speakers	£1199	£799			1) AV Receiver	£249	€19
Marantz	Layla	(2) System inc spks	£499	£379	N/AV		8) AV Receiver	€399	£27
	Arch 2	(2) System Inc spks	€599	£449	The state of the s		5) Amplifier	€219	£14
	PM57	(1) Amplfier	£199	£139			1) Tuner	£129	£9
	CD48	(1) CD Player	£199	£139			1) Demodulator	£99	£7
	SR47	(1) Receiver	£249	£199			4) Decoder	£349	£26
	ST48	(1) Tuner	£119	£79			9) DVD Player	€599	£49
Micromega	Solo	(1) CD Player	£2499	£1749			2) Sub Woofer	£139	£9
Mission	73C	(2) Centre Speaker	£149 £129	£89			4) Sub Woofer 2) Sub Woofer	£179	£12
	700	(1) Speakers						£279	£19

Please Note - Speaker prices quoted are for Black or Standard Finishes unless stated otherwise

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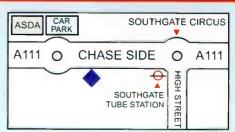
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DELEWinning

How do the cards stack for Goodmans' Delta 910 CMD combined CD/MD recorder? Fairly-Young Maverick Richard White to deal. . .

ell, it was bound to arrive sooner or later and it's come from Goodmans in the form of the Delta 910 CMD, a replay-only CD deck and MiniDisc recorder all in one. What is perhaps more surprising is the very reasonable £199 price of this novel combination, although it's fair to remark that earlier mixes like tuneramplifiers, compact systems and music centres tended to be mid-fi as regards both price and specification.

Possibly not since the heyday of cassette have the gods smiled so brightly on home compilers. Goodmans' little number is a standing temptation to run off a quick few compilations for listening to on your portable, delighting friends and acquaintances alike with the acuteness of your taste. No sooner have their feet ceased tapping to a couple of Russ Conway hits than, what a surprise, the strains of melodious Mrs Mills are wafting earwards. . .

Let's hold back those lazy, hazy, crazy days for a mo' while we examine the CMD 901's vital statistics. 'Oblong off-black box with buttons on the front' just about tells you all you need to know about the front layout. There is a little wheel for track hopping, a powered drawer for CD and a 'push-in, eject-out' slot for MiniDisc. Moving round the back, there are only two pairs of phono sockets; one each for play and record. As is quite common with kit at this price, the mains lead is not detachable, nor will lifting the machine's 10lbs cause undue stress, unless you're feeling particularly

Although CD playing will not necessarily be the primary reason for



buying the Delta 901, once it's made itself at home it will doubtless have to double as a second player in addition to being an MD recorder. With this in mind, I gave the CD player a fairly thorough work-out before trying any recording.

Having thus established the level of the playing-field and found the player 'warm' but otherwise unobjectionable, I decided to try a test recording of Conifer's rather jingly Rameau collection with the Philharmonia Baroque Orchestra.

There are ways and means of doing this: the '901 is a machine designed for convenience. In the usual case where you might want to record a CD in batches of complete tracks, the procedure is at its simplest. Select said CD track, press the Synchronization button and, when you release Pause, the MD will record the CD starting at your chosen tune. Starting up in the middle of a CD track is a little more awkward, but a few experiments and you'll pick up the knack fairly swiftly. The complete handbook for the machine has some Awful Warnings about using scratched source CDs: apparently, in the case of a 'fatal scratch' (sic), you're best off not even trying.

Back to the Rameau and a quandary: what's the best technical

way of saying 'scarce a hap'orth of difference'? Given that the Delta's CD player has a less-than-crystalline sparkle you can't expect to pin-point all the subtleties of digital-to-digital transfer loss. With ears positively glued to some Klipsch Heresies, I could make out a slight increase in paperiness, but I really had to listen for it.

A bigger sound yielded much the same result. Although Cab Calloway was woefully past-it by the time he made this (last) recording, his final contribution to Porgy and Bess transferred to MD without losing a jot of his tortured laryngeal efforts.

Of course, a combined machine like this has a 'my bat, my ball' self-definition. Only on recordings not on CDs in the Goodmans' own drawer were the effects of the format really noticeable. A good, full-range DGR Direct Metal Master of Romeo and Juliet lost a bit of life once recorded. Then again, vinyl can be difficult for the best of domestic recording machinery.

Having given the Delta 901 a tough grilling, I found it more than fulfilled its terms of reference. Out and out audiophile it ain't, but as a convenient recorder with CD and MD playback it rates as very good value indeed•

Goodmans Delta 901 CMD

£199

Goodmans Industries Ltd. Units 2 & 3, Mitchell Way, Portsmouth, Hants. PO3 5PR Tel: 01705 391000

WORLD VERDICT



price.

Measured Performance see page 127

Jecklin float and Ergo headphones ... a revolution in sound

Sonically quite exceptional, for my money these are the best headphones in the review. (Hi-Fi choice, England)**

Distinguishing the Ergo AMT from my reference AKG 1000 (costing Iwice as much) was an extremely diff ficult task. (Audio USA)

Ergonomic headphone without any pressure, ideal for long term listening. Exceptional clean and transparent exceptional creat and transport sound. (Sound Switzerland) **



Their lightweight comfort and effortless sound make the Float 2 a joy to use (What Hi-Fi, England).

The Ergo AMT can be viewed like the best combination between a dynamic headphone and electrostat. nation personer a crynamic nearprone are encurs C, with a total absence of distortion and a complete te, whili a rotal arbeirk e or distortion aixi a c balance in its limbre. (Audio Review Italy).

Hours of listening pleasure for everyone without the typical headphone faligue. (New HiFi Sound, Australia) **

The balanced advantages and excellent sound image make the JI Float 2 excellent question, the headphone I would like for myself. (Audio Ideas, Canada) **

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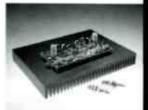
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Denon's original TU-260L tuner lasted nine years in dealers' windows. Can its successor carry on the tradition asks Simon Pope.



he hi-fi business' apparent confidence in radio listeners means that there has been no deceleration in the production of analogue tuners, in spite of the fact that DAB is just around the corner. This means there is an abundance of keenly-priced tuners around, the good ones offering excellent sound and a constant variety of quality music and information.

Over the years a few budget tuners have become audiophile household names, one of them Denon's long-lived TU-260L (1990-1999, RIP). Replacing such a popular component is always a headache, so Denon have put a great deal of thought into the innards (rather than the name) of its successor, the TU-260L MkII.

The MkI was known for its gently rolled-off treble that created a warm, very listenable presentation with a scale and atmosphere that many tuners couldn't match at the price. The MkII is designed to keep the tonal character of the MkI but attention has been paid to improving the frequency response and stereo separation.

Back in a 1992 group test we noted that the Denon had the edge in the beauty stakes but the MkII is certainly more pleasing to eyes in the late Nineties. The display has been relocated in the centre of the fascia next to the analogue-style

rotary tuning knob and 12 small function buttons. These cover a shed-load of functions including RDS, EON and Radio Text facilities which allow you to search for broadcasts by programme type. To finish off, you can preset no less than 40 stations.

Unlike other budget tuners, the MkII doesn't come with a copper 'bootlace' 300ohm aerial. Denon recommend a proper indoor 750hm aerial is connected to the co-axial socket on the tuner's rear. Hooked up to the outside world. I duly hit the airwaves and tuned into Radios 3 and 4.

An interview interspersed with music from the Labeque sisters (pianists) was on 3, the close mic'd voices very clean and unpolluted by boom or excessive chestiness. In a Mozart concerto that followed, the pianos which opened the piece had a smoothness easily on a par with the MkII's predecessor. Clarity was also impressive and the attention lavished on digging out more detail paid dividends, as the orchestral image was wide (if not especially deep). This broadcast, like many other BBC Classical transmissions, also lacked a little bass weight, the Denon picking up on this in double-basses and cellos which couldn't muster the oomph necessary to fill out the orchestra.

The TU-260L MkII rendered Radio 4 in a similarly detailed and

transparent manner. An interview with three 'throat singing' Eskimos (!) gave the Denon the opportunity to show off its separation. With bizarre sounds emerging from the Eskimos seated far left to far right, what came out of Heybrook's Optima loudspeakers was altogether very weird and very life-like. Unfortunately the same was true of the subsequent location report from an Alaskan seal-skinning contest, the background sounds being all too realistic for my weak stomach. I decided to tarry no longer and moved on to the less esoteric delights of Capital FM.

It was on more commercial and processed stations such as Capital that the Denon's slight response rolloffs worked best. Bass was bouncy and tight whilst the relaxed treble reduced the sibilance and sizzle mandatory with these sorts of broadcasts. On both AM and LW as well the Denon maintained its control and clarity, with stations tuning in precisely without added birdie effects.

The TU-260L MkII does everything a well-engineered budget tuner should. It has all the best traits of the MkI plus superior separation, detailing and facilities. There are fuller sounding tuners about, such as the function-starved Cambridge T500 at £50 more, but at £130 it would be hard to better the Denone

Denon TU-260L MkII £129.99

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WORLD VERDICT



With its smooth, inoffensive sound and abundance of facilities the MkII is a worthy addition to the tuner line-up.

Measured Performance see p127







cable main-tenance

Jon Marks goes cable-hunting with three specialist mains leads from Campaign Audio Design and LAT International.

LAT INTERNATIONAL AC-2

ne point to note about this cable is that the lengthy recommended burn-in of 80-100hours for the three silver-plated OFC conductors and their shield isn't an exaggeration. The LAT was feeding MVL's Integral A2s for a good two or three weeks before its sound quite suddenly opened up.

Replacing the AC-2 with a standard mains lead produced a clearly audible effect on the sound, as Nick Drake's guitar playing on Pink Moon took a step back in a shrunken sound stage. Imaging was fuzzier too, his guitar less well defined in the space between Magneplanar's SMGa loudspeakers. Swapping to dEUS' The Ideal Crash album, I found the differences even more evident. Electric bass was a lot slower and muddier, and complex tracks had a habit or tripping over themselves.

Returning to the AC-2 with Whistler's eponymous CD restored the sense of spaciousness, harmonic richness and dynamics, especially in the bottom-end. For the money, that's no mean feat.

£69/4ft.



£44.50/1m

CAMPAIGN AUDIO DESIGN CONQUEROR

idden away beneath the Conqueror's black outer sheath are silver-plated OFC conductors within a PTFE dielectricic, a recipe not dissimilar from the AC-2's. And as had been the case with the LAT, the Conqueror's impact on the sound wasn't subtle.

After a week-long burn-in, removing the CAD in favour of a normal cable I discovered that a superficially beefier bottom-end was actually attributable to waffle which slowed the rhythm section down. The outlook was bleaker in the treble as well, as cymbal crashes became cymbal splashes and vocals showed an unwelcome return to sibilance.

Skotting the Conqueror back into the system I relaxed as clarity and musicality both improved. Strings and voices were now more natural thanks to a broader spread of tonal colour, and bass gained definition and drive. The overall result was once again more involving and wasn't a million miles from the LAT in spite of its lower cost.



CAMPAIGN AUDIO DESIGN CANDOUR

ore basic in its construction than the Conqueror, the Candour goes lighter on the wallet as well. The braided outer shield protects standard copper conductors from the worst effects of RFI.

While this lead took a while to settle sonically, its sound didn't change as much as had the Conqueror's. And where that cable lost a touch of treble fizz and bass boom as it mellowed, these two traits didn't disappear entirely from the Candour.

Going back to a give-away mains lead proved that the cheaper CAD was still having a positive influence on what was emerging from a modified Pioneer DV-505 DVD player. Music was generally cleaner, more detailed and **bet**ter controlled - a good dose of the **'hash'** that's otherwise present had been **rem**oved.

Compared with the Conqueror, the Candour lacked finesse at the frequency extremes and wasn't tonally as sweet but what it does do is worth checking out at the price.

£14.64/1m



Letter of the Month

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I MUST PROTEST!

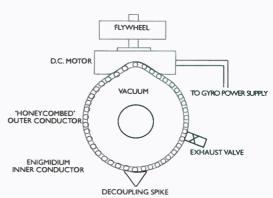
I refer, of course, to your shameful and partisan promotion of the breakthrough allegedly made by Vector Developments (April 1999). I fail to see how a group of audio bastions such as yourselves could be unaware of my own work in this field. The true cognoscenti are often heard to comment that Vacuum Audio Technology (VAT) really sucks. I feel the least you can do in reparation is to allow me space to describe my own, infinitely more advanced system.

As with most great discoveries, this came about almost by accident. I noticed that the sound from the right

channel of my system had straighter bass definition, more treble depth, perceptibly louder ambience and mirror-like silences. The fact that my all-valve system is ranged along the right wall as seen from my listening seat set me to thinking, especially as a similar but more localised effect appeared halfway down the left side, where the TV is located.

I removed all valves from the amps and the TV from the room. Lo! And Behold! When I switched on I no longer perceived the same sound improvements. As a side effect, I found that TV sound had assumed a distant quality and the picture was very poor. I noted this for future investigation.

However, I was now certain that the presence of vacuum tubes in the room was affecting the loudspeaker/room/psycho-acoustic interface. What I am describing is a physical effect, hitherto unrecognised and unrelated to the acknowledged electronic properties of valves. I surmised, but have yet to empirically prove, that the vacuum devices induce a sort of negative room damping effect, probably by the generation of random plasma-flux turbulation, preventing the formation of the vacuum equivalent of standing waves (horizontal troughs).



It seems that the radical concepts embodied in Vector's Enigmidium cable are no longer at the forefront of conductor technology.

This deeply interesting phenomenon is not capable of measurement by any normal test equipment being hardly, if at all, related to impedance, capacitance or even reluctance. I finally gained some measurements using a modified Fast Fourier Transform. My version is faster, considerably furrier and measures what I have termed repugnance.

I quickly dismissed the Vector Developments approach as totally inadequate. They were on the right track but clearly lacked the vision and commitment to see things through. Moreover, their attempts at superconductivity through cooling are totally spurious techno-babble. It doesn't

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E-mail: edit@hi-fiworld.co.uk



take a Degree in Cryogenics to know that the conductor will contract as it cools, reducing its cross section and increasing its resistance in proportion. What was needed was the most complete vacuum possible for all components.

I started by having my entire system vacuum-packed at a local bacon factory. This made everything transparent but my loudspeakers, although clearer, were considerably quieter, as well as unfamiliar in shape. It was only at this point that I fully realised the sacrifices I would have to make in my quest for perfection. The whole system and listening environment must be subject to total vacuum!

After some months' working to install positive vacuum reinforcement beams and other counter-implosion devices, I was ready to begin testing. For safety reasons I started by listening via a high-quality Rozenkrantz And Gildenstern measuring mike from outside the room. I started the military-surplus, turbine-

powered vacuum pumps and listened enchanted as the sound improved by leaps and bounds as the room pressure dropped.

Then, disaster! The sound slowly faded, becoming more beautiful but less perceptible, until it was gone. I wept bitterly at the realisation that I had overlooked one crucial factor - sound cannot travel through a vacuum! Undaunted and armed with the knowledge that all engineering is compromise, I set about devising my solution, the intermittent-vacuum process.

I reasoned thus. If I could cause the room to oscillate between total vacuum and atmospheric pressure at a rate of 25kilocycles per second, I could gain all the advantages of vacuum without the downside. The silence effect would be inaudible, due to the widely acknowledged 20kHz upper-limit to human hearing. By developing a system of multiple-frequency, parallel-reactive resonators, controlling double-acting reed valves, I was able to achieve the desired

intermittent vacuum, with only a ten-fold increase in power requirements. Provided that I wear the specially-developed, carbon-reinforced kevlar suit, I am now able to listen to the world's ultimate system in complete safety.

The suit is equipped with resonant valves over the body orifices, working contra-phase-wise with the main reed valves in the evacuation system, thus preventing accident and/or embarrassment. My system is now perfect and, when fully evacuated, conveys immense atmosphere. Every evening after dinner, I go upstairs and sit in the control seat to commence evacuation. Only when evacuation is complete can I sit in comfort and listen. Those who doubt my achievement of perfect Vacuum Audio Technology (VAT) need only ask my many friends. Any of them will tell you that VAT really sucks.

Colin Berresford
Zero Atmospheric Pressure Projects (ZAPP)

OUAD SQUAD

Thanks for your recent Quad electrostatic articles which have filled some gaps in my knowledge. I've owned ESL 57s for the past 36 years, servicing them myself when funds were short, and presently possess a stacked pair which have all been given the Classique Sounds treatment. Thankfully, none of them needed as much work as your review pair, even though one of them is serial number 611, so the cost for all four was about half your bill.

I am very pleased with the performance of my stack now. They needed servicing because I had blown two treble panels in spite of clamps being in circuit; I think some damage had been done before they were fitted. Apart from



Properly serviced, it's not hard to hear why many regard Quad's original '57 electrostatic as a true reference.

the treble panels it was mainly work on the PSUs that was needed and the results were beyond all my expectations.

The Hayden Boardman/Russ
Andrews comment about multiple PSUs is interesting because I came to the same conclusion. However, according to Classique's engineer, if all the panels are up to specification one good PSU per 'speaker is all that's necessary. Multiple PSUs only compensate for below-par panels.

P.H. Jones Shropshire.

For more on loudspeakers and electronics, turn to John Linsley Hood's Audio Electronics.

JAMMING WITH JAMO

The valve versus transistor debate rages on! The fact of the matter is that neither comes close to the experience of attending a live concert, that anticipation of a performance by a great artist, the whole sense of occasion. The sound is also radically different!

I am fortunate enough to attend regular concerts at the Symphony Hall in Birmingham which is renowned for its excellent acoustics. Nonetheless, from a hi-fi standpoint stereo imaging is imprecise, bass is waffly, treble can be rolled off or screechy depending on audience size, depth perspective is variable and dynamic range is way beyond the capability of even the best system.

I regret to say that at best we are producing an acceptable reminder of a great performance. I must say at this point that I am an avid CD and LP collector and am constantly trying to improve the sound of my system, which leads to my system query.

My source components are a Linn LP12 with all the modifications, Manticore MB6 power supply, Magician tone-arm, Gregory cartridge and a Teac P700 CD transport with custom-built, 20-bit DAC. I also have a Leak Troughline with HFW decoder. The pre-



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Jimmy Hughes, Hi-Fi Choice, March 1999
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amp is a custom-built version of your own active line/phono preamp using Vishays, paper-in-oils, Panasonic pot and silver wire. This out-performed a Michell Argo HR I used to own. Speakers are Jamo Concert 11s with DPA IS19 cable.

I am looking for ideal matching power amps. I have recently been getting good results from a rebuilt Dynaco Stereo 70. This is preferable in all respects to my Naim 160 or a Meridian amp I borrowed. I was contemplating purchasing two of your PSE amps to monobloc. My room is 20ft. by 12ft.

Anthony Parkin Aylesbury.

Given the fact that the Concert 11s can be bi-wired and you've had good results with the Dynaco, bi-amping is surely one option worth pursuing. By using the valve amp to drive the tweeter and midrange, you could leave all the hard work of controlling the woofer to a beefy solidstate power amp like your own 160. Of course, the age-old



Jamo's Concert 11 floor standers are capable of outstanding transparency but they really need to be bi-amped to give of their best.

Dynaco and Naim are putting out the same levels. A simple potentiometer in front of the more sensitive of the two should do the trick.

From past experience we know that the Concert 11s require plenty of current and control to keep them from loosening up in the bass. A pair of monobloc'd PSE valve amplifiers alone would not have sufficient grip and power to do this, the result being boom at the bottom-end. They could replace the Dynaco in a bi-amp system, though.

As you say, the disparity between live and reproduced sound is always massive, regardless of how much money you spend on components - you only have to walk past a busker and you'll hear just how far hi-fi still has to go in areas like detail and dynamics. Getting more realistic sound is as simple as going to listen to live music, as you've discovered. JM

A set of free Chord Company Siren interconnects will lighten the cost of bi-amping.

problem is how to ensure that both

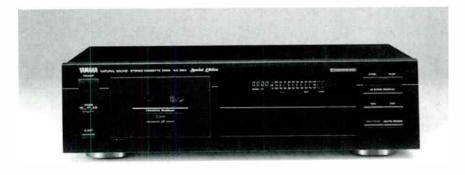
SOURCE OF INSPIRATION

Nearly a year ago I went shopping for a new CD player. I was looking to spend £200-£300. I came home with a Quad 77 pre/power/CD and matching 10L 'speakers single-wired with Ixos Gamma 102 on Atacama SE24 stands.

I'm now looking for a tuner and cassette deck but I cannot afford anywhere near the same prices. What's the least I need to spend to approach the same quality? What interconnects would you recommend? I wouldn't be averse to second-hand kit if it's robust enough.

Nick Mawson Blackburn.

One impressive but highly affordable cassette deck is Yamaha's KX-580SE at £250, which we reviewed back in September 1997. This has a very stable, transparent presentation and makes fine recordings. Alternatively, there's JVC's excellent TD-V662 for



Proving budget cassette is still a viable format is Yamaha's KX-580SE

an extra £50. Tuner-wise the choice boils down to Cambridge's T500 (£180) or Creek's T43 (£400).

When it comes to cabling, Nordost's Black Night (reviewed September 1997, £55 per metre) should suit your Quads well as it has a slightly cool edge which will balance their warmth. It is also very revealing. If your budget won't stretch quite that far, DPA's Slink 2 (September 1997 again, £41 per metre) is another option.

One bi-wire loudspeaker cable which has stood the test of plenty of competition is Pentacone's Plain Soft Copper (August 1997, £176 for a 3m bi-wire set). Otherwise QED's Profile Silver 12 at £15/metre is dependable wire. JM

One of your wire worries is easily dealt with thanks to a free set of DNM Reson bi-wire loudspeaker cable.

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THIS MORTAL COIL

I have Lowther Fidelio loudspeakers fitted with PM5A drive units. I read with interest in a recent issue some information on how, in Japan, it is hot news to earth loudspeaker drive units to remove Radio-Frequency Interference from the voice coil.

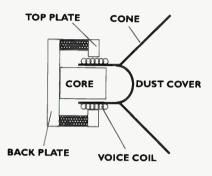
How exactly do you do this? Where do you connect the wire to the drive unit? Do you run to earth via the 'speaker cables, which I guess would need to have 'spare' wires like bi-wire cables? Do you use the house earth or is a separate earth rod best? Is there a chance of getting unwanted earth loops? I am desperate to experiment.

Chris Valder
Christopher_E_Valder@sbphrd.com

The problem is the same in all Western countries where frequencies between 75kHz and 200kHz and beyond are used for communications, time signals and machine-control purposes.

A quick look on a VLF RF spectrum analyser using a pair of 'speakers with connecting cables as the aerial will confirm that there are some surprisingly large signals around. These are picked up in the 'speaker leads, can be subsequently fed back into the output stages of the power amplifier and can easily find their way through to the feedback loops where they cause many spurious effects. Of course the degree of interference depends on the topology and design of the power amplifier, but not necessarily on the degree of RF/EMC screening as the 'speaker terminals provide direct connection to the inner circuitry through the screened metal case.

A way around this problem is to make the 'speaker cable 'earthy' at each end to inhibit RF pick-up. Screened cable is not recommended as it can impose a capacitive load



- MAGNET MATERIAL

The best places to earth a loudspeaker drive unit are the back and top-plates of the magnet, as shown in the diagram above.

on the power amplifier which can generate further spurious problems including spontaneous oscillation triggered by fast transients.

Tannoy has performed experiments which show that earthing the magnet and chassis of a drive unit effectively forms an RF-proof shield around the voice coil. Taking a connection from the chassis and magnet assembly back to the screening or 'ground' connection of the power amp is very effective in 'cleaning up' the sound of a good system. Grounding the whole system to a good, lowimpedance RF earth (usually not the mains earth) is also most effective, but this can only be done with Class 2 or Double-Insulated equipment supplied without a mains earth connection. Many Marantz items use this mains connection. All the latest Tannoy Prestige range from the Stirling HE up to the mighty Westminster Royal HE now have a connection on the rear terminal panel which provides grounding of the 'speaker system to the amplifier.

Both the top-plate and pole

piece of the 'speaker magnet need to be connected to the grounding point as they are usually separated by a ferrite magnet which is electrically non-conducting. Connecting to the chassis as well is desirable but not essential. The grounding cable can be a part of the 'speaker cable (such as a biwire cable) or running alongside it.

The degree of improvement is dependent on the amount of RF interference in the location and the susceptibility of the power amp to RF interference, so no guarantees can be made for improving everyone's system in this way. Generally, though, it's better to ground than not to ground.

Do not be tempted to create your own earth by using either a gas or water pipe or a metal rod sunk into the ground unless you have electrical equipment which does not need a mains earth. If you do, then you run the risk of carrying large circulating currents from your equipment back to the electricity supply sub-station via your external grounding point.

The mains supply neutral and earth cables are connected together at the sub-station and therefore it is possible for the mains earth to be at a slightly different potential voltage to true 'ground' outside your house, especially if the phases are not balanced along your street. Although the voltage differences are usually small (less than 5V), large currents can flow if the impedances are low and very dangerous conditions can occur under faults, which may be in other people's houses!

Alex Garner Technical Director, Tannoy.

For more information on amplifiers and RF, look into a free copy of John Linsley Hood's Audio Electronics book.

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

GOING FOURTH TO MULTIPLY

My system is ageing, rather like me. It contains a 17-year-old NAD 3020 integrated, equally old AR18 loudspeakers and a slightly younger NAD 5120 turntable with an Audio Technica 110 cartridge. CD comes courtesy of a Marantz CD-60SE and tape from a Kenwood KH-550. The interconnects are AT LCOFCs and 'speaker cable is from Exposure. The ARs sit on Partington stands.

What changes would you make if you had £500 to play with? I listen predominantly to CDs, hardly any records and barely any tapes. My gut feeling tells me that its goodbye amp and 'speakers, but what is you opinion?

Name and address withheld by request.

Seeing as the 3020 has a Pre Out socket, it might be worth getting

DOING THE TWO-STEP

My set-up is an Arcam Alpha 6 CD player (actually an upgraded Alpha 5), Creek OBH-12 passive pre-amp, Sugden A51P power amp and Accoustat 'speakers (I'm not sure of the model, but they're 5ft. tall, full-range electrostatics).

Tonally the system sounds quite warm but suffers from 'wandering' bass which leads to ill-defined rhythms. By way of explanation, on something like the Byrds' 'Sweetheart Of The Rodeo', the Country two-step is lost at times as the bass fades into the background of the mix. The sound is also faintly harsh at high volumes.

I went down to a dealer the other day and he was demoing a Pink Triangle Numeral. This seemed to have better definition of isolated sounds, but what I'm looking for is a rhythmic entity - think Linn in the Eighties and the ideas they were promoting. I'm not too bothered by extra

A QUESTION OF PURITY

My system is a Meridian 506 (20-bit) CD player, Linn Axis, Quad 34/306 amps, Monitor Audio Studio 20 SE 'speakers and a single run of Kimber 4TC cable.

I'm experimenting with interconnects at the moment. I'm happy with my system but I suspect that there is more to be had from it (maybe a touch of warmth). I was also thinking of



NAD's 3020 might not be the youngest amp on the block, but its Pre Out sockets make it a prime candidate for bi-amping.

hold of a second one, which shouldn't cost more than about £40. You could then bi-amp whatever loudspeakers stepped in to replace the Acoustic Researches, say KEF's Q35 floor standers.

This leaves you with £100 plus whatever you can raise from the

sale of the Partingtons and ARs, which should cover the cost of a Cambridge CD4SE CD player at £200. JM

A free pair of The Chord Company's Siren interconnects will sit nicely between your two NAD amplifiers.

detail so much as the music making sense.

Any suggestions as to a suitable player? I'm assuming this is what's at fault, though of course it could be the amp and 'speaker combination. I would prefer to change the CD player as, if there is extra information on those little silver chappies, I might as well have it. But rhythm is the king. . .

Bill Adair adairb@it.postoffice.co.uk

They say it takes two to tango, and the partners in this dance are your Arcam CD player and Creek passive pre-amp - both are a little loose at the bottom end.

Audio Analogue's Paganini CD player would clean up the bass as well as allowing through more of the detail and music on your discs.

upgrading my amplifier but want the same build quality as my Quads. What's your advice? What will a Chord 1800/400 or 2200/600 pre/power do in

The mains and all its problems intrigue me. As a regular reader I can't remember reviews on power conditioners. Do they produce better results than just cables?

my system?



If your pre-amp is letting the side down, Rothwell's Indus stepped attenuator passive pre is one alternative.

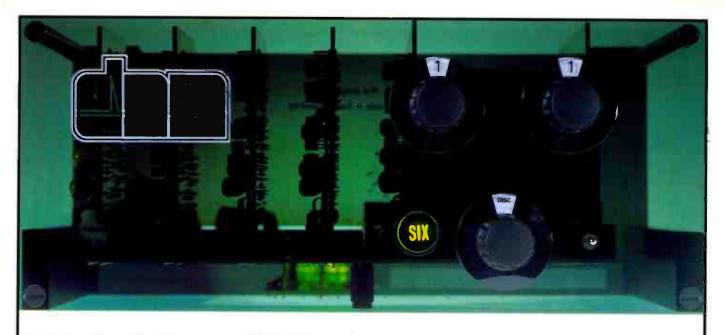
If you want to remain passive when it comes to pre-amplification, Rothwell's Indus stepped attenuator, reviewed in last month's issue, would fit the bill nicely as it has taut, fast bass. JM

One of Ringmat's Statmats will help sweeten the sound of digital.

Charles Veggel c.veggel@prv.gelderland.nl

The Chord amplification would certainly better your Quads given what we heard when we reviewed the 1800/400 back in March 1998. However, what they won't do is add warmth to your system.

I think you'll find that the



Thinking different...



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The Music Mill Edinburgh 0131 555 3963 The Right Note Bristol 01225 874728

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combination of warm Quads and cold Monitor Audios still gives a slightly cool overall balance. Swap the 34/306 for the Chords and it will get cooler still. Interconnects can push the sound in the right direction but a replacement for the MAs would be a better idea - try BKS' 107 Mk2 floor standers at £1500.

Mains cables can reduce Radio-Frequency Interference along their length thanks to shielding or capacitance added through their construction but they won't have



If your system is suffering from polluted mains, Accuphase's PS-500 is one possible answer.

any effect on the distortion caused by other equipment on the mains. Most active mains conditioners work fairly well but, as we discovered last month, Accuphase's PS-500 with its innovative waveform-correction technology has a major impact on mains purity and therefore sound quality. I have to say that our experience with passive conditioners has been disappointing as they have almost invariably just changed matters rather than improving them. JM

Another link in the hi-fi chain - a set of Siren cables from The Chord Company.

TRANSFORMING AMERICA

I now live in the US and would like to bring my system from the UK to use it here. I have a Systemdek turntable, Arcam Alpha amplifier and CD player with Rogers 'speakers. I assume I will need to change the mains transformer on the turntable. Do you have an e-mail address for Systemdek in Scotland? Will I have to do the same for the Arcam components? And will there be any frequency problems since the mains in America is 110V at 60Hz.

Alan Reoch areoch@nassco.com

The commonest way around the problem of different mains voltages is a step-up or step-down transformer between the wall socket and your equipment. One

point to watch out for is this transformer's power rating. Check the total power consumption figures which are normally printed on the rear of a component's case.

Likely to be more costly is having your Arcam gear modified by a dealer in the US. Both the CD player and amplifier have split primaries on their internal transformers that can be arranged in series for the UK or in parallel for countries where the national grid is 110V.

More of an obstacle to system happiness is your record player. The speed of the motor is dictated by the frequency of the mains, which is 50Hz in Britain. Going up to 60Hz in the States will cause the motor to run fast and noisy unless you have one of Systemdek's electronic PSUs



Turntables built to work on the UK's 50Hz mains frequency, like Systemdek 2X2, will run fast if used in countries where 60Hz is the standard.

which will also require a step-up transformer. JM

Whatever the location, a free bottle of DNM's Licon contact enhancer will open up the sound of your system.

CROSS THAT BRIDGE

I will be moving into a new house with my partner and plan to combine our two systems into one, with my power amps driving her 'speakers.

The problem we have is that my Rotel amps run in bridged mode and the minimum impedance they can handle is 80hms. Unfortunately, the 'speakers have an impedance of 40hms. Is there any way of increasing the overall impedance of the 'speakers or would it be easier to run the amps in normal mode and convert the 'speakers to make them bi-wired?

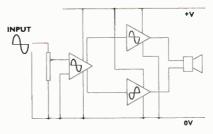
Stuart Holt
Stuart.Holt@mcs.co.uk

Running amplifiers in bridged

mode is normally a way of squeezing more power out of a stereo chassis to drive demanding loads, so I suspect Rotel's 80hm advisory limit is possibly aimed at near-deaf head-bangers with 80dB sensitive loudspeakers.

Finding out if your amps will suit your loudspeakers is as simple as putting the two together and giving it a test. Fire up the system at a low level with something like chamber or a-cappella music and gradually turn the volume up. If that's OK, move on to Rock and follow the same steps.

Even if the bridge method is successful, you're more likely to achieve better sound quality through bi-amping. The effort of



In bridged mode, each channel of a stereo amplifier handles half of the input voltage swing.

making the appropriate 'speaker changes would be well worth it as there is no way to alter the impedance of a 'speaker short of re-designing it. JM

Another link in the hi-fi chain - a set of Siren cables from The Chord Company.

KITS HAVE NEVER



KEL34 E&I VALVE INTEGRATED AMPLIFIER KIT

e KEL34 E&I version is our second generation budget stereo integrated valve amplifier, utilising E&I output transformers, providing a massive 40 watts of pure valve sound. With 4 line level inputs and one tape output, fully controllable from the front panel, the KEL34 E&I is a simple and elegant circuit design using a 6AU6 pentode input valve, an ECC82 double-triode phase splitter and a push-pull pair of Tesla, JJ branded EL34s. The result is a typically sweet, open valve sound with atypical bass control and power. The KEL34 E&I will work its magic into 'speakers of average sensitivity too. Jon Marks says, "tonally the KEL34 E&I is a bit of a smoothie compared with the original toroidal version, a major upgrade in every area of performance. It has a fast, dynamic sound, plucked guitar strings and bass drum enjoy crisp leading edges and great impact. Clear imaging and spacious sound staging meant voices and instruments really jumped out of the loudspeaker boxes. Overall the KEL34 E&I is a beautiful power amp " At the price, this kit is second to none and will open up the benefits of valve amplification to a whole new class of audio nuts! Weight 12kg. External dimensions with valves: 33cm(w) x 27.5cm(d) x 18cm(h).

HD83 VALVE HEADPHONE AMPLIFIER KIT

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 amplifier's tape out or pre-amp sockets. The circuit utilises high specification output E and I 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 a 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) x30cm(1) 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 625 8032 for further details.



K5881 MkII VALVE AMPLIFIER KIT



A 20watt, Class A power amplifier that uses reliable Russian 5881 output valves, a military version of the American 6L6, designed for low distortion audio work. Now with a super shunt regulated push-pull (SRPP) input stage K5881 offers amazing sound quality. It can be used with a simple passive pre-amp or one of our own pre-amplifiers, and it matches modern loudspeakers well. Weight 15kg external dimensions with valves 40cm(w) x 32.5cm(d) x 17cm(h).

K**5881 Mkil Upgrade kit** Upgrade your pre November 1996 K5881 amplifier to Mkll status. The kit converts your amplifier to the new 7025 double triode input stage in place of the original EF86 pentode input.

300B VALVE AMPLIFIER KIT



This is a specialised 28watt amplifier based on the highly linear 300B triode valve. Our 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).

KLPP1 VALVE PHONO PREAMPLIFIER

KLPP1 has five line inputs, a tape input with monitor and arunique 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).



KLP1 VALVE LINE PREAMP

The KLP1 line level preamp uses one an elegant cathode follower line drive circuit to give a sound of remarkable clarity and detail. The components are all high quality and include Alps volume control, Sovtek valves, silver plated wire etc. With a gain off x1, it matches our sensitive power amplifiers. Beautifully built, with solid machined alloy fascia and gold anodised knobs, it looks compact and elegant in the home. Weight 5kg external dimensions 28.5cm(w) x 23cm(d) x 8cm(h).

K5881PSE VALVE AMPLIFIER KIT



An audiophile parallel-single-ended valve amplifier at an affordable price. K5881PSE uses the reliable Russian 5881 output valve. Its 17watts is enough to drive most loudspeakers, making high-end sound quality and design available to everyone. Can be easily monoblocked to give 32watts. Weight 17kg external dimensions with valves 40cm(w) x 32.5cm(d) x 17cm(h).

World Radio History

BEEN SO GO



KLS10 HIGH TECHNOLOGY COMPACT MONITOR

Want high technology loudspeakers, without a high cabinet high price You couldn't do better than build KLS10, our latest mini-marvel. Using an subwoofer was designed Audax carbon fibre bass/midrange unit, married to the world's most to compliment KLS10 advanced tweeter, the piezo-electric gold dome HD3P from Audax, Gold stand mounters by KLS10 offers high performance from a small package. The main 'speak- providing a deep and ers are designed to work alone, or with a dedicated subwoofer to extend open bass. The subtheir bass. Alone, they are suited to near-wall mounting and can be tuned woofer is inexpensive, by port adjustment to suit personal taste and location. They are easy to easy to build, comprising drive and need just 30-60watts. Those who want the bass of a big loud- a simple crossover netspeaker can build our inexpensive dedicated subwoofer at a little extra work to a high quality 8 cost or intrusion into the room, this custom designed addition offers big inch Aerogel, dual voice loudspeaker performance. KLS10 is unique. Technically advanced, yet coil bass unit. A must for compact and relatively inexpensive. There is little to match it. Sensitivity all KLS10 Gold cus-89dB 1W/1m, 15mm MDF, internal volume 9Ltrs, external dimensions tomers. Sensitivity 19cm(w) x 31cm(h) x 23cm(d).

DRIVE UNITS & CROSSOVER KIT £394.00 DRIVE UNITS ONLY £358.00



89dB, volujme 25 litres,



external dimensions 28cm(w) x 43cm(h) x 34cm(d).

Drive unit and crossover £149.95 GBP Drive unit only £71.00GBP



KLS9 TWO WAY FLOOR-**STANDER**

Here's a storm for you - KLS9, with its BB4 alignment bass cabinet and Audax High Definition Aerogel 8in bass/midrange unit. Designed by Noel Keywood to possess optimal bass damping and a clean step response. Aided by a teensy bit of bass lift, KLS9 really thunders; it will rearrange your furniture. But it does not waffle, falling silent when there's no bass in the music. Aided by a high power 1 in fabric dome tweeter, KLS9 is detailed, evenly balanced and images superbly. It is an easy 120hm load and is 88dB sensitive. For amps up to 60W. Easy to build and great for beginners. Internal volume 70Ltrs, 18m MDF external dimensions 25cm(w) x 93cm(h) x 40cm(d).

DRIVE UNITS & CROSSOVER KIT £230.00 DRIVE UNIT PACK £160.00



KLS3 Gold Mk II ADVANCED TECHNOLOGY THREE WAY LOUDSPEAKER

KLS3 Gold uses the latest version of Audax's innovative oval gold dome piezo electric tweeter, giving it the sweetest and most extended treble. Married to a 4in. carbon fibre cone midrange driver for neutral and clear reproduction, and a powerful 8in. bass driver for superb depth, this is our top-of-the-line reference 'speaker. Sensitivity 90dB at 1W/1m, 25mm MDF, internal volume 60Ltrs, external dimensions 26cm(w) x 100cm(h) x 35cm(d).

DRIVE UNIT & CROSSOVER KIT £575.00 DRIVE UNIT PACK £450.00

Upgrade your KLS3s to Gold status. Includes latest oval gold dome piezo tweeter and all components.





KLS3 THREE WAY CARBON-FIBRE DRIVER LOUDSPEAKER

KLS3 uses extremely light and stiff carbon fibre cone drive units for a fast, accurate sound. A dedicated 4inch carbon-fibre midrange drive unit provides the clean, smooth and detailed midrange characterised by superb projection. Its high 90dB sensitivity and near flat 80hm impedance make it one of the easiest loudspeakers to drive. An ideal loudspeaker for high-end valve amplifiers. 25mm MDF, internal volume 60Ltrs, external dimensions 26cm(w) x 100cm(h) x 35cm(d)

DRIVE UNIT & CROSSOVER KIT £350.00 DRIVE UNIT PACK £230.00

World Radio Hi



KLS11 3 WAY DESIGN

Our newest desen is a wonderful three way bass reflex enclosure stand mounter. Another star performer, featuring the superb gold dome tweeter, the HD3P. This, married perfectly to a HM100ZO midrange unit and utilising the deep full sound of the 10 inch PR24OZO bass unit. All units are from Audax. As both these units use high definition Aerogel cones they have similar sonic signatures, providing a deliciously gelled sound. Our KLS11 is a quality three way, with powerfull bass and midrange driver that ensures vocals are handled with high fidelity. The treble is both smooth and sweet. Sensitivity 88dB Volume 45.5 litres External dimensions 31 cms (w) x 37.3cms (d) x64cms (h)

DRIVE UNIT & CROSSOVER KIT £595.00 **DRIVE UNIT KIT £470.00**

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 ttrs, external dimensions 21.6cm(w) x 42cm(h) x 25.8cm (d).

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

KLS7 TWO WAY CARBON FIBRE DRIVER FLOORSTANDER

Compact and affordable two way reflex loudspeaker KLS7's im dimensions make it easy to accommodate but it uses top quality carbon fibre drivers so performance isn't compromised. An audiophile bargain. Sensitivity 86dB at 1W/1m 12mm MDF, internal volume 18Ltrs, external dimensions 15cm(w) x 80cm(h) x 22cm(d).

DRIVE UNIT & CROSSOVER KIT £195.00 DRIVE UNIT PACK £110.00

KLS8 TWO WAY HIGH SENSITIVITY

With a sensitivity of 94dB, KES8 needs very little power. Its 10in. professional bass driver and hom loaded tweeter give it a BIG sound. Ideal for low power amplifiers. Internal volume 50.5ltrs, external dimensions 29cm(w) x 65cm(h) x 36cm(d).

DRIVE UNIT & CROSSOVER KIT £260.00DRIVE UNIT PACK £175.00

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BASIS INSTINCT

Timothy Liu takes the Basis 2001 turntable for a spin.

n the subject of hi-fi, few components ever reach the same level of cult nostalgia as the turntable. If you've seen the film Clockwork Orange you might remember glimpsing in the background a Michell Transcriptor, which in later years metamorphosed into the GyroDec, a design for vinyl junkies with a carriage-clock fetish.

Riding the wave of the recent mini vinyl revival, Basis of America have introduced the 2000 series to lure new disciples to the LP-playing fraternity. Believing the main bearing to be the area most critical to performance, Basis have taken the same high-tolerance parts as used in the Ovation and Debut Standard Gold and incorporated them into the scaled-down, more cost-effective 2000.

Fixed to the 1in. black acrylic base-plate are the bearing (with its 0.5in. stainless steel shaft) and the acrylic platter, both machined to super-fine tolerances of 0.0001in. The out-board, Swiss-made AC synchronous motor is housed in a heavy aluminium enclosure to help reduce its vibration, the flat drive belt being the only link between it and the turntable. Speed change to 45rpm is accomplished by simply flipping the belt onto the larger pulley diameter. Fit and finish in all areas is impeccable.

Our review sample came supplied with suspension feet, which bump up the original asking price of £1995 by a grand, changing the 2000 into a 2001 in the process. These ingenious items are sprung, fluid-damped affairs which can be locked tight prior to transit to avoid spilling the silicon fluid they're filled with.

The 2000 series can be bought with a Rega RB300 modified to include adjustable VTA and built exclusively for Basis. To this I fitted my own Koetsu Red Signature car-



tridge followed by a Jeff Rowland Cadence phono stage, Coherence pre-amp, Jeff Rowland Model 2 battery power amp and Sonus Faber Electa Amator 2 'speakers.

Having just sampled and become accustomed to some recent digital delights, my first encounter with the 2001 left me in a spin! The opening grooves of Blondie's 'Dreaming' had me gob-smacked at the sheer speed, attack and rapid-fire delivery of Clem Burke's drumming. Deborah Harry's gutsy vocals were well projected and controlled, highlighting the openness and punchy dynamics of the Basis.

The superb resolving power and separation of this acrylic deck unlocked musical colours and textures lurking deep in those black grooves. The Dukes Of Stratosphere (aka XTC) continued to raise vinyl replay levels with 'You're My Drug' from their Psonic Psunspot album. The intricacy of Colin Moulding's bass guitar playing was unravelled intact, allowing the notes to bop along unfettered, maintaining the drug-free listening high.

Whatever the music, the Basis always remained tonally neutral, revealing but not ruthless. The treble, although sweet, was more in the speed and dynamics camp, with fine extension giving hi-hats detail and shimmer beyond many decks'

abilities. Down in the two-digit frequencies, the 2001 had the welly and extension you normally associate with bigger, more expensive high-mass turntables without the loss of speed and immediacy they often suffer from.

The talent that really elevated the Basis into the super-deck league was imaging, palpable, 3-D instruments and performers locked into a life-size sound stage. The track 'Sorrow' from David Bowie's Pin Ups album had DB and co. emerging from an inky-black background, the velvety tones of the cello intro warm and sumptuous. Gently-strummed acoustic guitars in the background had a fresh, airy quality, and were easily picked out without being smothered by surrounding instruments.

With 24-bit 192kHz as well as SACD on their way, it seems quite ironic that Basis have now chosen to construct a turntable with the Midas touch to sway people back to their records. Despite the Basis offering excellent sound, its £2995 price tag (without arm) in basic guise will make many think long and hard. However, pride of ownership, a 10-year warranty and the flexibility to upgrade make the 2001 an ideal proposition for those who are willing to take the plunge and head for audio Nirvana

Basis 2001

£2995

RT Services 118 Mendip Heights, Didcot, Oxon. OX11 7TG Tel: 01235 810455

WORLD VERDICT



It's not cheap, but the 2001 shows just why vinyl is still a sonically viable format.

Measured Performance see page 127

Walrus Systems = High Fidelity

If you're only interested in hi-fi (not AV or Multimedia), and you want a system(that's been set up properly) to give you lasting enjoyment, and you're looking for a shop which is patient, and listens to what you want (and understands what you don't), where you can feel at home and stay as long as you need to make a decision, a shop which understands turntables as well as CDs, transistor amps as well as valves, and which is able to make your system sound exactly how you want it to sound (most of the time - we're not perfect) and a shop you can turn to when you have hi-fi problems (and sometimes other problems too) come on in and see Les or Pete.

Ps. Sorry 'bout the waffle: we didn't have time for anything better this month!

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fter all the hype I don't know whether to be impressed by Diamond Multimedia's Rio MP3 portable or not. Using computer memory to store music in a personal stereo that is small, light and insensitive to movement (because it has no moving parts) is an idea with natural appeal - it seems so much more elegant than a box full of cogs and wheels. And since it's computer-based as well as Internetfriendly, the Rio makes MiniDisc look a little out-dated. Or does it?

When you investigate further, the picture changes. A blank MiniDisc nowadays costs as little as £1.50 and

will store 160MB of information - that's around 1p per MB of recording capacity. Solid-state memory for the Rio costs £40 for 16MB if you buy it separately, which amounts to £2.50 per MB. Now I've always

thought that one day we will be recording into solid-state memory and I am as enthusiastic about the idea as anyone, yet at the same time these figures cannot be ignored. The simple truth is that no matter how fast memory prices may fall, they have a long way to go to catch up with the sort of costs offered by MD storage.

IBM think the same and have good cause. They recently released their new Microdrive, a miniature magnetic storage disc drive that measures about one inch square (see pic), works from 3.3V and could well end up in portable music players since it can store 170MB or 340MB. This raises the question: why didn't Sony produce a 160MB MiniDrive for computers six years ago? Anyway, IBM say specifically that "Microdrive technology takes storage far beyond flash-memory cards", suggesting again that solid-state memory might seem like a good idea but it remains impractical.

MiniDisc offers excellent recording quality now that its ATRAC data-reduction system has been honed, and Sony are going to launch higher-density MiniDiscs in the future. The discs are small, easy to store and robust. Viewed as a recording medium MiniDisc makes the Rio, and forthcoming rivals, look inadequate in so many ways it would be easy to dismiss them as poor infants of the computing world.

That might be to miss a crucial point, however. Very soon we will witness a flood of rivals to the Rio - there are around 16 different makes and models due out in 1999 and knowing how the computer business works - for this is not a product of the audio industry - there may well be many more. Unlike MiniDisc, which is a proprietary technology developed and controlled by Sony, anyone can contrive an MP3 personal stereo. The whole world and

IBM Microdrive

its dog will be beavering away trying to produce something better than Rio, all hoping to be the next Bill Gates. Can Sony defend MiniDisc against such an onslaught?

In theory at least the Japanese giant has plenty

of leeway. MiniDisc is not only vastly cheaper as a recording medium but it could also be hooked up to a computer to load MP3s just like the Rio. In this case, since an MP3 music file is typically 4MB, one disc could hold 40 songs of around 3minutes' playing time apiece, giving nearly 2hours' playing time total. But to do this Sony would have to make use of their own ATRAC data compression system optional, which might stick in their throats. Would such a device be MiniDisc? It might have to be re-christened MiniDrive to emphasise its open architecture and usage as a computer accessory.

By doing this Sony could trump the one ace Rio holds up its sleeve: Internet connectivity. Buy a Rio and suddenly you have a world of music literally at your fingertips. A few taps at the computer keyboard gets you on line and into a site like www.mp3.com which claims to list 1000 songs. There are scores of Indie music companies like www.goodnoise.com who put out promotional MP3s and you can even buy CDs full of MP3 songs via the Internet.

This is where MiniDisc is cru-

cially weak. Learning from the problens of DAT, Sony ensured MD could be produced easily and cheaply in prerecorded form by a stamping process. In spite of this, after six years or so in the marketplace, pre-recorded MiniDiscs are not exactly plentiful and there's no doubt they are over-priced by a music industry that treats them as a "premium product". Also, Sony's music industry rivals would prefer not to support this potential monopoly by allowing chart hits to appear on MiniDisc, which is another block on growth. I suspect pre-recorded MDs will never replace the pre-recorded cassette, even though they were designed to do so and are ideal for the role.

I wasn't impressed by the Rio so much as hooked by it! Once I got the hang of the software, downloading and compiling a playlist is quite addictive. Very soon I was listening to bands I had never heard before and enjoying new music. The Rio itself isn't as attractive and sexy as MiniDisc; quite the reverse - it is little more than an inert black box. But it is a brilliant marketing tool for the music business in a way that MiniDisc is not, and this is likely to be a crucial advantage MD will never overcome.



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If you're after a player that cuts the mustard at home or outdoors, Jon Marks reckons Sony's PBD-V30 DVD portable should be on your shopping list.

hile many audiophiles bemoan the passing of the age of valves and their sweet sound, there is one major benefit that the transistorisation of the world brought with it - miniaturisation. Before

valves vanished almost entirely from everyday electronics, some of them (like the Nuvistor beloved of Musical Fidelity) had shrunk to the size of the tip of your little finger. By thermionic standards that's seriously small, but when you need the processing power of a small computer in a package not much larger than three or four CD jewel cases, truly microscopic is what's needed. Without transistors, portable DVD players such as Sony's PBD-V30 wouldn't exist.

Like Panasonic's DVD-L10 (reviewed in November 1998), the Sony is one of a growing band of multi-format portables. It may not be pocket-sized but it weighs not much more than a kilo with its 7.2V Lithium-Ion battery pack. Desirable Feature Number two after the petite dimensions is the damped lid which rises smoothly at the touch of a button. Number three is the lid-mounted controls. Number four is the flip-up battery socket on the rear where the pack slots in.

Under the bonnet is a twin-laser mechanism which makes for easier reading of the differing disc types. After the signal has been read and decoded it interfaces with the outside world via an optical digital out (for both audio and Dolby Digital), an S-Video socket, an A/V out (mini jack) and a headphone stage with volume control. Where the PBD-V30 scores over the

Panasonic is the fact that these sockets are always accessible. On the DVD-L1D, clicking the battery pack into place covers the S-Video as well as audio and video line outs.

Seeing as the real reason for creating a portable DVD player is so



that it can be used on the move, I wasn't raising my hopes over the Sony's sound quality with it running from the mains. The wall-plug PSU is the usual lightweight affair and produced a sound in keeping with its mass. A swift switch to the Lithium lump yielded much more promising results.

Located on a Perfect Pitch Sound Absorber platform and feeding MVL's Integral A2S amplifier, the 'V30 got stuck into Red Snapper's Making Bones album. As it revved the disc up to speed, and music started to flow from Magneplanar's SMGas, it was obvious the Sony was far happier operating from pure DC.

Opening track 'The Sleepless' showcased the same sort of musicality which had made the Panasonic an appealing prospect, the menacing basslines rendered with satisfying weight and drive. Up in the treble cymbals had an attractive shimmer and sweetness while vocals were free from sibilance and grain. Imaging was fair, if not particularly sharply focused, and sound staging wasn't as spacious as you'd get from a

static machine at a similar price, but the enviable forte of the 'V30 was a tunefulness that kept me pinned to the listening seat. And as it warmed up, dynamics and clarity gradually improved.

A stiffer test was provided by Elgar's violin concerto. In spite of an initial sneaking suspicion that the Sony might struggle to tease apart the orchestral strands or give a coherent overall account of this disc, I was pleased to find that everything was present and correct after a little judicious tweaking of

the MVL's tone controls.

More points were picked up when the Sony replayed the Palladian ensemble performing trios for four (on Linn Records), where its slightly rolled-off top-end helped counter a little of the sharpness in this disc. Harmonically the archlute and violin were limited but enjoyability was the main theme once more.

With cassette soldiering gamely on and CD portables available for considerably less than the PBD-V30, the Sony might appear to be merely an expensive indulgence. When you consider it will play DVD-Video in addition to CD and higher samplingrate, uncompressed music, it doesn't seem quite so expensive. Most important of all, it puts out music instead of background noise which makes it a worthy competitor for Panasonic's DVD-L10

Sony PBD-V30 £699.90

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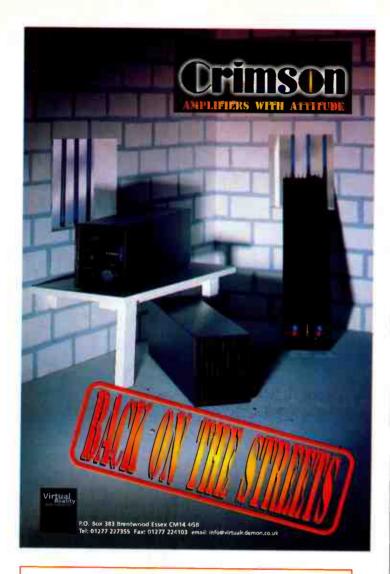
WORLD VERDICT





The Sony is an performer in a sturdy and attractive design.

Measured Performance see page 127





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Arcaydian

Are Arcaydis' new ASC 'speakers a one-way ticket to hi-fi heaven? Richard White calls at the travel bureau.

heir striking wedge profile almost qualified Arcaydis' latest loudspeakers for our 'radical design' group test last month.

Although the footprint measures 6.25in. by 11.75in., the front baffle is angled backwards at about 60°, leaving the top roughly six inches square - not much room for flower pots there. It's nice to see a ported two-way that breaks the box mould, though.

One pleasant change from some of the loudspeakers we've dealt with recently is the lack of back-break factor. By no means flimsy, the cabinets can be handled with ease, which ensured equable tempers during set-up. The manufacturer recommends that the ASCs be placed on short stands where the benefits of the crossover optimisation and angled front baffle can do their work. As the review progressed, I found that even placing the units on the floor could have benefits in certain acoustic environments; bass reinforcement from the floor helped to give a broad, even spread of frequencies which was something of a surprise given the small cabinet size.

Happily installed and fired up, the Arcaydis' first encounter was with Radio 3 fluting out Debussy's well-worn Golliwog's Cakewalk. Perhaps it's because the sound of a piano is so widely known that our ears are quick to find fault with this instrument if there's a problem with the loudspeakers. No such worries with the ASCs and their natural delivery. The announcer at the end of the piece also showed no evidence of chestiness or nasality.

To check the tonal integration of the 'speakers with rather more complex music I tuned into Beethoven's



Sixth. As they had hinted when fed with piano music, the ASCs had a pleasantly realistic touch with midrange dwellers like the brass section's horns. Bass extension on the other hand was controlled in a lean way, which at least avoided any danger of one-note waffle. Indeed, when the big guns had stopped thundering, a performance of Max Reger's final clarinet sonata demonstrated that these boxes had quite a winning way with small-scale works.

The same thing can't be said of the amplification needed to drive the ASCs when given an arduous symphony to handle. The size of the port was perhaps a limiting factor; great for intimate, low-key compositions but a design approach which could lead to dynamic compression. Because the cabinet is commendably solid, the woodwork is self-effacing but on larger orchestral works there was still some confusion

to imaging which was otherwise pretty solid.

Jazz chanteuse Diana Krall on CD re-inforced the impression that the ASCs needed a firm hand at the amplification helm of around 40watts, so they're not natural partners for valves. Driven properly, they produced comfortably clean, precise imaging of the accompanying quartet. Actually, thanks to the very deep sound stage, the result was rather schizophrenic since the singer in the front and the pianist at the back were one and the same. Doubtless a bad day at the mixing desk!

On smaller-scale recordings the Arcaydis ASCs made a name for themselves against some stiff competition and the distinctive but discreet styling blended in unobtrusively with a variety of decors. If your listening room is petite and you seek a natural, controlled loudspeaker which won't cause bass boom, the ASCs are one for the wish-list

Arcaydis ASC

£399

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WORLD VERDICT



The ASCs have natural warmth and good imaging. Inclined to be a little power-hungry.

Measured Performance see page 127



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World Radio History

Let no one imagine that in owning a recording he has the music" states the latest advertisement from a well-established hi-fi manufacturer. This is actually an ambiguous quote from the late John Cage, an American avant-garde composer whose most (in)famous piece is, ironically, '4min 33sec', a "silence for any instrument(s)".

The idea behind the advert brings us into the very grey (and oft-discussed) area of recorded versus live performance. It would seem that, on the one

hand, John Cage is saying that 'the music' only exists in performance and, on the other hand, the manufacturer is trying to tell us that by purchasing their equipment we can bring ourselves a

little closer to actually experiencing 'the music'. Regardless of the components, what is important is the point they are trying to raise.

"Dear Sir, only the other day I took myself to see a concert. . . and I didn't think the Tchaikovsky sounded as good as it does through my hi-fi . . ." is a classic hi-fi anecdote. It seems to me that it's simply not possible to compare a flesh-and-blood performance with a recording, even a live one (which often involves overdubbing and other studio work). They are two very separate entities.

Something no one can deny is that every live performance of any piece of music is, like it or not, different - even the aforementioned 'silence'. But then this 'piece' was conceived to emphasize exactly this difference in performances. The artist takes to the stage and looks at his or her watch whilst the 'music' is created from events in the venue - the creaking of seats, coughs, sneezes, passing ambulances, dropped programmes, stifled sniggers, etc. As a result, every Cage 'silence' is unique. It's this very unpredictability that can make a concert special. Sure, you may know the music, but you never know quite what to expect in the performance.

As a keen concert-goer and one-time performer, I can honestly say that all my most memorable musical experiences (so far!) have been in live performance situations. The acoustics of certain venues may resemble singing into a damp duvet, and you may not hear that all-so-important triangle stroke at bar 43 that's as clear as clear at home, but there is a frisson and excitement that is incomparable. For example, there is nothing quite like hearing a live symphony orchestra. A realistic relay of the space, depth and dynamics cannot be

Dear Sir, only the other day I took myself to see a concert. . . and I didn't think the Tchaikovsky sounded as good as it does through my hi-fi.

recreated by any audio equipment, full stop. And no rack upon stack of domestic audio amplifiers will reproduce the wall of sound produced by, say, Rage Against The Machine.

You may well be thinking at this stage, "Why does this bloke work for a hi-fi mag, if he apparently feels there's no place in the world for recorded music?". Well, there is a place for both live performance and recorded music in our lives.

In certain live situations, purely musical edification is sometimes sacrificed for the experience of it seeing it in the flesh - fluffs, cracked horn notes, etc. In addition to bad acoustics, your position in the venue may not the best, further lowering your chances of catching what the performers want you to hear.

This is where recordings and home listening triumph. At home the "cheap seat" phenomenon should be minimal, unless your preferred listening position is sideways-on to the 'speakers with a stone column in the way! Also, the detail that you can get from a studio record-

ing and a quality hi-fi system is near-impossible to recreate live.

It's not just sonic benefits either, there are many more ways in which hisfi listening can be preferable to live performance. For starters, you choose the programme. If there's a song or piece that you really don't like, you simply move to the next track. You can't exactly shout out "er, do you mind skipping this one old chap, I never did care for it" in the Festival Hall or the Shepherd's Bush Empire. And unless you're conducting, you won't get an orchestra to repeat your favourite theme.

From Cage's emphasis on the experience of performance, we can assume that 'the music' referred to in the quote he regards as a live presentation of the score. The struggle of hi-fi companies to reach ever-closer to the goal of the 'live experience' seems to me a bit like flogging a horse long dead. Deep, muscular bass, smooth treble, imaging and detail are not really the hallmarks of a concert or a gig. Trying to recreate a live experience in a domestic situation is often like meeting your heroes - a bit of a let-down. When someone comes up with a system that will magically transport Leonard Bernstein and the Vienna Philharmonic into your front room (and supply the interval drinks), then we might start taking claims as to genuinely

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The amplifier market saw NAD showing a return to form with the highly-rated 312. The company had no problem shifting every one it could manufacture and has already begun to consolidate the range with the 314 and new, high-end SilverLine range. I see no reason for their success not to continue into the season, although fresh components from Marantz and Cambridge Audio may scupper any grand plans of budget amp domination.

Further up the price ladder Arcam

Where Mission have scored over both their rivals is in their consistency. The Huntingdon-based outfit has received critical acclaim and decent sales right across their 700 and 770 range, and the 75 Freedom are far from obsolete.

Away from the ruthless budget market, the ones to keep an eye out for are Mordaunt-Short and Epos, both under new ownership (Audio Partnership and Mike Creek respectively). New loudspeakers are promised for later on this year.

Not so loudspeaker lucky were Rodgers and Goodmans (GLL). In spite of the latter continuing to make in-car 'speakers, neither will be making domestic transducers again. On a lighter note, this could be the year of the active, with the powered version of Wharfedale's Diamond now finally on the market.



Dominic Todd

echelons of CD replay were fairly quiet. Mind you, with Sony having already launched four new DVD players, the future of £400+ CD machinery appears decidedly shaky. We'll have to wait to see exactly what effect SACD and DVD-Audio have.

As well as being at the forefront of DVD, Sony continued to dominate the MiniDisc market. Their MDS-JE520 was last year's top MD purchase. More telling was the fact that sales of the '520 pretty much blitzed any opposition from cassette. Keep an eye out for new MD recorders from Sony, Kenwood and Sharp and don't be surprised to see some new faces in the world of MiniDisc next year. As an aside, the choice of blank discs should increase with the likes of TDK and Maxell already adding to their wares.

It's hard to believe that Denon's leading TU-260L tuner is now over eight years old. It comes as no surprise this issue to hear that its replacement, the TU-260MkII, has been equally well received. A few tweaks and the addition of an RDS circuit might not see it through the next eight, but it will certainly do for now.

Arcam are still (at time of writing) the only major player with a Digital Audio Broadcasting tuner on sale. Others will no doubt go the same way, but tuners are likely to continue to be a low priority for many manufacturers involved in a range of formats.

Whatever may or may not happen over the coming months, one thing's for sure - the industry definitely can't be accused of becoming stagnant. These are exciting times for the hi-fi enthusiast.

"DVD has captured everyone's attention and split opinion across the industry"

proved to be the leaders yet again thanks to the steady and continuous improvement of their Alpha line-up. Their 10 and 10P amps took them into the realm of the £1000+ price category too, a frightening prospect for many smaller manufacturers, especially with TAG McLaren's arrival on the scene. This domination is likely to continue throughout the year, although I'd be surprised to see such luminaries as Cyrus and Naim prepared simply to sit back and watch.

Anybody who has had even merely a passing interest in hi-fi over the past 20 years will still be familiar with 1998's best-selling 'speaker. Now in its seventh generation, the Diamond continues to be the real bread winner for Wharfedale. As ever, though, it was far from being without competition. Mission's 700 and Tannoy's MI both proved extremely popular budget boxes. Expect to see modifications to all three as we go into the autumn.

Only time will reveal the public's reaction to the concept this time around.

Although DVD has captured everyone's attention and split opinion across the industry, it's still too early for it to have any real impact on budget to midpriced CD players. MiniDisc, on the other hand, has made a much bigger splash as sales rocketed skywards during '98. As a consequence, any budget CD player without a digital started to look inadequate. No problems for Technics and Sony then, who made sure their entire range of machines were so equipped last year. Expect to see others following suit.

Slightly further up market, the NAD 522, Kenwood DPF-3010 and Cambridge CD4SE all proved deservedly popular. Look out for the Cambridge D500 which will feature a Crystal DAC (like the CD4SE) and jitter-reduction circuitry.

With the exception of the Linn Sondek CD player (£12000), the upper







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By Haden Boardman



Off the wall - plenty of ventilation is necessary with the red-hot Class A A1.

usical Fidelity's boss, one Mr Anthony Michaelson, has always had a keen eye for style in his hi-fi. The current X range components are sound bargains, and the company's earlier big power amplifiers such as the P270 and A370 have built up almost cult followings. Even the first MF product, the aptly named The Preamp, was a stylish beast. Not much bigger than a cook's matchbox and sporting the minimum of inputs and a light-up fascia, this little device won over lots of ears with its clean sound.

However, the device which really put

the company on the map was a little integrated amplifier of modest output power housed in a crazy case. Enter the mouldbreaking A1, a Class A, 20watts per channel integrated amplifier. Not since the Sugden A21 Series Two had audiophiles been able to buy an affordable, one-box, Class A hi-fi amplifier.

The A1 looks like no other amp on the planet; the top-plate doubled as the heatsink and the distinctive, angled-off fascia complete with flush-fitting knobs meant it resembled something milled out of a solid block of aluminium. Musical Fidelity must have become sick and tired of having

their new baby compared to Bang and Olufsen gear, especially as they spent £100000 to style and develop it.

As mentioned above, the most unusual feature was the heat-sink. The A1 runs extremely hot, so hot that in some service departments it has been affectionately nick-named the waffle maker. Featurewise, five inputs, a tape monitor and a half-decent moving-magnet and movingcoil phono stage is your lot.

Some of the A1's fans argue that it's the only hi-fi amplifier most music-lovers would ever really need. Sonically it is a real peach; its designer is more famed for valve circuits than transistor stuff and this shows through clearly. Instead of the normal quasi-complementary push-pull circuit with plenty of negative feedback, by transistor standards this amp uses little feedback and few output devices; no fancy MOSFETs, just basic silicon bi-polars.

Launched in late 1985 (I am now feeling very old!) at the exceedingly cheap price of £189, the A1 proved to be an instant success; even the Japanese loved



Included with the live-level inputs is a decent phono stage.

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them despite a retail price about 2.5 times the UK cost. Reviews were rave, and nobody dared say anything against this baby. Well, a few people did question the claim that the amplifier was 100% true Class A1 as stated by its designer and manufacturer. They pointed out that the heat-sink was possibly not big enough to dissipate the necessary minimum of 80 watts of heat. (Push-pull Class A is 50% efficient, so for a rating of 20 watts per channel, each channel will consume 40 watts of power, which is all dissipated as heat when no music is playing.) Still, there's no denying the A1 runs red hot so I for one am going to give it the benefit of the doubt.

Like valve amps, this little 20watter does need reasonably sensitive loud-speakers (or a small, well-ventilated room!) However, unlike most valve amps it actually has a good stab at putting out some current and is not scared of low impedances. A natural match would therefore be the BBC LS3/5a, for instance, but 'speaker choice is only limited by how loud you want, or need, to go.

In certain ways this MF could be looked on as the amp for the would-be valve aficionado who is put off glowing bottles by their reputation for patchy reliability and often idiosyncratic styling. The A1 is transistor and it behaves like a transistor amp, but in addition it has that unique fluidity that only the very best transistor amps even manage to hint at. If I am failing to get the message across here, then may I suggest you listen to a well-engineered transistor amp, contrast it to a competent valve amp and let your ears note the rather large differences.

Reliability wise, well, there have been one or two hiccups but most were pretty well sorted. Musical Fidelity were report-



For those lucky few - this two-box Collector's Edition of the A1 was supplied in a flight case and limited to 20 examples.

ed to have had the odd problem with a batch of PCBs but all of those would have been fixed long ago under warranty. All you have to keep an eye out for are warped top-plates and peeling paint, neither of which should put you off an amplifier in good working condition. And make sure the volume is at zero when switching on and off or changing input.

Intermittent sound can usually be traced to the input sockets on the back. Because these are screwed to the back panel and soldered to the PCB, as the amplifier warms and cools the top-plate can flex, taking the PCB with it. Dry joints along the input sockets bear the brunt of this movement and can work loose. The answer is to re-solder all of the input ter-

minals and not over-tighten the input sockets' screws on the rear.

Partnering the A1 was a rare tuner fitted in a matching case and going by the name of the T1. Good it was too but finding one second-hand can be tough.

If you liked the case of the A1 but just couldn't get away with only 20watts, later on you could buy the B200, a Class B 60watter. Unfortunately, this doesn't scale the same sonic heights as the A1.

When it comes to handing over the readies, around £100-£130 should net you a clean A1. Once it's in your system, enjoy it - it's an exceptional performer with either digital or analogue. Even the phono stage is better than most (it's remarkably similar in its sound to the current X-LP, so work that one out). It responds well to decent supports and tweaky wiring, although solid-core 'speaker cable should be avoided; for some strange reason the A1 sounds distinctly odd with it.

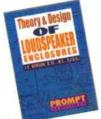
The new X-A1 sounds good but very different from the original A1 - it is not designed along similar circuit lines to its predecessor and you can hear it. The later Musical Fidelity A2 was another product that went its own way. Stick to the classic A1 and you're unlikely to go wrong; it combines great performance with fine styling, not something you can say of much British hi-fi from the mid-Eighties.



The Collector's Edition A1 boasts an out-board power supply to lift its performance far above that of the standard amp.

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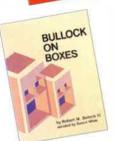


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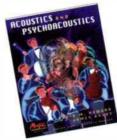
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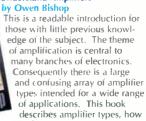


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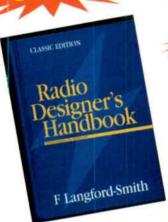
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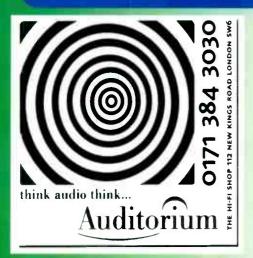
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JUNE 1999

World Radio History

ROCK & POP

by Jon Clarke & Stuart Lenz



BY YOUR SIDE

It's good to see that some things never change. Clinging defiantly to their Bluesy Rock roots, the Black Crowes maintain a proud and total disregard for all new musical forms with this, their fifth LP.

Since their Shake Your Money Maker debut of 10 years past, it is safe to say that this Atlanta-based band have not strayed, either in fashion or music, from the late Sixties or early Seventies. However, having spent the last few years producing comparatively tedious, meandering Psychedelic jams which reached their nadir with 1994's Amorica, the Black Crowes now find themselves renewed if not necessarily reborn in By Your Side.

What this comes down to is a return to the source, and thank goodness! So it's back to those high-calibre influences. The Stones and Small Faces, the latter always easy given lead singer Chris Robinson's vocal delivery in the manner of Rod Stewart. In fact, By Your Side is probably the best record The Stones never did (since 1983, anyway) with at least five songs sounding like Stones' cover versions.

To get a shot of this album's butt-kickin' contents you only have to listen to 'Go Tell The Congregation' and 'Then She Said My Name', tunes with such liberal doses of Rock, steel guitar, Soul and Southern-country pepper that you could be forgiven for reaching for your grits and sourmash.

Cohabiting with the above are Gospelly hell-raisers like their famous "Remedy" (reworked here as 'Horsehead') and the swaggering title track (uncannily like the earlier 'Jealous Again'). It's all in a good cause, though, and the display of genuine Seventies tribute material is a far cry from mere retro-puppetry.

By Your Side may be chock full of up-beat Rock grooves ('Go Faster' aside), but it cannot hide one sad fact; when all is said and done, it does have, dare I say, Dad-Rock pretensions. And if the boys don't like me saying that, they can just get back to their palatial Georgian mansions and Marshall stacks. Rebellion is, and always has been, for the youth.



DAVID SYLVIAN

DEAD BEES ON A CAKE

David Sylvian always was a contemplative and sensitive

sort. Uneasy with success, adulation and external pressures, he prematurely terminated the one great achievement in his life. When Japan's erstwhile frontman once the acclaimed 'beautiful man' of Pop (not hard with his ridiculous, Lady Di wedge cut) - split the band in 1982 at the very height of their fame, he brought to an end one of that decade's great, white hopes. And now things have come to this, Dead Bees On A Cake. Hmm? Do you smell a rat?

I'm afraid Dave, as I'm gonna call him, should have stayed behind his fringe. He is undoubtedly a highly talented and eclectic musician, but nothing quite adds up here. He has, of course, achieved a fair amount since 1982, his collaborative ventures with such luminaries as Ryuichi Sakamoto and Holger Czukay (avant-garde bassist with Kraut Rockers Can) to name but two.

Those familiar with albums such as Brilliant Trees, Secrets Of The Beehive and Gone To Earth won't be too surprised by Dead Bees with its highly textural, finely-wrought and personal songs framed by Sylvian's warm but mournful monotone. Which is mostly fine, if occasionally it borders on Bryan Ferry aboard a sinking ship.

The songs are occasionally daring with their Jazz simplicity and often rely on strange Eastern instrumentation. They are helped immensely by the extraordinary contributions from Sakamoto, Marc Ribot and man of the moment,

Talvin Singh. In spite of this, the results remain patchy outside of high points such as current single 'I Surrender', a haunting ballad in the epic mould of Japan's 'Nightporter', and 'Midnight Sun', an Eastern Blues number, gift-wrapped as usual in top-grade production.

Unfortunately, while Sylvian has gone for highquality studio work with interesting Oriental inserts, he is largely going nowhere special at the moment.



JAY Z

VOLUME 2, HARD KNOCK LIFE

Last seen having a major falling-out with Puffy (omnipresent) Coombes on his No Way Out tour and a close mate of Notorious BIG (RIP), despite his dodgy associations Jay-Z is beginning to flourish in his own right. With help from his huge 1996 single, a duet with Foxy Brown entitled 'Ain't No N-G-A (Like The One I Got)', Brooklyn's Sean Carter, aka Jay-Z, managed to get a contract with the Priority label and release his debut. Reasonable Doubt, all in the same year.

12 months later he resurfaced with In My Lifetime, Volume 2, a generally fraught

JUNE 1999

ROCK & POP

RECORD OF THE MONTH

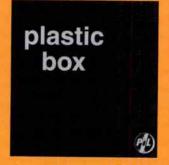
PLASTIC BOX

"By the time I started Public Image Limited I knew that nobody was going to stop me taking things to the Nth degree," John Lydon, aka Johnny Rotten, stated for the record last year. This four-CD box-set, stylishly crafted and including just about every cough and spit produced in the career of Britain's finest irritant, demonstrates exactly what Lydon means by Nth degree.

From the brilliant opening bars of 1978's 'Public Image' to the BBC Sessions of 1992, there can be no better journey into the mind of a madman/genius, nor better lesson in the ways of British music's wild and experimental hinterland. For Mr Lydon consistently pushed back the borders through the late Seventies and Eighties without jeopardising his image as a colourful caricature left over from the heyday of Punk. But while his former Sex Pistols band mate Sid Vicious died in abject squalor, his life collapsing around him c/o the needle, John Lydon continued to make cutting-edge music and got rich in the process.

and slushy affair. Hard Knock Life is the follow-up, and thankfully it's a vast improvement. This is reflected by its staggering five weeks residing at Number One in the US charts, a record for a Rap album.

The opener on Volume 2, 'Hand It Down', lays down the



Moving to America on the proceeds (he claimed the change of address was due to his refusal to live under a monarchy), he occasionally returned to pop up on British TV music shows to snarl, spit vitriol and, often the case, walk off in disgust. Still, the music kept coming as Plastic Box delightfully demonstrates.

It was in the wake of the Sex Pistols' disastrous and fatal US tour in 1978 that PIL first came together. An amalgamation of Lydon (who'd split up the Pistols, insisting they could go no further), bassist Jah Wobble, a mate of his and Sid's, and guitarist Keith Levine, who'd just been sacked from the Clash, the band got into the studio and started to jam together. They were soon joined by former Kings Road Punker Jeanette Lee and,

gauntlet to his critics. Relying on an assortment of guest vocalists (DMX, Timbaland and Kid Capri all provide meaty contributions) some might say it couldn't fail. But the definite highlights are 'Paper Chase' with bad-ass diva Foxy Brown, and 'Money Ain't A Thing', a phat Rap

within months, the debut Public Image was in the shops.

The album upset many diehard Pistols fans, but at least it showed Punk had a future. With its striking singles 'Death Disco', a spooky anthem written for Lydon's mum who was suffering from cancer, and the thrusting 'Public Image' with its poignant opening line "You never listened to a word I said", it was always going to be a memorable debut. These, however, weren't the only top tracks of note - 'Poptones', 'Careering' and 'Religion' proved as much and they are all here.

Next up was the difficult. experimental Metal Box whence Plastic Box got its packaging. More guitar-based. it was a violent and evil affair - Levine was truly on fire and Lydon warbled on in his inimitably manic style. Also on Disc Two are crunching and intense tracks like 'Flowers Of Romance' and another 10 or so highly experimental numbers like 'Banging The Door' which showcases Lydon's scarv singing.

Disc Three is the album everyone will know and it's

PIL at their most commercial. Including the series of hit singles 'This Is Not A Love Song', 'Round', 'Rise' and 'Home', it highlights the band at their most fruitful, but that's not to say either weak or Poppy. The final disc is, well, just about everything since.

Far from a relaxed, chillout, Plastic Box is easily the most challenging album of the year yet. It's worth the effort, though; angry, aggressive and bass-heavy, it really is the Nth degree. From the political anthem 'Religion' to the inspiring 'Rise' (based on South African torture methods), there is rarely a dull moment.

If there was one defining moment in the career of John Lydon and PIL, it must have been during the recording of their most successful LP, Album, in the mid-Eighties. While in the studio one day, Jazz maestro Miles Davis, impressed with what he was hearing next door, simply dropped in and started playing his trumpet in the background. He later told Lydon he sang like he played the trumpet. A fitting compliment from another man who liked to take things to the Nth degree.

suited only to loud stereos.

Much of the rest of the album is not quite so tough, and bangs on about the customary Rap subjects of money, other niggaz and hoes. In fact on 'Money, Cash and Hoes' he manages to Rap about all three without realising he's slipped up a bit

with the title.

All in all, this is a surprisingly straightforward album probably not quite deserving of its huge US success. That Public Enemy's A Nation Of Millions, a clearly far superior album, got nowhere near as many sales is, well, a travesty.

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CLASSICAL

by Stephen Priest & Frank Blake



THE FILM ALBUM
Royal Concertgebouw
Orchestra, conductor
Riccardo Chailly
DECCA 460 792-2

Shostakovich is undoubtedly recognised today for his lifelong contribution to the symphonic repertoire.

Unbeknown to many, however, is the influence that the moving picture had on his creative output. Indeed, from the outset of his career, to supplement his income as a student he tickled the ivories in cinemas.

After the success of his First Symphony, he was asked to write a 'live' score for the 1929 film New Babylon by Grigori Kozinstev and Leonid Trauberg, which was followed the next year by a commission from the same duo for a score to their film Alone, the earliest piece featured on this recording.

Concert-goers will probably know of his scores for the 1963 film of Hamlet and The Gadfly dating from 1955, excerpts from both of which are featured on this disc. The remainders are various gems

from his cinematic output spanning the years 1930-1967, including a beautifully-crafted Funeral March (with echoes of the Eroica) from The Great Citizen (1940), plus an arrangement by Andrew Cornall of The Tale Of

The Silly Little Mouse (prepared especially for this recording).

The Concertgebouw are no strangers to the music of Shostakovich - during his time with the orchestra, Haitink was a resolute champion of the symphonies, as their catalogue verifies. Chailly demonstrated his interest in Shostakovich's less familiar works with his earlier recordings, The Jazz Album and The Dance Album (with the Philadelphia Orchestra). Consequently, both of them take to The Film Album like ducks to water, displaying with a blend of tonal richness and rhythmic grip the bleakness, wit and sarcasm that are the compositional stamps of Shostakovich.

Whilst much of the music on this record lacks the gravity and depth of say the 5th, 8th or 10th Symphonies, it is none the worse for it. It merely demonstrates his mastery of the cinematic genre. Indeed, musical picture-painting is never far from the surface with most of Shostakovich's output.

Since it was recorded in the main hall of the

World Radio History

Concertgebouw's Amsterdam home which has one of the best orchestral acoustics on the planet, the sound quality is near spot-on. Balance is excellent, as is the playing and it all contributes to a refreshing 78minutes of rarely-heard music from a master of musical animation.



AIRS DE COUR Catherine King, Jacob Heringman And Charles Daniels LINN CKD 089

The literary convention of Courtly Love blossomed anew at the end of the Sixteenth century and many of the mainly anonymous verses set by the eight composers on this disc are veritable bridges of sighs. On occasion, the two lovers are even caught sighing unrequitedly while in each other's company; perhaps the course of true love in those days needed as many selfmade obstacles as possible to prove itself worthy.

Taken in bulk, the musical settings for these out-pourings have considerable charm without being particularly distinguishable. The effect is rather like Gregorian chant: if you like it, one minute of it is

as good as another. This makes for a soothing hour or so but not, it must be confessed, one that is particularly challenging.

This sensation of 'mood' rather than high art is perhaps helped along by the chosen performance style. Radio 3 fans have long been familiar with the 'two-performer' format which makes for such an economical Lunchtime Concert. Catherine King and lacob Heringman are manifestly seasoned in this vein, Heringman's mastery of the lute an object lesson in making the difficult sound both easy and natural.

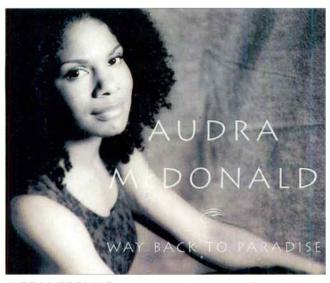
Charles Daniels (tenor) contrasts sufficiently well with Miss King to give an agreeable effect on the duets. The very nasality of the French language does not always make for beauty but the vocalists keep things in perspective without being too didactic.

'Baroque' voices are a bit of a niche market at the moment. Catherine King not only sings in tune but also manages to avoid the 'what a good girl am I' inflection which can make the effusions of some better known 'early music' singers so nauseating. Unfortunately she does follow the current fashion for a rather 'bloodless' sound which contrasts oddly with the suppressed passion of the verses.

Linn's recording is crystal clear but the pressing features a rather lop-sided balance. With intimate music of this sort, however, this is by-the-by and does not detract from a very pleasant and melodious performance.

JAZZ

by Ian Nicolson



WAY BACK TO PARADISE NONESUCH 79482

If it hadn't been for a minor accident last month, you'd have seen a lot more column inches for this celebrated young Broadway diva. Delaying her first singing dates in the UK, although not the release of her first Nonesuch set, the interruption could yet prove useful to her career outside her native USA. For hers is not the kind of art that makes for easy marketing, although it will certainly make reviewers and listeners talk and word of mouth has worked just fine for class acts like Jeff Buckley and the David Matthews Band.

Many might not have heard of Audra but the stage community certainly has: three Tony Awards for Broadway performances, Carousel (1993), Master Class (1996) and Ragtime (1998) make her a celebrated part of the revival that has made Broadway intensely profitable again in the Nineties.

For 30 years the stage musical has struggled to win back the Pop mainstream from less theatrical competition.
And for most of her career, the 29-year-old McDonald has fought just as hard to establish her right to sing Classical like Pop and vice versa.

Born in Berlin to a musical family, she grew up in California where tive of her aunts still tour as a gospel act, fell in love with musical theatre after joining a dinner theatre company at the age of nine, battled her way through Juilliard as a student of Classical singing and then took her magnificent mezzosoprano and startling emotional range to a succession of nightmare auditions (at the Lincoln Centre call for Carousel she even managed to faint on stage in mid-song but still got the part). She has effortlessly perfect pitch and diction, a distinctive vibrato, an intimidating range and the ability to infuse all her material with a Gospel sincerity and fervour that make her unique.

This debut album is also a

primer to the new generation of US stage composers: Michael John La Chiusa, Jenny Giering, Adam Guettel and Jason Robert Brown songs are the core of her debut album. And her astonishing, seemingly instinctive musicality lifts their post-Sondheim modern mixture of traditional Gershwinesque show tune, pungent social or political observation and eclectic 'concert art' into a spellbinding collection that remembers the past but is firmly rooted in the magpie, ironic and sophisticated Nineties.

There can't be many first-timers who can carry off inviting guests like Dawn Upshaw and Theresa McCarthy to duet with her. Nor many who can pull the composers of her chosen tracks to play piano for her, or conduct the orchestra. And if you think that there's just no way a Broadway diva is going to be singing Jazz, remember Anita O'Day and Barbra Streisand, and try a listen first.



NEW CONCEPTION OF JAZZ SHARING

JAZZLAND/EMARCY 538 278

Which brings us to Norwegian Grammy-winning pianist and composer Wesseltoft's latest

World Radio History

for his own Jazzland label. Halfway between the lounge-lizard irony of Dimitri From Paris and the lyrical quartet settings of Dave Brubeck or the acoustic Herbie Hancock, Sharing is one of those mould-breaking sets that tends to outlast the vagaries of musical fashion.

Wesseltoft is as much producer and soundscape artist as composer and star of this double-CD, and he's shipped in intensely catchy elements from Hip-Hop, Rap, House and Acid lazz by the bucketload, sampled his way past artistic oblivion and made it back intact and funky. If you like your music pure, this may not be for you, but if you're convinced by the 'mongrels are smarter and healthier than pure-breds' argument, this is some argument to lean on.

Sometimes the feel is Jimmy Smith with a bourbon on the B4 next to his hand, sometimes the iceberg cool of Jan Garbarek, or conveying subtle echoes of the biting romanticism of Massive Attack or the intense, percussive texture of Drum 'n' Bass. Then again, sometimes it's like a soothing, seductive Robert Miles (only with balls and a few more ideas).

If you know the adventure ECM's Nils Petter Molvaer has embarked on by interleaving House rhythms and mixing attitudes with his skeletal Jazz, Wesseltoft's approach to his own music will strike home as well. It would take an exhaustive run-down of the nine tracks that comprise Disc One to convey the shifting horizon of mood, style and setting on Sharing, but I'm convinced.

DANCE & AMBIENT

by Sara Davis

RECORD OF THE MONTH

Orbital The Middle Of Nowhere



THE MIDDLE OF NOWHERE

FFRR LC7654

Orbital's fifth album was always going to be massive. The brilliance of both the untitled brown and green albums defined Electro-Ambience as we know it and raised the amount of uplift

10-fold in tunes such as the legendary 'Chime' and 'Belfast'. Then came the eccentric Snivilisation, the least inspiring Hartnoll collaboration yet strangely the biggest. Many will recall the single 'Are We Here?' which showcased the mature and more up-beat side of Orbital whilst distracting attention from the awful 'Technology'

(which sounded like the theme tune to a late-night science programme).

In Sides took the album count to four with an altogether more laid-back sound scape; In Sides was a great Ambient soundtrack but lacked those funky, synthesised chord patterns which were so, er, Orbital.

The Middle Of Nowhere could have marked Orbital's decline into an old-age of low-tempo musical mush; after In Sides it was looking like Techno's own pair of frank-talking Grant brothers were ready to fade into the background. Thankfully, this was not to be! The Middle is a truly awesome explosion of Orbital as we once knew them.

From the opening chords of 'Way Out', the quirky samples and pummelling beat herald a brilliantly original yet strikingly familiar sound. By 'Know Where To Run', the pace of the album has risen to Olympic levels - this tune is a

contender for album track of the decade thanks to its deep bass and storming beat. 'I Don't Know You People' carries on from where In Sides stopped with its experimental, Thrash Metal riffs and repetitive Rock beat.

'Spare Parts Express' features more of the Snivilisation-style innovations, mainly by lifting from the Pop charts and putting the transplants under the Hartnoll scalpel for experimentation. This monster blends Gothic church organs and the odd sample from John Craven's Newsround, 'Nothing Left: Parts 1 & 2' is a hands-in-theair marathon and ready-made classic set to replace 'Impact' as a new live highlight, a nomessing Electro session with vocals melted on top. And finally there's 'Style', weaving its fabric from simple melody and bleeps into rising waves of haunting theme - Orbital at their peak and a great tune to close with.



SYMPATHY IN CHAOS,

MATSURI PRODUCTIONS MPCDP 25

The Matsuri slow-beat

collection crosses the border into trilogy-land with ease thanks to a solid wall of respect from the music press to date. Sympathies In Chaos volumes 1 and 2 took Trance to the mainstream under a banner of rave reviews and even featured on the snooty designer catwalks of fashion Issey Miyake.

The laid-back beats of Sympathy 2 set the tempo for this third episode, which opens on a pure and smoochy tip that Seb Taylor (in his Digitalis guise) can lay claim to. Despite having previously built a name for rare Trance, Matsuri then pilot the album through a diverse selection of apprentices old and new, including Gabriel Le Mar on an Electro-Dub tack ('Bob') and kooky Bristol funksters Moloko.

Mid-way through the proceedings the menacing spectre of deep Trance rears up in the form of Tsuyoshi's 'Joujouka' project remixing of Japanese Rock band Walrus, a fine sample of invigorating beats mashed-up with funky studio post-production.

As Sympathy 3 continues to evolve it dips into the underground Japanese sound which is probably going to explode into fashion soon. Dub Squad's squelchy, bigbeat tune 'Enemy Or Friend?' is definitely worth checking out, as is Drum 'n' Bass act Something Wonderful's gorgeously raw 'Kyoumei' number.

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HI-FI WORLD World Radio History JUNE 1999

Loudspeakers £ **Year Verdict**

Haday COO

£200	Jan 96	Reasonably neutral but ultimately lacklustre. Control of treble and mid-range poor.
£240	Dec 97	Partner the Opals with warm ancillaries and you get an involving sound. Avoid bright amps and sources.
£230	Aug 98	Energetic, bold and highly detailed, the Aura is one to consider for the budget-conscious.
£299	Oct 98	Like Aura's matching stand mounters, the 627Ms are lucid and controlled. Treble is brightish.
£200	Jan 96	Unrestricted and clean sound with satisfying musicality. An engaging subtlety not common at the price.
£130	Apr 96	Clear open and detailed sound but balance too forward and weak bass.
£250	Nov 96	Excel with taut hard-hitting bass with dynamic and uncoloured midrange. Metal dome tweeter bleaches out the tre
£150	Sep 98	With simple music, the CR6s work well, but not quite as well as the best of the competition.
£230	Jan 96	A lively little animal, well worth the money.
£119	Feb 98	The 12is' powerful, confident sound belies a rather poor measured performance.
2200	Jan 96	Big presentation but a rather distant quality. Could sound boomy and confined
£299	Nov 96	Sterling performance in the bass with speed and control. Good midrange projection.
£150	Jan 98	A lot of loudspeaker for the money Punch and slam in the bass but sometimes thin in the treble
	£240 £230 £299 £200 £130 £250 £150 £230 £119 £200 £299	2240 Dec 97 2230 Aug 98 2290 Oct 98 2200 Jan 96 2130 Apr 96 2250 Nov 96 2150 Sep 98 2230 Jan 96 2119 Feb 98 2200 Jan 96 2299 Nov 96



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Eltax Symphony 6 Gale Mini Monitor €50 Apr 97 Heybrook Heylette £270 Jun 98 Heybrooks HB1 S3 £269 Nov 96 £200 JPW ML510 £130 Jan 98

£129 £200 6299 Jul 96 £199 £129 Jul 98 £298 6130

Kef Coda 7 Kef Coda 9 Kef Q15 Kenwood LS90UK Linn Sekrit Mission 700 £129 Mission 731 Pro Mission 731 £139 Jul 97 £130 £250

Mission 731LE Mission 750LE £170 Mordaunt-Short MS20i £100 Paradigm Mini Monitors £230 £270 RDL RA Labs Mini Ref Revolver Purdey Rogers LS1 £149 £250 £200 £120

Rogers LS33 System Audio 1005 Tangent Monitor 11 **Tangent Monitor 2** Tannoy Mercury m1 Tannoy Mercury m2
Tannoy Mercury m3 TDL NFM 1 TDL Nucleus 1 Wharfedale Valdus 300

Apr 95 May 98

Aug 97 Mar 98 Jul 98

£240

Aug 97 Nov 96

Aug 96 May 97 £120 May 97 Apr 97 £150

Although bright, the Symphony 6s score for clarity and power. Bass is fast and accurate. Smooth, balanced performers that do a good job on any genre. Free from the nasties that afflict manyat the price.

Not the last word in midrange or bass clarity, but gives real hi-fi results for a paltry \$50. For their size and price they offer some super qualities, especially stable imaging.

A mini monitor with more precision and dynamism than the size and price tag would suggest. Capable all-rounders, the Optimas combine smoothness, insight and control to great effect.

Excellent imaging with clear treble and midrange. Bass slightly dry and boxy but would suit a smaller room. In spite of a few colorations, the Jamos are fine examples of budget active operation.

With greater transparency and a bit more get-up-and-go, the 510s could be leaders of the budget pack. The 60S is open and detailed but coloured too.

Rhythmic push and tuneful bass are the plus points of these small standmounts. Breezy presence, good dynamics and a sense of fullness. Not the utmost in clarity, some box colouration.

Strong bass can get out of control, as can treble. This tends to overpower the midrange. Impressive bass and a sweet clarity make the Q15s 'speakers that'll put a smile on any audiophile's face. The LS90UKs have dry bass and limited tonal colour, but staging and imaging are superb.

Well-behaved and with a decent tonal quality The 700s are easily outclassed by Mission's own superb 731 Pros at a £10 premium

An initially impressive, upfront sound but ultimately a little uninvolving Music makers with a clean, punchy sound. Real value for money.

Mission's babies are a truly worthwhile improvement on the original 731s

Excellent sound puts the competitors in the shade. Well built and pretty too!

If you've got £200 with 'loudspeaker' written on it, then the 732i should be on you're shopping list The 750LEs with their combination of Aerogel clarity and budget cost are hard to resist.

Superb stand mounters of real refinement and musicality. A touch bass light.

Very tight bass and an all-round big sound. Some sharpness in the treble but assertive and clear.

Impressive bass extension and midrange clarity are pluses. Prominent treble stops the 801 from challenging the best The Paradigms have a generally enjoyable sound but treble is sharp and midrange recessed.

Solid bottom end will drive a large room well, but they're a bit bright too.

Engineering is not tip-top, but with a smooth system they will produce a clear and open, if bright, sound.

Rather small sound for a big cabinet. Absence of deep bass hard to forgive. Clear, bright and open but with weak bass. Best used close to or against a wall.

Detailed and clear with a forward midrange. Could be a little rough on vocals, bass extension is limited Excellent all-rounder that provides a real open window into almost every genre of music. The Tangents bass has attractive speed and impact, matched with smooth treble and open midband. Good Imaging as well as control. Tweets a bit too much but more than fine for the money.

The best at the price and capable of embarrassing many more expensive speakers For £140, you get a 'speaker with transparency and enjoyability unmatched at the price.

Even overall balance and taut secure bass, if not the deepest ever Slightly lightweight and uninvolving Worth an audition if you need to balance a bright source and amp, but treble lacks clarity.

Bright treble is partially balanced by taut, well integrated bass, but outclassed by the competit Clean, incisive, detailed and revealing, especially in the bass.

Can work well if partnered to give weighty bass and smooth treble.

Loudspeakers £ **Year Verdict**

£300-£799

B&W CDM1SE	€600	Apr 98
B&W DM305	£350	Mar 97
B&W P4	€600	Mar 95
Blue Room Minipod	£400	Jan 97
Carlsson OA 50.2	€585	Dec 98

Tuneful and confident, these 'speakers are well suited to Pop and Dance music. All the ingredients for listening fun are mixed into the DM305. On

Good-looking solid 'speakers with great spirit and tenacity but with a dry treble. Not fans of classical music.

Arresting style allied to an engaging sound makes the Minipods attractive. Best partnered by smooth amps and source Acoustic music gels nicely. More artificial pieces sometimes don't work so well.

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	Arcam Tuners
	Arcam Home Cinema
	AudioQuest cables
	Title First Name Surname Address
	Postcode

Loudspeakers £ Year Verdict

£300-£799

Castle Eden £450 Mar 97 Impressively vice-free 'speakers that offer great transparency and involvement. Should be at the Castle Harlech £799 Aug 96 Castle Kendal £450 Mar 98 The Kendals have great clarity but need coupling to warm ancillaries. Castle S v m II £579 Jul 98 Apart from some hardness in the tweeters, the Severn 2s are accomplished all-rounders. Charlo Hiper 1 £399 May 95 Music makers through and through with a great feel for rhythm and dynamics. Castle S v m II £400 £700 Feb 96 A powerful and rich sound from these competitively priced floorstanders makes them worth a recommendation of the feel of th	top of the list.
Castle Harlech Castle Kendal C	top of the list.
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Chario Hiper 1 £399 May 95 Music makers through and through with a great feel for rhythm and dynamics. Dali 450 £700 Feb 96 A powerful and rich sound from these competitively priced floorstanders makes them worth a recomment Epos ES12 £495 Oct 96 Strong, punchy bass allied to detailed and articulate midrange and treble. E339 May 95 Music makers through with a great feel for rhythm and dynamics. A powerful and rich sound from these competitively priced floorstanders makes them worth a recomment of the properties of the propert	
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Epos ES12 Heybrook Heylios £495 Ct 96 Strong, punchy bass allied to detailed and articulate midrange and treble. The Heylios stand out for their bass depth, dynamics and sound staging. Overall balance prefers Classing.	
Heybrook Heylios £339 Mar 97 The Heylios stand out for their bass depth, dynamics and sound stagging Overall balance prefers Classic	ndation
	cal to Rock
Heybrook Heylo £389 Oct 95 Posses a neutral, fast and dry sound. A good match for soft sounding systems.	
lamo 307 £300 Apr 95 Delicate, detailed sound, abeit with rather imprecise imaging. Will work well on a bookshelf.	
JPW ML910 £300 Nov 97 The 910s aren't perfect but they make music fun. Quality, power and extension, the Milleniums are w	orth a listen.
JPW Ruby 2 £395 Oct 98 Once allied to warm electronics, the Ruby 2s mix insight with plenty of involvement.	
Ket I S3/54 \$599 Jul 95 Partnered with the Rogers AB1, this is a substantial marriage.	
Ket Q35 Nov 97 Very accomplished midrange and treble but the dry in the bass. For Rock fans the upper bass speed is appe	ealing
Ket O55 2499 Aug 97 The Q55s look rather expensive at £500 with their 'boom and tizz' presentation.	
Cot PDM1 C499 Oct 97 The RDM1s soundstage well thanks to their Uni-Q drivers. Can be uninvolving because of a lack of scale and	impact.
Linn Tukan £389 Dec 95 Highly musical standmounters that give similarly priced floorstanders a great deal to worry about	ıt.
Meridian A500 £750 May 95 Very polite and many will appreciate their civility Deep powerful bass	
Mission 733 £300 Apr 95 Captivating floorstanders that bring music to life - what good hi-fi should do.	
Mission 734 £430 Sep 95 Engineered for low price and showroom appeal rather than absolute sound quality.	
Mission 751Freedom £350 Apr 97 Charming little stand-mounters with a sweet, warm, musical sound.	
Mission 752 Freedom \$578 Jan 97 Dynamic, punchy, and musical yet refined like few at the price Bass lacks a little depth.	
Mordaunt-Short MS25i £300 Nov 96 Sweet sounding metal dome tweeter although the dry bass and rather plasticky midrange work again	nst it.
Musical Technology PM15 £474 Jan 99 Sophisticated, neutral sound and fine musicality put the PM15s near the head of the class.	
Near 10M £500 Jan 96 A thin and hard sound but precise with it!	
Neat Critiqui II £445 Jan 99 Deserving speakers with good looks and build. Can fail to shine with over-polite equipment.	
NHT 1.3 £389 Aug 95 Very crisp sounding 'speakers best suited to smaller rooms.	
Ortofon ConCorde 6 £329 Oct 95 Good value floorstanders with clean enjoyable sound - not quite supersonic, though	
Polk PSW150 £500 Jul 97 The PSW150 adds depth to a system but can sound obvious at times.	
Proac Tablette £600 Aug 98 Amp-sensitive and slightly boxy in the lower treble, the ProAcs are still highly musical.	
Rel Q Bass £350 May 96 Needs care in setting up but this subwoofer offers serious quality bass for not a lot of money.	
REL Q100E £500 Apr 98 Another capable sub from REL that boosts bass and improves sound staging	
Rogers AB 1 £499 Jul 95 When used with the Kef LS3/5a this sub delivers the goods, beyond a doubt.	
Riksan RokOn £595 Feb 97 Musically involving speakers that many will enjoy but a little unrefined at times	
Sequence 400 £329 Apr 96 Good at orchestral scale but coloured in the midband.	
Soundcraft Absolute 4P £799 Oct 97 The Absolute 4Ps excel in all areas except for the rather bright, hard treble Bass is exceptional	
Spendor 2030 £599 Jun 96 Smooth, focussed and coherent in their delivery with deep and taut bass extension. Not the most s	pacious sound.
Systemdek 165 £400 Feb 96 Dry and clean sound, but can become hard and confused when pushed	
Tannoy Precision P10 £300 May 98 Though very even in their performance, the P10s lack ultimate clarity and punch.	
Tannoy Profile 633 plus £300 Nov 96 Weighty bass and rhythmic detail work well on dance. Less satisfying with classical music Firm imaging	
Tannoy Profile 637 £500 Jun 95 With a rich sounding source you could well discover they're what you've been waiting for.	
TDL RTL 4 £650 Feb 95 Easy going with plenty of detail and timbral richness Better with classical fare	
TDL T-line 2 £550 Jan 97 Midrange and treble have good tonal colour, detail and speed. Bass is slow and blurred.	
Technics SR-M300 F350 Nov 95 A great sound with soild bass from a compact and well priced 'speaker'	
Technics SB-M500 £450 May 96 Clean, dry and taut with good imaging and sound staging. More neutral than Mission's 752s but	less euphonic.
Triangle Comete TZXe £475 Jan 95 Quite pleasant, inoffensive sound but others costing less can offer more	
Wharfdale Valdus 500 C300 Oct 95 Good for adding scale and power to a weak system or budget separates.	



JPW Ruhy 2.



Soundcraft Absolute 4P.

Loudspeakers £ Year Verdict

£800-£1499

Audionote E	£1450	Mar 95	Big, bulky and ultra-sensitive with quick pace and a well balanced sound, but not without flaws
Audiovector M1 Sig.	£1479	Aug 98	The M1 Sigs may be a little laid-back, but they have a pleasant and involving sound.
Audiovector M2	£1499	Jun 98	The M2s are marred by a boom 'n' tizz presentation that suits Heavy Metal but not much else
B&W CDM7	2999	Feb 98	With warm ancillaries the CDM7s produce a weighty, open sound. Bass could be faster.
Castle Howard S2	£1099	Mar 96	Fantastically deep and tight bass but some treble sharpness requires careful matching
Celestion A2	£1499	Jun 98	Focus is not a strength, but bass extension and even tonality are. Metal tweeter can be bright.
Charlo Academy One	£1199	Dec 95	Musical realism and a great real-wood finish make these speakers enjoyable if not perfect.
Epos ES22	£1185	Jun 98	Aside from a slightly cool balance, the ES22s shine. Dynamics, bass depth and control are tops.
Event 20 20BAS	£829	Sep 98	Warm, detailed and well-endowed in the bass, the Events lack only a touch of overall control.
Harbeth DPM1 Active	£849	Sep 98	Now HHB's Circle Actives, these loudspeakers mix the best of pro and domestic to produce first-class results.
Harpeth HL Comp. ct 7	£1329	Jun 96	Dry and analytical but truthful with it. A first class monitor ideally suited to acoustic or classical music
Harbeth HL K6	£975	Dec 96	Clean, musical and classy - Harbeth have done themselves proud again!
KAR Torino	£895	Jan 97	The Torinos stylish sound won't shame any system That powerful bass does does need space to breathe properly though





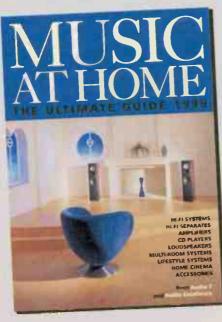


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AX SWANSEA

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Loudspeakers £ Year Verdict

£800-£1499

Kef Reference 1	£995	May 95	Beautifully fluid and integrated mid band and treble but can be slow, with a little loss of bass control.
KEF Reference 2	£1499	Jan 95	Handles rock and classical with equal aplomb, with the ability to reproduce detail that flummoxes many other models.
Kelly KT3	£1199	Apr 98	The KT3s go very loud very easily but they don't possess the most even response.
KRK V8	£995	Sep 98	Ultra-detailed and revealing, the V8s are true pro more than domestic transducers.
Magneplaner MG 0.6 SE	£1370	Mar 95	Very clear detail and separation, but just falls to produce a fully 3-dimensional sound.
Mirage 890i	£1075	Oct 95	An easy going, open and natural sound makes the mirages an attractive proposition
Mission 754 F5	£1299	Sep 96	Articulate and informative sound with fine Imaging and tight, deep bass.
Mordaunt Short 860	£1450	Dec 95	Fast, tight and informative, but a poor tweeter casts a grey shadow.
Musical-Tech, Falcon	€955	May 96	Give a big sense of scale on rock and jazz but not subtle and even enough for the critical classical listener.
NEAR Soundmast	£1199	Aug 95	An interesting, musical floorstander that's good value even at this price.
Origin Live Sovereign	£1225	Jun 98	The OLs have transparency and detail in considerable amounts. Bass can be loose though.
PT Ventricle	€896	Aug 95	Smooth and refined floorstanders that some listeners will find captivating.
QLN Signature	£1499	Mar 96	Super sound staging, openness and detail. Well worth seeking out.
REL Stadium 2	£995	Aug 95	Excellent bass performance means that this subwoofer is no toy.
Roksan Ojan 3	£1000	Jan 98	Unusual 'speakers with great rhythmic capabilities and bass. Could be more transparent.
Ruark Paladin	£1099	May 95	The Paladins possess a detailed and expansive soundstage but also a rather dry character
Spendor 2040	€899	Oct 96	The tweeter works well but a recessed midband and one-note bass are the Achilles heels.
Spendor FL8	£1275	Jun 98	The FL8s are warm, mellow performers which prefer Classical to Rock.
Tannoy D300	£1000	Apr 97	Impressive bass extension and control go hand in hand with precise imaging to make the D300s a snip at £1000.
Totem Model 1 Sig.	£1250	Sep 97	Imaging and sound staging are good but the move from standard to Signature has taken speed and punch out of the Model 1s
UKD Callas Gold	€995	Jun 96	A rich and open sound, extremely musical if not strictly accurate. Great bass extension for their size.
UKD Divina	£1390	Jun 95	Not the most neutral 'speakers but they are extremely smooth with an overall coherence to the sound.



Jamo Concert 8.

Year Verdict Loudspeakers £

£1500-

Audiovector 6	£4600	Jun 95	If you have enough room and money the 6s are capable of a highly musical, involving performance.
BKS 107 MkII	£1500	Dec 98	The 107 Mk2s may look slim but they have a solid sound and are fabulously revealing.
Cadence ES	£3500	Sep 95	Interesting design that incorporates an electrostatic tweeter. An impressive sound but an inconsistent performer.
Celestion A3	£1800	May 97	The A3s are quite simply superb. All you'll need to enjoy them is a large enough listening room.
Epos ES25	£1505	May 95	An extremely coherent and focussed sound; these are true audiophile speakers. Captivating with classical music.
Harbeth HLS8	£1999	Mar 97	Glassy clarity, bright treble, with bass that comes alive when given welly. Expensive though.
Heybrook Octet	£1800	Jul 98	The Octets are smooth, laid-back floor standers. Lack speed and transparency.
Jamo Concert 11	£2000	Dec 97	A worthy bigger brother for the Concert 8s, with a fast, transparent and even sound.
Jamo Concert 8	£1500	Jun 97	The Concert 8s are superbly clean and transparent. Their nature will show up any source shortcomnings.
JBL S2600	£3500	Jul 96	Smooth, detailed and spacious with great scale, dynamics and imaging. Capable of producing a real performance.
Kef Reference 3	£2000	Nov 95	For superb reproduction within large rooms, the 3s are a force to be reckoned with.
Kef Reference 4	£3099	Oct 96	Superb bass and near-electrostatic soundstaging make these involving 'speakers a bargain.
Spendor SP7/1	£1970	Jan 95	Gorgeous looking. Listening becomes an enjoyable experience, full of suprises from subtleties.
Spendor SP9/1	£3400	Apr 96	One of the clearest and most expressive loudspeakers you'll ever find for a large room. Easy to drive, too.
Tannoy AMS8	£2702	Aug 96	Bold and powerful sound with solid bass, clearly focussed midrange and delicious treble. Well worth tracking down
Tannoy D900	£3999	Sep 97	£4000 may be a lot to pay for a pair of 'speakers, but the Tannoys deliver to great effect in all areas.
Technics SB-M1000	£1500	Nov 96	Materially excellent value. Sound clean and extended but can lack involvement.
Th. Transducers Accelerando	£6600	Sep 96	Very sensitive, easy load. Convey great dynamics, but uneven sound and rather uninvolving feel make them look expensive.
Thomas Transducers Brio	£4750	Feb 95	Capable of producing a captivating performance of lifelike proportions with a great air of naturalness.
Thomas Virtuoso Gold	£3395	May 98	Impressive homs that combine lightness of touch with power and clarity.



Audio Analogue Bellini.

Year Verdict Integrated

Under £300

Alchemist Maxim	£299	Mar 96	Fluid and musical but upper bass is a little dry. Useful phono stage with but with a little sillance and ringing.
AMC 3025	£150	Nov 96	A lot for very little money - sweet sound and good build make the AMC 3025 a great starter amp.
AMC 3050A	£170	Feb 98	Offers plenty of power for the money but sound quality is not class leading.
Arcam Alpha 5 plus	£250	Oct 96	Good with efficient loudspeakers but generally needs more power and control
Arcam Alpha One	£230	Jan 99	In a smooth system with a warmish bias the Alpha One makes a strong case for itself.
Aura VA80	£279	Apr 95	Excellent value for money and will get the best from any component. Needs a seperate phono stage.
Aura VA80 SEx	€250	Mar 96	The Aura has a smooth, civilized sound with fine detail. Bass punch really rolls along. Good phono stage.
Cambridge A1 MkIII integ	£100	Jul 98	Involving and finely detailed, the Cambridge pushes forward the boundaries for inexpensive amps.
Denon PMA 250SE	£160	Feb 97	A mix of control, delicacy and detail allows it to excel with any music.
Denon PMA 425R	£230	Sep 96	Good drive, punch and an open soundstage, but suffers from confusion plus a thin midrange and treble.
Denon PMA 450SE	£280	Oct 96	Big and brutish but unfortunately bland with it. Something of a blast from the 1970s-80s past!
Harmon Kardon HK610	£180	Jun 95	Thorough-going down to earth liveliness. Bright but clean which gives appealing vivacity.

AUDIO ANALOGUE

In just a short while, Audio Analogue has won plenty of admirers. When Hi Fi World tested the PUCCINI Special Edition, they gave it their top star rating with the words

"Excellent sound quality ensures the Puccini S.E. outstrips the competition at up to £1,000". And the influential USA magazine Stereophile (Dec.98) praised its "harmonic richness, stunning purity of tone and sheer musicality". To top that,

the basic £475 PUCCINI won Hi Fi Choice's Best Buy for amplifiers in an up-to £1,000 group test (Feb. '98). In their words: This is a first-rate budget amplifier that looks and sounds like an altogether more costly model. Check it out". The BELLINI preamp and DONIZETTI power amp fared equally well. Ken Kessler in Hi Fi News (Jan. '98) had this to say. "A new benchmark in the value for money stakes". Now, we're proud to introduce you to the latest member of the family: the PAGANINI. It's a real music-lover's CD-player. For more details contact:

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Integrated Year Verdict

Under £300

Harmon Kardon HK620	£280	Oct 95	Not quite a giant killer, the Harman is nevertheless a good solid budget buy. Budget virtues and budget failings, too Good with CDs but phono stage makes viryl sound a little brutal. A very capable integrated with a smoothness and warmth predisposed to classical rather than rock. Fine quality bass but rather fackadaisical as regards timing. Phono stage moderate. Needs careful matching. Good detail and a spacius open sound gives acoustic music and the majority of rock superb clarity. Luxunant presentation doesn't compensate for the tendency to un-rhythmic effects. MM phono stage. Another highly capable all-rounder although a touch sterile sounding for some tastes. On a budget, the Pro-ject has strong ment, including an excellent phono stage. Not for all systems. Fresh sound with sharp attack. A slight midrange emphasis can make certrain music sound rather forward. For the money there's no faulting such a gifted performer bright clear and detailed, but needs a touch more refinement to prevail. A smooth unassuming sound misses out on the subtlety which brings music to life.
Kenwood 3020SE	£200	Nov 94	
Musical Fidelity E11	£299	Feb 98	
NAD 304	£239	Apr 95	
NAD 310	£130	Jan 95	
Pioneer A103	£130	Mar 95	
Pioneer A300X	£230	Apr 95	
Pro-Ject 7	£259	Apr 95	
Rotel RA 970BX	£250	Oct 96	
Rotel RA 931	£150	Dec 98	
Sony TAF446E	£250	Aug 95	
Technics SU A700 mk3	£250	Jan 97	

Integrated £ **Year Verdict**



MVL A2+

£300-£799
Alchemist Axiom

THORIT HAIDIN	2000	3ep 33
AMC 3150A	£329	Nov 98
Arcam Alpha 6+	£350	Jan 96
Arcam Alpha 9	£500	Dec 96
A. A. Puccini SE	£595	Dec 97
Audio Analogue Puccini	£595	Sep 97
Audiolab 8000A	£500	May 95
Audiolab 8000S	£700	Dec 97
Benchmark Roynon SIA	1 £680	Aug 96
Cyrus 3	£500	Oct 96
Cyrus Straight Line	£398	Nov 98
Densen Beat	€650	Dec 97
DPA Renaissance	£595	Dec 94
Holfi Audis	£750	Jun 98
Kenwood KA-7090R	£400	Apr 98
LFD Mistral	£499	Jun 97
Marantz PM-66 KI-S	£400	Nov 97
Monno MJ	£695	Jan 97
Moth 30 Integrated	£320	Jul 95
Musical Fidelity X-A1	£480	Dec 98
Myryad T-40	£399	Nov 98
Nad 317	£470	May 97
Naim Nait	£500	May 95
Orelle SA 100	£449	Jul 96
Pioneer A-300R Precision		Aug 97
Proneer A400X	£300	Oct 96
Quad 77	£595	Feb 95
Roksan Caspian	£695	Jun 97
Rose Scion	€615	May 97
Sonneteer Campion	£579	Jan 96
Teac ABX7R	£700	Jun 96

Musically rewarding; deserves serious audition. Great British hi-fi on a budget.

Not the most musical amp ever but good value. The tone controls and balance adjustment will appeal to some. Full and smooth sound, unfortunately with loose bass.

Excellent value. A detailed and open sound gives great atmosphere to all types of music. All the main ingredients like rhythm and dynamics present and correct. Natural smoothness and transparency. Excellent sound quality outstrips the competition at up to £1000. Manages the rare feat of sounding powerful and lithe at the same time. Bass taut but not the last word. Powerful hefty sound which doesn't blanch when driving awkward loads. Pespective and tonal colour ultimately limited. Too thin and crisp which makes prolonged listening fatiguing.

Highly refined and detailed performance with a clear well-proportioned soundstage.

A good, honest bit of kit with a fine musical sound and no glaring vices.

If a musical adrenaline rush is what you seek, fine Listening in bulk, rather clinical and cold sounding. Rated very highly for serious listening. Richness of timbre, purity of sound and impressive concise imaging. Powerful and refreshingly pure; a sound investment.

Excels with sound staging but lacks subtlety and tonal colour.

An extremely enjoyable, lucid little amplifier that really gets to the heart of the music.

An enjoyable and rhythmic sound but may be too lean for some bass-light 'speakers.

An engaging musical performance, sweet overall sound. Doesn't cope with difficult loads so well.

A big open sound sound sets the Moth apart at this price. Low powered, though. Distinctly amateurish looks. Two boxes don't form a pre and power in the X-A1 but the result is nevertheless a winning combination.

Couple the Myryad with a warm system and enjoy, Possibly a little lightweight on the Reggae & Rap side. With 80 watts on tap, the NAD has power aplenty but is rather dynamically limited and ultimately uninvolving. Rather monochromatic with midband emphasis and slightly dry ba With 80 watts on tap the NAD has power apienty but is rather dynamically limited and ultimately uninvolving Rather monochromatic with midband emphasis and slightly dry bass. Good imaging but smallish soundstage. Clean open, active sound Smooth and detailed with good punch too. One of the best at the price. A bargain at £400 pure and simple. Outclasses the competition in every area. Complements all sorts of music with power and confidence. Outstanding value for money.

Complements all sorts of music with power and confidence. Outstanding value for money.

Although classically orientated, the Quad will rock too. Precise and stable imagery and fidelity to tonal values.

Mixes the best of solid state and valve worlds (without valves!) to produce a seductive sound.

Musically rewarding; deserves serious audition. Great British hi-fi on a budget.

Great packaging and super sound make the Scion a winner.

Highly detailed and smooth sound. Worth searching o

Big and powerful sound, but a little unsubtle with it.

Integrated

Year Verdict



Audio Analogue Puccini.

£800-

Audionote Soro Se	£1999	Mar 95	
Copland CSA 14 Densen DM 10 Exposure Super XV Gamma Rhythm MckIntosh MA6800 Musical Fidelity A1001 Shearne Phase 2 Sonic Fronteers Anthem Sonneteer Alabaster Teac AB X10 Unison Res. Simply 845	£800 £2499 £3735 £2499 £800 £1295 £900 £1000	Apr 96 Jun 95 Oct 95 Jul 96 Sep 95 Jun 98 Apr 97 May 98 Oct 97 Sep 95 Mar 98	Needs the right loudspeaker but a good musical presentation is in there somewhere. High sensitivity 'speakers essential A sweet and subtle sound. Fine midrange; transparent and open with vocals. Dual mono construction gives strong stereo separation. Brutal resolution of detail but not the clearest ever A stringy-sounding transistor amp for rock. Build and finish could be better and price lower. Partnered with sensible loudspeakers of good bass depth, the Rhythm is capable of impressive performance. A mighty confection of power, facilities and style, and it sounds good to boot. Awesome power and seismic bass. A very good all-rounder with super-clean sound Even-handed performer deals confidentally with music regardless of genre. Not as smooth as the best. A characteristically competent and musical integrated. Prefers fairly efficient loudspeakers though Excellent high-end integrated with a real love of music and plenty of poke. Very strong all round performer with a real love of musical genres with smoothness and power. With a sweet, detailed and open sound the Simply 4 is unusually musical. Sensible facilities too.

Pre-amps **Year Verdict**

Under £300

Creek OBH-12 Musical Fidelity X-Cans Musical Fidelity X-Pre Project 7 Technics SU-C1000MkII	£200 £130 £200 £259 £299	Mar 98 Jan 98 Feb 95	Only poor cosmetics mar the Creek. Sonically it's a gem. If you haven't yet experienced the world of quality headphone listening, the X-Cans is the way to start A smooth, sweet and musical performer. Immensely enjoyable and listenable, a rare mixture of sophistication and fun. Needs slightly more taut bass and a less grainy midrange to bring it up with the best.
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To advertise in the Buying Guide

Please contact Amanda Sweeney on 0171-328 2213 or Sarah Wrenn on 0171-328 4892

Or email us on edit@hi-fiworld.co.uk

Pre-amps £ Year Verdict

£300-£799			
Audio Analogue Bellini	£475	Apr 98	Organic and transparent. Free from transisitor hardness.
Aura CA200	£749	Mar 97	A smooth and sweet sound devoid of roughness
Crimson CS610C	£440	Nov 98	The phono stage is the main area of weakness. Can sound a touch muddled at times.
Croft Epoch	2600	Jun 96	A fine sounding preamp, but the phono stage is weak in the bass.
Cyrus Pre	£650	Feb 96	Pre-amplifier has plenty of facilities, but sounds a little unexciting and 'conventional'.
PM Audio Lab L1S	£650	Dec 95	This valve pre-amp is very good value indeed.
Sumo Athena II	£767	May 96	More valve-like than transisitor in sound; highly competent if not spectacular.
Talk Hurricane 1	£500	Jun 97	Flexible with a strong controlled sound, but won't suit all tastes.
Technics SU C1000	£350	Feb 97	Good when mains powered, even better running on its batteries. One to consider at the price
Thorens TTA2000	£550	Jul 95	Poor sound quality and engineering let this pre-amp down. Pricey too.
Unison Res Feather 1	£795	Aug 98	Warm but still exciting, it is only let down by a slightly recessed midrange
Heybrook Signature II	€549	May 97	Impressive smoothness and tonal colour, transparent as well.

Pre-amps £ Year Verdict

C	00	0	61	1	O	0

Alchemist Freya Etalon Preampli John Shearne Phase 6 Linn Wakonda Meridian 502 Musical Fid. Nu-Vista Naim NAC102 Quad 7741 Shearne Phase 1 TAG McLaren PA10 Tube Technology Prophet XTC Pre-1	£1095 £895 £900 £1295 £1200 £999 £850 £1099 £850 £1310	Oct 94 Feb 98 Sep 96 Apr 98 Dec 96 Sep 98 Apr 97 Jul 96 Oct 94 Nov 98 Jun 94 Nov 96	Quite gentle, yet controlled, the smoothness suits classical. Smooth, even and transparent. Well worth the outlay. Matched with a smooth amp and 'speakers the Phase 6 is capable of a transparent and rewarding performance in terms of musicality and involvement it falls short. Transparent, detailed sound with good tonal range and very natural presentation. A truly competent pre-amp whose high-end sound comes with a very reasonable price tag. This even-handed performer images well and deals confidently with music regardless of genre. Bright and detailed, but phono stage is inadequate at this price. Very good all-rounder with clarity and a strong treble. Justifies its price with a very musical and revealing performance. Beautifully built and finished, it will attract attention in any home. This pre-amp is highly detailed and spacious.
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Pre-amps £1500-

Audiovalve PPP30	£1995	Mar 95	A bright and lean approach to the valve sound.
Chord CPA 1800	C1774	Mar 98	Has it all - detail, transparency, slam and rhythm. In a word excellent.
Chord CPA 1000			rido it dil dottari datti datt
Focusrite Red 4	02345	Feb 96	Smooth and detailed sound. Not as clinical as some professional amps can be.
Focustite neu 4			
Galactron Pre	01630	Nov 95	Smooth, but dull balance makes it suitable for bright systems.
Galaction Fie			
Marantz 7	63500	Mar 97	Supero, combines delicacy and power, especially with a vinyl source
			to deal of the property and involvement
Michel Orca	£1650	Oct 98	With its Panasonic pot, the Orca reaches new standards of transparency and involvement.
WICHEL OLG			
Unison Res Mystery 2	£1750	May 98	Offers finesse, control and clarity for a very reasonable outlay

Power amps £ Year Verdict

Under £800

Arcam 9P	£400	Dec 96	A detailed and open sound gives great atmosphere to all types of music.
Arcam Alpha 10P	2600	Jul 98	This power amp lags behind the best of the competition, and the build is flimsy
Audio Analogue Donizetti	£575	Apr 98	As smart as an Armani suit, they sound powerful in a natural, organic manner
Aura PA100	£749	Mar 97	A smooth, sweet powerful sound free from the rough brightness that afflicts many solid-states
Cyrus Power	£449	Feb 96	The Cyrus Power is simply impressive in all respects.
Linn LK100	£650	Apr 98	Well built, but judged purely on a musical basis they fall short
Linn LK240	£750	Aug 97	The LK240 plays tunes exceptionally well, tonal colour and image precision are not its fortes though.
Meridian 505	£795	Aug 97	Crisp, clear images are set in a broad spread between the 'speakers but the 505 lacks stage depth and grunt
Monarchy SM-70	£595	Jan 99	The Monarchy is a smooth, warm amp most at home with 'speakers that are easily driveable.
Moth Stereo 60	£549	Dec 95	This power amp unfortunately suffers from sharp sounding treble and poor depth.
Musical Fidelity X-A50	£500	Jan 98	Very smooth, sweet and musical performers, not over-analytical but very involving.
PM Audio Lab 211SE	£2750	Dec 95	The MP 211A power amplifiers are detailed and open with great bass
Quad 77/67	0003	Jul 96	With good punch, speed and attack its not bad atll but can be a little uninspiring.
Rose RP-190	£495	Nov 93	An amplification system with a wide range of facilities, easy upgrade path and a smooth and relaxing sound.
Shearne Phase 3	£689	Apr 97	The Phase 3 possesses impressive clarity, detail and dynamics.
Talk Tomado 1	€500	Jun 97	A flexible power amp with a strong, controlled sound, but won't suit all tastes.
Technics SE-A1000	£400	Feb 97	Smooth, warm sound has plenty of grunt when needed and is very enjoyable to listen to.
Thorens TTP 2000	£500	Jul 95	Its best feature is the key on off switch otherwise its a case of poor sound quality and engineering



Chord CPA-1800.



Monarchy SM-70.



Power amps £ Year Verdict

£800-£1499

Malbarry S508	€850	Aug 92	All the makings of a budget high-end classic. Sweet and warm if slightly soft at the top end.
Audio Innovations 800	£849	Feb 94	Very worthy valve amp with a silky smooth response and plenty of grunt when called for
Audiolab 8000Q	£999	Jun 95	Highly recommended for its blend of operational sophistication, build and sound quality.
Chameleon Ruby	£995	Jan 96	Well specified and powerful, but dry and short of life Suits Rock on bass-heavy 'speakers
Chord SPM 400	£1325	Mar 98	This amp has it all - detail, transparency, slam and rhythm. In a word, excellent.
Crimson CS630C	2800	Nov 98	These monoblocs have a tonal richness and bass speed rare amongst powerful amps
Croft Series V	£800	Jun 96	Fast, clear and detailed sound will win friends in both the transistor and valve camps.
Delph Da Capo	£1469	May 95	Quality bass and a clear midband but the treble can be harsh at high volume
DPA 200S	£1245	Jul 93	Serious audiophile product at an affordable price. Well constructed, pleasant to use and fine sounding.
Galactron Power	£1200	Nov 95	Smooth sound but dull balance make the Galactron suitable for bright systems
HD Audio Duo	£1185	May 95	Not dissimilar to the Audiolab monoblocs, the sound has a sweet top and amazing clarity.
Heybrook Signature II	£1051	May 97	Not quite as transparent as it could be but impresses with its smoothness and tonal colour.
Meridian 557	£1400	Dec 96	Great control and dynamics allied to seductive smoothness. A rare combination of power and delicacy.
Musical Fidelity X-A200	£1000	Aug 98	Hugely powerful and controlled, the X-A200s are still superbly musical.
MVL Integral A2	£895	May 99	An excellent performer with any music. It is hard to imagine the A2 being beaten at the price.
Myryad MA120	£1000	Apr 96	The sound is a somewhat acquired taste and a little rough in places
Omak Jewel One	2899	Jul 95	A lot of amplifier for the money. Big, warm, sweet sound places it ahead of most.
Quad 707	0083	Jul 97	The 707 embodies a rare blend of grace and power in its sleek grey casework
Sugden 41P	2899	Apr 93	A good balance between detail and fullness without serious compromise.
Sumo Polaris III	£898	May 96	More valve-like than transisitor in sound, highly competent if not spectacular
TAG McLaren 60P	£850	Nov 98	Fully justifies the cost with a very musical and revealing performance.
VRR Adur	£1495	Jun 95	overs of light piano-based fare and Barrous music will appropriate this ample delicative



Final Music-6.

Power amps £ Year Verdict

£1500-

£1995	Mar 95	Eschews the traditional lavish tube sound for a brighter and leaner approach.
£3055	Nov 98	The 301 puts the 300B's traditional virtues to good use in a push-pull design that will drive most loudspeakers
£3975	Feb 95	Cary have a winning amplifier that is a prime example of how a 300B can sound.
£2925	Feb 98	Very natural, substantial presentation with lots of power on tap
£1500	Feb 99	This battery-powered power amp has a convincing three-dimensional sound and scale.
£2057	Feb 96	Powerful, smooth and detailed sound. Not as clinical as some professional amplifiers can be
€4999	Apr 97	Sound quality of these monoblocs is impressive but marred by a rather obvious hum. Build could be better.
28000	Mar 97	These monoblocs are superbiproducing a beguiling performance of great control and verve
£2199	Apr 93	Sound is certainly not too hard, in fact it's rather warm. There are more dynamic outfits around however,
£1989	Oct 98	The new Alecto is crisper, cleaner and more controlled than earlier incarnations
£6600	Aug 96	A powerful grip on usic, but articulate and detailed too. A rare combination.
£1999	Oct 94	Good sound quality and an impressive tonal balance.
£1550	Oct 96	The Symetra monoblocs impress with their grip. They run hot and sound warm.
£2599	Jun 94	Valve monoblocs that produce explosive bass, midrange as clear as a bell and shimmering treble
£4250	May 98	Powerful, neutral sounding amps thanks to their modified 300B valves, but a little expensive for the same reason.
£1525	Aug 98	A great compromise between delicacy, power and practicality, Very musically satisfying, too
£2350	Jul 98	The S15's purity and clarity are impossible to beat for the money. Bass is not brilliant, but still better than most.
£2000	Nov 96	This power amplifier is smooth and seductive although a little pricey
	£3055 £3975 £2925 £1500 £2057 £4999 £8000 £2199 £1999 £1550 £2599 £4250 £1525 £2350	\$2975 Feb 95 \$2925 Feb 98 \$1500 Feb 99 \$2057 Feb 96 \$4999 Apr 97 \$8000 Mar 97 \$2199 Apr 93 \$1989 Oct 98 \$6600 Aug 96 \$1999 Oct 94 \$1550 Oct 96 \$2599 Jun 94 \$424250 May 98



Cambridge CD4SE.

CD Players £ Year Verdict

Under £300

AMC CD8	£150	Oct 97	The CD8 is free from grain but can sound too polished at times.
Cambridge CD4SE	£200	Feb 98	Natural and very life-like the CD4SE embarrasses many pricier players
Denon DCD-315	£150	Jan 96	Great box of tricks which gets all of the basics right. A bargain.
Denon DCD-425	£150	Apr 97	Crisp, up-beat player which is inconsistent in its overall presentation
Denon DCD-635	£180	Feb 98	Rhythmically slick and dynamic, the Denon errs to the cool side of neutral.
Denon DCD-835	£280	Nov 98	Warm and smooth, the 835 is laid-back rather than in-your-face
Grundig CD3	£240	Sep 94	Great for simple Jazz and Folk, but soft bass slows things down.
JVC XL-V230	£157	Jan 99	Slightly muddled in the bass, the '230 isn't the most rhythmic of players.
JVC XL-Z574	£250	Apr 95	Light in the bass and melodically mechanical, the JVC prefers sparse tracks.
Kenwood DP-3080 II	£180	Feb 98	One of the best budget all-rounders there is A shade treble-heavy
Kenwood DP-5050	£250	Aug 93	Waffly bass and enthusiastic treble mean the Kenwood prefers Classical to Rock.
Kenwood DPF-3010	£180	Jan 99	A fine performer Lacks only some of the spirit of its predecessors
Marantz CD-63	£249	Jun 94	Upholds the Marantz tradition of lively CD players.
Marantz CD-67	£270	Nov 96	Fine vocal projection and treble Bass is deep if not that light

WORLD'S BEST AMPLIFIER UNDER £1,000?



WORLD VERDICT

An excellent performer with any music. At present, it would be hard to imagine the A2 being beaten at the price.





HI-FI WORLD MAY 1999

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CD Players £ Year Verdict

Under £300

	£200	Oct 95	Hard to criticise at the price, with a typically smooth, fluid NAD sound.
	٤170	Jan 99	Warm and smooth, this is a cultured player. Can be over-civilised at times.
21	£130	Feb 96	Not the most accurate machine, but holds its own at the price.
03	£140	Feb 95	Rolled-off treble limits detail. Light bass retains foot-tapping ability.
	£?	May 93	One of the top players at the price with great speed and grip.
40BX	£230	Oct 94	Controlled and invigorating player albeit a touch sterile.
50SE	£200	May 97	Refuses to become flustered. Can lack emotion as a result, though.
00	£249	Nov 92	Like many of its contemporaries, the Teac is too smooth to shine
-PG490A	£100	Jan 99	In spite of a bias towards bass and treble, this machine remains a bargain.
PS570D	£200	Feb 98	Typical Technics' bright and bassy sound. Prefers Dance and Rock
(-480	£200	Mar 95	Mature, laid-back machine drops points for inferior timing and imaging.
-590	£230	Feb 98	Detailed, refined but not particularly engaging or exciting
(-593	£180	Jan 99	Lean and up-front, the Yamaha is involving on Rock but can sound rough.
	03 40BX 450SE 00 -PG490A PS570D (-480	21	21 £170 Jan 99 21 £130 Feb 96 03 £140 Feb 95 £? May 93 40BX £230 Oct 94 150SE £200 May 97 000 £249 Nov 92 -PG490A £100 Jan 99 PS570D £200 Feb 98 4590 £230 Feb 98

CD Players £ Year Verdict

£300-£799

AMC CDM7	£340	Jun 96	Very musical outfit which gains sweetness with optional valve output stage.
AR-07	£300	Jan 92	The '07 is even-handed but has no real fortes.
Arcam Alpha 5+	£480	Sep 96	Old-style Arcam warmth mixes with fine imaging. Not the fastest sound
Arcam Alpha 6	€600	Jan 96	Seamless most of the time, although there is a touch of coarseness.
Arcam Alpha 7	£320	Jan 97	Superbly-designed, instinctively musical player destined for success.
Arcam Alpha 8SE	£599	Jun 98	The 8SE builds on the strengths of the standard 8 with HDCD filtering.
Arcam Alpha 9	£799	Dec 98	Apart from its tonal brightness, the Alpha 9 is a very capable machine.
Audio Innovations Alto	£449	May 96	Grainless treble is detailed but the Alto misses that vital emotional spark.
Aura CD50	€450	Jul 93	High measured distortion mars the treble and bass is dry.
Creek CD43	£499	Oct 98	A competent player with a musicality that will seduce any music-lover.
Cyrus dAD3	£598	Dec 96	Lacklustre with Classical, dramatic and lively on Dance and Rock
Denon DCD-1015	£350	Apr 95	Warm and slightly loose, the '1015 is a good match for bright ancillaries.
Denon DCD-1550AR	£350	Jul 98	Clean and precise, the Denon lags only in warmth and openness
Harman/Kardon HD730	£300	Aug 96	Strong on dynamics and drive, but lifeless treble can dampen music.
Kenwood DP-7060	£380	Dec 94	With more weight, sweetness and pace, the Kenwood could be a winner
Linn Mimik	£798	Apr 95	Tonally hard but possesses many, if not all, of the Linn rhythmic strengths.
Marantz CD-63 KI-Sig.	£500	Sep 96	This is a rare player, greater than the sum of its parts
Marantz CD-63SE	£350	May 95	Taken as a whole, the CD-63SE is one hell of a CD player. No digital nasties.
Mission DAD5	£499	Dec 92	Enjoyable deck with beefy bass. Not the ultimate detail retriever.
Myryad T20	€600	Dec 98	With its brightness balanced by warm ancillaries the T20 will win friends.
Onkyo DX-750	£350	Dec 94	Lean in the midrange but otherwise we'l-rounded and highly enjoyable.
Orelle CD100e	€650	Mar 97	Clean and tidy on electronic music. Not so good with acoustic material.
Orelle CD480	€400	Mar 94	Uneven and forward, the Orelle doesn't really cut the mustard.
Pioneer PD-S904	€400	Sep 96	Fluid midrange leads a dry bass and tonally-limited treble.
Rotel RCD-965BX Discrete	£375	Dec 94	Fast, clean sound verges on the clinical at times.
Rotel RCD-971	£350	Sep 98	Refinement is a plus point, but lack of vitality holds the Rotel back.
Rotel RCD-975	£450	Sep 96	Tuneful, pungent bass are the pros, flat sound staging and tone the cons
Sony CDP-X3000ES	€500	Mar 98	Neutral, dynamic and stylish but not quite up with the best.
Sony CDP-XE900E	£300	Mar 97	In spite of fine sound staging and clarity, the Sony fails to involve.
Teac CD-5	£350	Jan 96	Clean and dry, the Teac is rather sterile compared to the competition.
Teac VRDS-7	£599	May 94	Honey of a transport outperforms the tonally-restricted convertor section
Technics SL-PS840	£450	Sep 95	Not the last word in bass control. Midrange is more persuasive.
Trichord Genesis	£549	Sep 96	Warm and bassy, but extremely natural. Not the most consistent player.
Trichord Revelation	£799	May 97	When it's good, it's very good indeed. Can get confused on dense mixes.
Yamaha CDX-880	£340	Dec 94	Easy-listening Yamaha is fine if you want to relax rather than Rock



Sony CDP-XE300ES.



Marantz CD-63 KI-S.

CD Players £ Year Verdict

£800-£1499

Audiolab 8000	£1000	Dec 96	Sweet treble and full midrange give the 8000CD a lucid sound.
Cymbol CDP12	£1279	Dec 97	Its warm, musical sound plus HDCD compatibility are a strong combination.
Cyrus dAD-7	£899	Jan 95	Up with the best at the money, the Cyrus simply sounds 'right'.
DPA Renaissance	£895	Jun 95	Breathtaking imagery and dynamics. Not strictly accurate, but who cares?
Harman/Kardon HD7725	0083	Jan 94	Construction is price-correct, but not the excessively relaxed sound.
Heybrook Signature	£989	Oct 97	The Heybrook loses out because of its rough treble and lack of clarity



marantz



Sunglasses by Ray-Ban, suit by Cerruti, watch by Cartier, Hi-Fi by Marantz.



Telephone: 01753 680868 Internet: www.marantz.com

CD Players £ Year Verdict

£800-£1499

Holfi Xara	£950	May 98	It's not cheap but the Xara scores for firm bass and exciting presentation.
LFD Mistral	£999	Nov 97	The Mistral is outclassed in areas like pace and bass depth.
Marantz CD-17	0083	Mar 96	The CD-17 has a presentation which excels in musicality and lucidity.
Marantz CD-17 KI-S	£1300	Sep 97	The KI-S has a valve-like smoothness and clarity.
Meridian 506	£875	May 95	Characteristically dry Meridian balance which could do with more emotion.
Pink Triangle Numeral	£1099	Apr 98	This very natural one-box fully justifies its £1000 price tag.
Quad 77	£850	Nov 95	Competent, entertaining machine with neat styling and remote.
Quad 7712	£850	May 96	The 7712 takes a mellow view of tunes marred only by loose bass.
Roksan Caspian	€895	Aug 97	The Caspian is a gifted player well worth its asking price.
Sugden SDT-1	£850	Mar 93	A superb all-rounder with particularly convincing rhythms.
Teac VRDS-10SE	€850	Apr 96	Draws you into the music. Soundstaging fine but treble is a little bright.
Teac VRDS-25	£1300	Aug 96	Solid build doesn't make up for sound which lags in integration and detail.
XTC CDP-1	£1250	Dec 97	Rhythmically satisfying, but can sound hard in the wrong system.

CD Players £ Year Verdict

£1500-

Anthem CD1	£1600	Mar 98	Sweet sound and numerous features make the Anthem fine value for money.
Burmester 937	£5460	Sep 94	Amongst the best with its belt-drive transport.
McIntosh CDM-7009	£2635	Dec 95	Unmatched quality from CD at a high but fair price.
Meridian 508.24	£1995	Jul 98	The 508.24 is one of the top performers at its price.
Nam CD2	£1998	Apr 97	CD2 excites at the expense of subtlety. More at home in a Naim system.
Pink Triangle Litaural	£2099	Feb 98	One-box player with sound capable of mixing it with the best.
Teac CD-X1	£2300	Jun 92	You'll either love or hate this machine's great flair and confidence.



Under £300

			The second secon
Linn Basik	£400	Sep 94	Definitely a turntable for devotees of attack and strong bass lines. Not strong on imaging.
NAD 533	£200	Nov 94	Based on a Rega Planar 2. Both pleasant to use and look at with a mature sound, all for £200.
Project 1.2	£200	Jun 97	A bargain at £200 with its substantial and involving sound.
Project 6 1	£435	Sep 94	The 6.1 gives a very full, strong sound. A very exciting deck.
Systemdek IIX900	£415	Sep 94	Detailed sound stage and broad imaging with a good, even range of tonal colour.
Systemdek IIXE	£450	Jan 93	Combined with an SME 309 it achieves great results, with a massive sound stage.
Thorens TD166 Mk6	€405	Sep 94	Tonally smooth with a warm midrange, but a little too laid back.
Thorens TD180	£180	Feb 95	A good, basic budget bargain.
Thorens TD280 Mk4	£199	Jun 93	Superbly lucid and clear midrage, but lower reaches are a little lightweight.

Turntables £ Year Verdict

£300-£799

2000 2100			
Michell Mycro	£539	Jan 94	Silent and beautifully made, with transparent reproduction.
Opus 3 Continuo/Cantus	2900	Oct 95	Solid as a rock and almost as heavy, it's a satisfying performer, but not quite the best.
Pink Triangle Tarantella	£575	Oct 97	Simply the best at the money. Combines PT's customary transparency with real authority.
Project 6	£350	Dec 93	Involvement and rhythm are priorities. Highly recommended.
Systemdek 2X2	£500	Aug 96	Clear and precise sound through midrange and treble puts it up with more expensive rivals.
Townshend Rock 3	£799	Feb 94	Capable of deep, solid bass and precise imaging. The unusual trough makes cartridges track like trains.
Virtual Reality Reson rs1	£600	Nov 95	With fine detail resolution, transparency and a neutral balance the Reson rs1 represents super value.
VPI Junior	£500	Oct 97	The Junior is a very good deck indeed, with an assured and involving sound.

Turntables £ Year Verdict

£800-£1499

Origin Live Oasis-A	£950	Dec 98	Nice looks and a good sound, but can be bettered on price.
Pro-ject Perspective	€900	Aug 98	Aesthetically, the Perspective is a winner, but better sound can be had from cheaper decks.
Roksan Xerxes X	£1295	Jan 97	An undoubted bargain and class leader in all areas with a precise, confident and well-balanced sound



Roksan Caspian CD.

Pink Triangle Tarantella.



Nu-Vista 300



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Turntables £ Year Verdict

£800-£1499

Technics SL-1200 LTD

£1000 Apr 97

Looks expensive at £1000, but don't let that put you off the capable standard version.



Van den Hul Grasshopper.

Turntables £ Year Verdict

£1500-

Phono Stages £ Year Verdict

Under £300

Creek OBH-8SE/OBH-2 Creek OBH-9/OBH-1 LFD Mistral NAD PP1 QED Discsaver Rotel RQ-970BX	£160 £110 £299 £40 £35 £130	Sep 97 Sep 98 Jan 97	The best MC phono stage on the market at the price Smooth and truly musical, exceedingly worthy entry-level phono stage. The most lucid and musical budget phono stage around - a true audiophile bargain. At this price the NAD is an accomplished all-rounder. Slowish bass will suit leaner systems though. A bargain. Beguilingly musical presentation, with more than enough detail and power for a mere £35. Combine with a good cheap line level integrated and it will show you how good vinyl can be.
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Hadcock 228 SE.

Phono Stages £ Year Verdict

£300-£799

1	Audio Innovations P2	£749	Feb 96	Fantastic bass and super insight make this one of the best phono stages around.
ı	Densen DP Drive/DP-02	£350	Sep 97	A beautifully made, fine sounding device that looks great too
1	DPA DSP 200SD	£495	Oct 94	Could be too forceful for some, but with excellent detail and extremely powerful bass.
	EAR 834P	£340	Oct 94	Very fine phono stage with precise imagery and a bargain at the price.
	Henley HMC100	£450	Jul 97	Clean, powerful sound makes it a strong contender. Bright cartridges should be avoided.
	Kinshaw Perception	£525	Oct 94	Extremely impressive results, especially with MM cartridges.
	Lehmann Black Cube	£395	Oct 98	Capable of involvement, neutrality and insight usually the preserve of stages three or four times the pri
	Michell Iso	£528	Oct 94	Gives a thoroughly cohesive picture of a recording with a very tight and rhythmical bass.
	Sonneteer Sedley MC/MM	£399	May 98	The Sedley combines transparency and fine dynamics with excellent rhythmic ability.
	Unison Simply Phono	£495	Mar 96	Liquid sound with great dynamics, but a little bissy and middled too Bequiling, but not perfect

Phono Stages £ Year Verdict

-0083

Anthem Pre 1P Audiolab 8000PPA Linn Linto Linto Michell Iso HR Roksan Artaxerxes/DS5 Sonic Frontiers Phono 1 E899 Aug 98 Cot 94 Cot 94 Linstruments can have a somewhat flat perspective, but excellent clarity Instruments can have a somewhat flat perspective, but excellent clarity Marries beautifully into the Linn family, but not too hot with other components. Perhaps too good for some record collections. Extremely revealing. Doesn't worry about genre, it just gets on with the Job of making music in an enjoys Expensive, yes, overpriced, no. The Phono 1 is a superb all-round phono stage.	

Cartridges £ Year Verdict

Under £200

Denon DL103M Denon DL110 Denon DL304		Mar 94 Sep 92	First manufactured in 1963, it sounds mature and sure-footed rather than over the hill. May be a little soft-natured for some. Splendid dynamics and an even tonal balance. The DL 304 offers superb neutrality at a comparitively low cost.
DNM Mica	£185	Feb 98	Betters Goldring's 1042 without difficulty. MC quality from an MM.

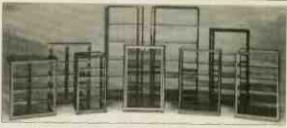
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Cartridges £ Year Verdict

Under £200

Goldring 1042	£90	Jan 93	One of the best MMs at the price with strainless delivery.
Goldring 1012GX	260	Jul 93	Great with Rock music, the 1012GX is the best value MM.
Grado Prestige Silver	£119	Apr 97	Good tracking and inoffensive sound, but somehow lacks sparkle in any department.
Linn K9	£3	Sep 94	Rhythmic bite compensates for a lack of vibrancy in music (MM).
Ortofon 520	€50	Jan 92	At the price they keep well up with the rest of the competition (MM).
Ortofon 540	£100	Jan 93	Smooth operator and very good value for money (MM).
Ortofon MC15 Super II	£110	Mar 95	In the right system, can be masterful with its dry and acurate response.
Ortofon MC25E	£170	Sep 95	A considerable achievement that adds true verve a pizzazz to the MC15 Super II
Roksan Corus Black	£120	Jan 93	Light and dry presentation with good presentation (MM).
Slate Brazen MM	£185	Sep 97	If you like the V15 you'll love the Brazen. Works well with an SME 3009.
Sumiko Blue Point	£100	Oct 92	Excellent value for money. It does its job of transcribing the information on the disc without fuss or bother.

Cartridges £ Year Verdict

£200-

Cartridge Man Music Maker	£549	Feb 99	Good price, high output and a winning musicality make this Moving Iron cartridge the one to peat.
DNM Actore MC cartridge		Jul 97	Oynamism ad subtlety mix i the Actore to prduce very enjoyable results.
DNM Lexe	£1300	Jan 99	A Goldring make-over that tracks well and sounds good, Pricey, though.
DNM Rica MM Cartridge	£255	Jun 98	This betters the Mica, has super-MM virtues.
EMT HST6	€850	Oct 96	Solid bass and smooth, musical sound make this rare MC cartridge worth the money.
Goldring Excel VX	£495	May 97	Has fine midrange clarity, but is bettered in other ares by cheaper competitiors.
Linn Arkiv	£1200	Dec 97	Linn fans will love it but it's up against strong competition.
Linn Klyde	£489	Jun 95	Sumptious sounding cartridge that borders on the bass heavy but has a good feel for music.
Lyra Lydian	€649	Jun 95	Extermely smooth, civilised MC with no obvious weaknesses.
Ortofon MC25F	£225	Sep 95	Delightfully sweet, musical sound with added refinemet on FL that takes some beating.
Ortofon MC30 Supreme	£450	Jun 95	Involving yet refined presentation but some could feel it's slightly coloured.
Ortofon MC7500	£2000	May 94	Conveys the full gamut of emotion from A-Z with the fervour of a live concert. Expensive, but the business.
Ortofon Rohmann	£1000	Apr 96	A top quality MC with superb tonal quality and excellent imagery.
Shure V15VxMR	£295	Mar 97	Warm, dynamic rendition of music with great detail and impact (MM).
Transfiguration Spirit	£1000	Jul 98	A balanced all-rounder that misses out only on the last ounce of detail and bass weight.
Van Den Hul MC10	€840	Jun 95	The MC10 is very hard to fault. A honey, pure and simple.
VDH Grasshopper IV	£3750	Dec 95	Allows music to flow with superb fluidity and reveal things which were previously unheard - at a pricel



SME Model 20.

Tone-arms £ Year Verdict

Hadcock GH 228 SE Origin Live RB250/RB300 SME 309 SME IV	£595 varies £689 £828	Nov 97 Jan 93	Construction won't worry SME but its sound quality will unsettle a lot of the competition. These modified arms are a considerable improvement on the originals Tight, neutral sound with good tonality, but lacks the IVs pace and precision. Sexy chassis and staggering engineering along with potent performance earn it a place in audo history.
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Sonic Frontiers Phono 1.

Tuners £ Year Verdict

Under £300

AMC T7	£130	Jul 97	Although it has a tempting price, its sound quality is poor compared with its rivals.
Arcam Alpha 7	£230	Mar 97	An attractive, smooth sounding tuner that won't break the bank.
Cambridge T500	£180	Feb 99	The T500 is one of the most gifted tuners under £200
Harman/Kardon TU 950	£200	Jul 96	Sound quality is generally impressive. Let down by a rather constricted sound stage, but still good value.
Kenwood KT-2080	£130	Feb 97	Smooth, even balance allows the KT-2080 to convince with whatever it's receiving. £130 well spent.
Marantz ST-57	£150	Oct 97	The ST-57 is a smooth, warm tuner but lacks a little clarity and transparency.
Mission Cyrus FM7	£299	Apr 94	Musical, comunicative and extremely detailed and a steal at the price.
NAD 412	£190	Jun 96	A remarkably musical and natural sounding tuner. Unbeatable at the price, or even twice the price for that matter.
Onkyo T401	£160	May 94	A competent machine, but time has taken its toll on the sound quality.
Pioneer F-504RDS	£300	Dec 98	One sole mark against the class-leading transparency is its slightly dry character.
Rega Radio	£230	Jan 95	Sounds on the whole more than its price, but in other respects it isn't especially competitive.
Rotel RT-930AX	£175	Aug 94	The RT-930AX is a glowing little bargain, real quality at a very reaslitic price.

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Tuners £ Year Verdict

Under £300

Sony ST-SA3ES	£250	Apr 97	The Sony is worth every penny of its asking price. If you're a fan of radio this is one to go to
Sony ST-SE700	£180	Aug 97	The ST-SE700 is one of the best at this price. LW reception is a welcome bonus.
Technics ST-GT-350L	£140	Jun 95	Not a bad buy at all and a very good fit for budget and mid-price systems.
Yamaha TX580 RDS	£200	Feb 95	If you want something for casual listening with superior æsthetics, this might be the one for you

Tuners £ Year Verdict

£300-

Adcom GFT 555 .2	£399	May 93	Quite musical but does not rejuvenate the waves! Good solid performance but less than luxurious.
Creek T43	£399	May 98	A great little tuner. This is the one in the price bracket.
Denon TU-S10	£400	Mar 98	A stylish, well-built tuner which has a detailed sound but needs careful partnering
Kenwood KT-6050L	£300	Oct 95	A good value, excellent sounding rds tuner, but lacks full EON facilities
Magnum Dynalab FT101A	£749	Apr 92	Worth auditioning but bass rather dry and light.
Meridian 504	2660	Mar 96	A clear, natural sound with good punch. Has strong rivals at the price, but acquits itself well.
Micromega Tuner	£700	Jul 95	An unusual design from Micromega that's well built but sonically unrewarding and expensive.
NAD 702	£330	Jul 94	Well worth auditioning, even if you've riever previously considered a receiver
Naim NAT 03	€499	Sep 93	Soft and pure, especially across the midband. Speech very well reproduced plus solid weighty bass.
Nakamichi ST3S	£350	Dec 94	Looks good, but the sound quality isn't really worth the asking price.
Pioneer F-504RDS	£350	Nov 95	Well engineered and competent tuner, but a little uninspiring.
Rotel RT-990BX	£500	Apr 95	The price of twenty concert tickets, and for that you can listen as if you were there. A bargain.
Thorens TRT-2000	€500	Dec 97	An otherwise competent tuner is let down by a rather processed character.
Burmester 931	£4347	Nov 94	This is not a cheap tuner, but its cheaper than buying a radio station, which is the only possible alternative.
Fanfare FT 1	£1350	Mar 95	Whether it's sweaty disco or symphony hall, the Fanfare comes up to scratch.
Linn Kremlin	£1645	Mar 92	Commendable basic performance but, considering the price there are limitations
Rotel Michi RHT10	€895	Mar 94	This classy looking tuner can hold its head up high amongst the best tuners at the price.
note: witch har to	1033	IVIAL 34	This classy looking tuner can hold its head up high amongst the best tuners at the price.

Extremely well built with a lucid if slightly dry sound. The only set back here is the price



Rotel Michi Tuner.

Cassette £ Year Verdict

Under £300

£200	May 94	Impressive on playback, the '810 really hits its stride when recording.
£150	Apr 98	No Dolby S, but three heads and two eapstans make the Aiwa a bargain.
£160	May 96	Good enough for the price and no worse than the competition.
£230	Aug 96	Top sound quality with ferric and chrome makes this deck a steal.
£200	Feb 96	Good value and performance, but bettered by Denon's own single deck
£250	Jan 95	Fair on pre-recordeds, OK when recording, but speed stability isn't great
£300	Sep 98	Only the lack of Dolby S conspires against the otherwise excellent JVC
£200	Jan 97	Stable transport gives fine results on metal and chrome. Rough on ferrics.
£230	Jan 96	Decent playback and good recording when used carefully.
£200	Mar 94	Respectable on pre-recordeds but bass-light on recordings.
£270	Sep 95	Excellent electronics are let down by a low-grade transport.
£230	Oct 95	A solid, competent machine which is reasonable value for money.
£150	Dec 93	Auto-tuning is mediocre and the general results are unexceptional.
£170	Jan 93	A mix of average heads and electronies doesn't make for happy taping.
£100	Apr 97	The V-610's performance matches its price well, but audiophile it isn't
£150	Sep 94	Satisfactory for in-car recordings, but the low price shows.
£250	Sep 97	The '580 lives up to its SE tag with a fine performance in all areas.
£260		The Yamaha offers a fine blend of performance and facilities.
	£150 £160 £230 £200 £250 £200 £200 £270 £230 £150 £170 £150 £150 £250	£150 Apr 98 £160 May 96 £230 Aug 96 £250 Jan 95 £300 Sep 98 £200 Jan 97 £230 Jan 96 £200 Mar 94 £270 Sep 95 £150 Dec 93 £170 Jan 93 £100 Apr 97 £150 Sep 94 £250 Sep 97



Nakamichi DR1.

Cassette £ Year Verdict

£300-

Aiwa AD-S950	£300	Feb 95	Vice-free playback is mirrored by impressive recording.
Denon DRS-810	£300	Jan 92	On the right tapes, the Denon repays with delightful sound quality.
JVC TD-V1010	£400	Sep 92	Disappointing on replay but recording is another kettle of fish altogether.
Kenwood KX-7060S	£330	Dec 94	Convincing all-rounder except for heavy-handed noise reduction.
Nakamichi 1.5	€500	Jan 92	The Cassette Deck 1.5 has no rivals in its ability to recreate a realistic performance.
Nakamichi DR-1	£780	Jun 93	Not perfect but as close as you can get for the money.

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Buying Guide

Cassette Year Verdict

£300-			
Nakamichi DR-3	£300	Mar 93	Unfortunately keeping the price down keeps performance below Nak's norm.
Onkyo TA250	£350	Oct 94	Top transport but the electronics aren't on a par.
Pioneer CT-S740S	£430	Jun 96	Complex but superb in every important area.
Sony TC-K611S	£330	Feb 94	Muffled on pre-recordeds but pulls out all the stops on recordings.
Teac V-6030S	£550	Nov 97	Solid build and solid sounds. Top-notch at the price.
Teac V-8000S	£699	Jun 92	With decks like the Teac, cassette deserves to live beyond the year 2000.
Teac V-8030S	€650	Aug 95	One of the highest quality Dolby S decks available.
Technics RS-AZ7	2300	Jul 96	Excellent bass but mid and treble lack dynamics. Auto-tunes poorly on metal.
Pioneer CT-95	£1000	Mar 97	On chrome and ferric, the '95 is smooth and natural. Not so good with metals.

DVD Players Year Verdict



£700-

Denon DVD-3000	£700	Aug 98	The Denon is a fine performer with CD and better still with 24/96.
Denon DVD-5000	£1500	Mar 99	Build is second to none. Sound is very solid convincing, but not as musical as the 3000.
Panasonic DVD-A350	£700	Jul 98	The A350 wipes out the CD-only competition at the price and threatens players up to £2000
Panasonic DVD-L10	21000	Nov 98	Isn't cheap, but it's an outstanding portable and a capable domestic device.
Sony DVP-S715	2700	Aug 98	The Sony is warm and smooth but lacks clarity and precision.

Headphones Year Verdict

£20-

Ergo Model 2	£140	Mar 99	Wonderfully lucid and transparent panel-like sound.
Jecklin Float 2	£100	Mar 99	Clarity and opennes are their traits, rather than slamming bass, but still good value.
Sennheiser HD-433	£20	Mar 97	Whatever genre tickles your fancy, these will reproduce it with an ability which belies their price tag.
Sennheiser HD-455	£50	Nov 95	The HD-455s offer a civilized and refined performance and are easy on the pocket.
Sennheiser HD-580	£200	Nov 98	In the company of a smooth, warm system the 580s can shine.
Sennheiser HE60/V70	£1000	Feb 95	Electrostatic design that set a class standard and can put a case for chucking out your power amp and 'speakers.
Vivanco FMH-6800	082	May 98	Have a lot of potential but basic operating problems have to be cleaned up first.
Vivanco SR850	250	Nov 95	Excitement that is rarely heard in headphones, but have a little trouble with heavy orchestral loads.

CD Transports £ **Year Verdict**



Under £799

DPA Enlightenment	£69 5	Mar 95	Solid and lifelike sound with Rock music and full bodied on Classical.
Kenwood DP-X9010	£530	Feb 92	Superb build for the money and a very musical sound. Benefits greatly from clocking.
Rotel RDD-980	£450	Jul 96	Good, clean dynamic sound with a neutral and pure midrange tone.
Teac VRDS T1	£499	Feb 95	Enjoyable player with good insight, Good finish and keen pricing make it a thoroughly good buy.

Year Verdict CD Transports £

£799-

Audiolab 8000 CDM	£1249	Aug 94	Distinguished by a wide array of failities, Thoughtfully designed and high quality.
Cyrus Disc Master	£1800	Jul 94	Smooth and cohesive. The Disc Master looks good and comes with the Dac Master within the price.
Micromega Duo	£3435	Apr 93	Excellent build quaity and a sound quality to match.
Monarchy DT-40A	£1595	Jun 94	Isn't cheap but has a solid dependable sound with a big, powerful presentation.
Parasound C/BD-2000	£1695	Jun 97	The belt drive is an interesting idea but the Parasound is bettered by cheaper transports.
PT Cardinal	£1440	Feb 95	Heart-stopping speed and impact contribute to what is an exceptionally good machine.
Roksan Attessa	£1295	Apr 94	Fascinating player but a little flawed when compared with the competition.
Sonic Frontiers SFT-1	£2295	Aug 96	Top flight machine with an easy, musical and enjoyable sound, for those that can afford it.
Sonic Frontiers 3	€6999	Sep 98	A handsome machine both sonically and æsthetically. We love the camera aperture-style loading system.
Teac P-30	£2500	Jun 97	Costs a lot of money and sounds nothing short of superb.
Thorens TCD 2000	0002	Jun 96	A soft and warm sound will please vinyl lovers, but it's not the last word in detail.
XTC CDT1	£1200	Apr 96	A warm and musical sound with a taste of high-end refinement and detail.

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ECF80	Mullard	3.50	PL509	Tungstram	8.50
E182CC	Mullard	12.00	5687WB	Philips	5.00
E188CC	Philips	8.00	5881	Sovtek	5.00
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ECL83	Mullard	6.00	6550C	Svetlana	16.00
ECL85	Polam	4.00	6550WE	Sovtek	16.00
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PARTS POWER

Nick Lucas and Jon Marks outline our upgrade kit for the popular KEL34 valve integrated.

o complement the release of our KEL 34 E/I version (I thought some of you KEL 34 original owners

might feel a little left out), HFW's 'Mod Father', our beloved editor Jon Marks, has devised a highly effective upgrade kit which was enforced by 'Tech Tarzan' myself, Nick Lucas. The result is a serious collection of audiophile components for the budget price of £150. Getting them into your amp is pretty straightforward but here are a few pointers just to help you on your way.

1) As soldering to both

elbow room.

sides of the PCB is
necessary, it is important
that you can gain easy
access to the board.
Desolder all the wires
attached to the volume potentiometer as
these restrict board movement. To avoid
having to pass the PCB over the front
panel, undo the mains transformer fixings
and then lift and tilt it to provide more

While you are working, avoid moving the PCB back and forth too often as this can weaken external joins to the PCB or even break them, causing problems later. You may like to go the whole hog and remove the PCB from the chassis completely. This will obviously be more time consuming, though.

2) Remove the pre-upgrade components carefully. At this stage it is a good idea to use a desoldering pump or solder braid to soak up all the dead solder. Make sure you clean up all the remains as stray solder strands are little devils and can cause problems later. I always use a tooth

brush to clear off any loose debris; just be certain not to put it back in your toothbrush holder! You may like to



KEL 34 upgrade kit contains all parts in labelled, sealable bags and a full set of instructions.

temporarily remove C3 to facilitate the upgrading of BR3 at this stage.

3) Once the board has been made ready, a dummy run is a good idea for confirming component location. Bear in mind that the Stargets are built up of smaller value capacitors in parallel and will take up more room than a single cap. We had to do this as Stargets do not come in the values required. Incidentally, this arrangement has the added bonus of lowering the overall ESR (equivalent series resistance) and ESL (equivalent series inductance) of the capacitors, improving bass and treble in the process. With the C17 upgrade, take note that the selector sits just above this point so its positioning is critical.

The aluminium-foil and impregnatedpaper dielectric capacitors (C7, 8, 15, 16) are extremely chunky at 55mm (l) by 30mm (dia). Ensure that they are well away from the large cathode resistors R13 and 16 as they do generate heat which

can affect the performance of the capacitors.

These capacitors have inner and outer-foil leads. The outer is denoted by the black, exposed-resin end and should be soldered to the 'earthiest' potential of the circuit to exploit the inherent screening capabilities of these types of capacitors. The orientation in situ is thus important and is marked in the diagram.

4) When fitting the Panasonic volume potentiometer (an old favourite of ours) it is necessary to enlarge the chassis hole as the

original pot in the kit has a diameter of 7mm; 9mm is required here. I used a reamer, but a drill bit used carefully will do the job adequately. Make sure that you still have enough exposed metalwork internally as this is the chassis earth point. You will have to open up the M6 solder tag to fit the shaft by cutting into it.

- 5) It is a good idea to use rubber sleeving on the component leads to reduce the risk of a short-circuit. A short can also be created through the metal cases of the Stargets.
- 6) The diodes used for the bridge rectifier upgrades are static sensitive and some measures have to be taken to prevent damage. My workshop is full of static and shocks are common place; a dry atmosphere together with a synthetic carpet is not a happy combination. An



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DJ8/ECC88 Tesla 1962. Unboxed, NFD	£1.75 each	£1.20 each	ECL86 - SEE PCL86 similar item - da	ila on request	
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SL7GT Russia, Unbranded	£1.60 each	£1.40 each	KT88 - SEE 6550B	LJ.40 cach	£4.80 each
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2AT7/12AT7WC Phillips	£1.65 each	£1.65 each	PCL86 Russia	£0.37 each	£0.37 each
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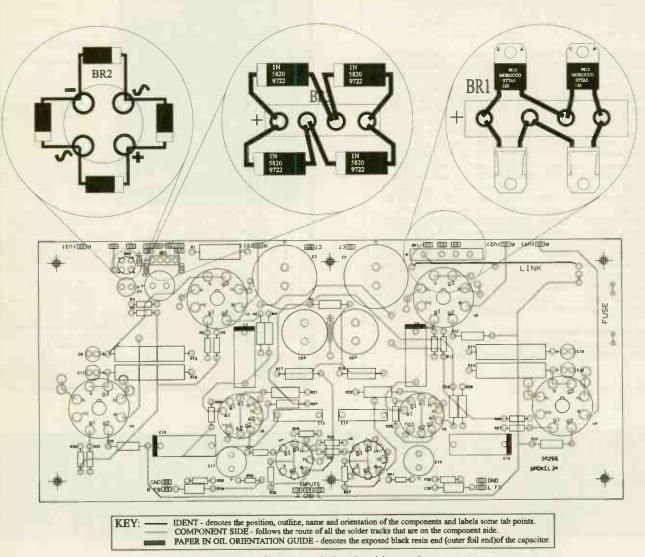
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This PCB diagram shows the position and orientation of the upgrade components.

anti-static wrist band with its lead attached to KEL34's chassis is a solution. Personally, I made sure I was static-free by discharging myself to the earthed metal case of a light switch. On top of this, I made sure all the equipment I needed was ready on my work bench so I didn't have to move around, creating static. To be extra sure I only touched the components with insulated pliers.

- 7) Fitting the diodes is a bit of a fiddle. I made life easier by using terminal pins as the leads of the diodes are thicker than the holes in the PCB. Pay careful attention to the diagram above as an incorrectly-oriented diode can cause a major mess.
- 8) Please note that available to those who purchased the original KEL34 is the option of obtaining a pair of new E/I output transformers for £80 including

VAT and postage. These will come with a template for fixing-hole location. The transformers will be of the upright, double-shrouded variety.

AND FINALLY...

Double-check your handiwork a couple of times just to be sure. Refit the PCB, reconnect any external connections and fire her up. You should notice an immediate change in the sound, but it does not stop there. Components need to be burned in to their new living quarters for at least 50hours, during which period the sound will keep getting better.

INTRODUCING THE PARTS

VR1 Panasonic Pot An encapsulated black and grey, alloybodied pot of exceptional quality and accuracy. Laser-trimmed conductive plastic/carbon track. Silver internal contacts. Gold-plated lead-outs. Channel accuracy <0.5dB guaranteed.

C7, 8, 15, 16 Paper-in-oil, 0.47uF 600V British-made by Ampohm. An aluminium-foil and impregnated paper audio capacitor of very high quality, ideal for valve audio.

BR1 STTA512D4
Turboswitch ultra-fast diodes (4)

BR2 MBR160RL4 Schottky diodes (4)

BR3 1N5820RL4
Schottky diodes (4)
All the diodes above have a very fast
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C9, 10, 11, 12 Elna Stargets 2 x 100uF paralleled with 2 x 22uF 35V

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1/5/2

JUNE 1999

C17, 18 Elna Stargets 2 x 2200uF 16V paralleled with 2 x 100uF 35V

Stargets are constructed using a 50µm cathode foil and a specially-formulated electrolyte that minimises internal defects which produce distortion. The leads are of Oxygen-Free Copper.

Fitting Parts	
PCB terminal pins, small	12
PCB terminal pins, large	12
Rubber sleeving	50cms
NI	

SOUND QUALITY

By far the easiest way to judge how well a set of upgrades is working is to take out the audiophile parts one by one after they've all had a good time to burn in (in this case, about three weeks). Before Nick began wielding the soldering iron, however, I put our standard KEL34 head-to-head with the turbo-charged version.

KEL34 with the full revamp proved to be much smoother, faster and more open than its non-tweaked cousin. The latter lacked definition in the bass which slowed rhythms down and sapped some of the enjoyment from music. The midrange was coarser too, brass and strings as well as vocals sounding harsh by comparison. Cymbals were also fizzier and less natural and following the separate instruments in a tune was tough.

The high-grade parts had a major impact on sound staging and imaging. With Classical, orchestras spread in a much wider arc between the loudspeakers, their individual sections better delineated spatially and tonally. The news for front-to-back perspectives was just as good, bands becoming fully fleshed-out in three dimensions rather than two.

Seeing as the specialist caps, resistors and diodes were obviously paying their way, it was time to find out exactly what each was doing. First to be replaced were the paralleled Starget feedback caps.

POSITIVE FEEDBACK

Into the boots of the Stargets came single Nover 4700uF electrolytics. Plying the KEL34 with a spot of Shostakovich and then some Brasilian Jazz, I discovered that the cap swap had taken the clarity and sparkle of the overall presentation down a notch or two, thickening the

vocals in the process. While music was still very enjoyable, it had lost some of its vivacity and drive, bass loosening up on drums and guitars.

More extended listening showed up a couple of other shortfalls. For example, tonal colour was more limited whether the music was Classical, Jazz or Blues, and there was a suspicion of dynamic compression. Together, these made orchestral sections more difficult to tell apart as the musical pace hotted up.

POST PAPER

Now it was time to revert to the 0.47uF polyester coupling capacitors after the paper-in-oils. It came as no surprise to hear that the sound shrank back towards the loudspeakers and became duller and less ebullient. Instead of the addictively foot-tapping rhythms in evidence before the parts removal commenced, tunes were beginning to plod along in a less involving fashion.

As above, imaging and sound staging both suffered from a veiling of detail which meant that singers as well as instruments were smaller between the 'speakers and more closely confined to their enclosures.

Previously, KEL34 had had an enviable tonal richness next to the thin, hard sound of a lot of solid-state gear. Now, however, piano sound slightly 'plinky, plonky' and strings had an artificial edge to them. Tweakers often encounter the same problem when stuffing an amp full of metal-film resistors in place of carbon films. The former might often be more detailed but they are usually brighter, harder and less natural as well.

TAKING THE BY-PASS

As more Stargets exited the amplifier (in this case those paralleled up as 220uF cathode by-pass caps), the sound stage dropped back into the loudspeakers' cabinets once more, orchestral music losing out in terms of scale, dynamics and weight. Imaging was now fairly twodimensional next to the life-like presentation of the full upgrade kit. Strings also picked up a metallic edge to their upper registers and lost some of their signature harmonics. As had been the case with the tweaks to our 300B power amplifier, tonal richness continued to suffer as the good (but not audiophile) parts were soldered back onto the PCB.

CALLING THE SCHOTTKIES

There's no doubting the superiority of Schottky and fast-recovery diodes over normal types - they seem to work their magic whatever the component they're fitted to. Removing them from KEL34 I found the result was an additional layer of muddiness to the bass and brittleness to the treble and midrange. The change wasn't night and day, but it did make for more tiring long-term listening as subtle detailing was obscured and the music sounded less natural.

PAN POT

The last part to come out was also the most expensive, Panasonic's For Audio potentiometer. We know from plenty of past experience how much better this is than the customary (and admittedly cheaper) Alps Blue and Black units. KEL34 sans Panasonic was a much less open, lively amplifier as cymbals tended to splash and pianos had a wooden coloration to them. Where KEL34 packed with top-notch parts had possessed a vibrant, convincingly musical and realistic way with recordings, the nonmod alternative sounded flat and processed by comparison. This isn't meant as condemnation of the base model, but it's surprising how much more can be squeezed out of favourite albums with money spent on the right parts in the right places. JM

The upgrade parts listed above are available as a kit from Hi-Fi World.

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CW470N	CAP PROPYL 470nF	£1 25
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CW1U0N	CAP PROPYL 1µF	£1 25
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CPP220P	CAP PROPY 220pF	250 V	€0 35
CPP330P	CAP PROPYL 330pF	250V	€0.35
CPP470P	CAP PROPYL 470pF	250V	£0 35

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CPP22N CPP47N		PROPYI PROPYI		63V 63V	£0 85

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22H63	LO Z HI TEMP 22µF	63V	€0 30
47H63	LO Z HI TEMP 47µF	63V	€0 35
100H63	LO Z HI TEMP 100µF	63V	£0 50
220H50	LO Z HI TEMP 220µF	50V	€0 75
470H63	LO Z HI TEMP 470µF	63V	£1 25
1000H35	LO Z HI TEMP 1000µF	35 V	£1 50
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P33	330µH 0 2Q 8x19mm	£3.00
P47	470μH 0 25Ω 50x19mm	€3.50
P68	680µH 0 35Q 59x19mm	£4.50
P100	1mH 0.4Ω 59x19mm	€5 50
P150	1.5mH 0 5Ω 70x30mm	€6 50
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F470	4 7mH 0 25Ω	140W	65x30mm	£11 00
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Very high quality satin grey metal with heavy goliplated connections. Top collet cable grip & PTFE insulators. Very low noise.

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Description	Pnce
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to 6mm CABLE	pair
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	Description GOLD PTFE PLUGS for up to 6mm CABLE GOLD PTFE PLUGS for up

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E/I, 'ERE WE GO!

Designer Gary Devon and World's Nick Lucas introduce the latest incarnation of our KEL34 valve integrated with E/I output transformers.

ollowing the success of our KEL34 integrated amplifier featured in the October and November '98 DIY Supplements, we decided it was time for a few improvements to the original. The result is KEL34 E/I.

The suffix denotes the major change to the amplifier, which is the replacement of the first-generation toroidal output transformers with more expensive E/l laminated, iron-core output versions. We enlisted the assistance of our boffin in the white coat, Gary Devon, to design these quality devices and explain the pros and cons of not just toroidals and E/Is but C-cores as well.

TRANSFORMER LORE

At one time there was only one type of transformer, the E/I, with the laminations which give it its name. Nowadays, audiofrequency transformers come in three main groups: E/I, C-core and toroidal. Each type has its advantages and weak points.

E/I and C-core transformers come in two varieties, "shell" and "core" winding, the two being topographical inverses of each other. Typical E/I transformers (shell types) have one bobbin with the laminations passing through and around it to form the magnetic circuit. With a core winding there's a pair of bobbins and one rectangular loop of magnetic material, one bobbin on each long side of the rectangle. The toroidal is an extension of this principle with a circular core and the winding around it.

The E/I is probably the most common output transformer mainly due to its cost effectiveness and because many of today's amps just rely on rehashes of old technology. The single bobbin used in the shell construction means that excellent layering and interleaving of the E/I sections can be used to obtain a good high-frequency response, but there are some problems.

The best steels are grain-orientated, which means that sub-optimal performance results from a magnetic flux which travels across the grain; this happens in the central 'bar' of the 'E' in



The new KEL34 proudly displaying its E/I transformers.

the E/I laminations. Also, the bobbin is generally quite squat to achieve good electrical efficiency, but this aspect ratio is not ideal from the point of view of leakage inductance.

Since laminations are relatively inexpensive and readily available it is possible to spend a little more on them and make a larger transformer, thereby improving performance without equalling the extreme price of a C-core. However, no matter how well you put the laminations together, a small air gap remains where they butt up. In an output transformer this is no problem because, although it lowers the effective permeability of the core, it reduces the effect of imbalanced valve currents as well.

The almighty C-core is a thin metal tape wound into a rectangular loop. The core is then bonded and cut before the cut faces are ground to a high tolerance and mated so there is virtually no gap.

And as the core is wound from a tape, the grain always points in the preferred direction, optimising the material's characteristics.

C-cores can be made from much higher grade material than E/Is where the better material would be wasted. C-cores are often seen with the 'core' type of construction too, which can improve performance as well as reducing the amount of expensive core needed.

To eliminate the air gap completely a continuous loop is used in the toroidal. As with the C-core, the grain of the metal is correctly aligned for good magnetic performance. Extremely compact and efficient mains transformers can be made with toroidal cores. Another plus is that since the two ends of the winding which appear in the bobbin are joined together, leakage inductance should be low. There are drawbacks, however.

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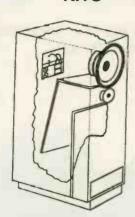
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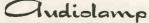
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enclosed within a cube, so a toroidal shape is not the most space efficient. With a reasonable-sized core, the inside diameter is substantially less than the outside, which leaves the windings in a bit of a mess.

Their totally-closed magnetic circuit means that toroids have very good theoretical bass performance.
Unfortunately, when presented with a super-imposed DC current, that performance rapidly drops away.
Theoretically, the toroid is the ideal shape; in practice it doesn't deliver. The C-core comes out as the best but is very expensive. The good, old E/I still holds its own as an affordable, down-to-earth design. GD

RINGING THE CHANGES

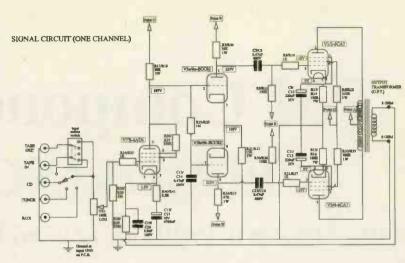
The overall KEL34 circuit hasn't altered, nor have the chassis' dimensions. What have changed are the following:

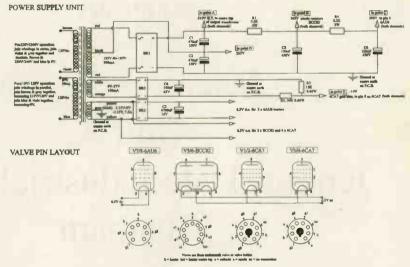
- 1) The PCB has been altered to incorporate terminal pins so that the populated board can be fixed into position and from there the PCB-to-external connections made. This makes the amplifier less fiddly to build.
- 2) The mains transformer has been relocated to the centre of the rear of the chassis.
- 3) More ventilation slats have been added to the top of the chassis to improve heat dissipation.
- 4) The tape/source switch has been moved to the front panel for easier access.
- 5) Due to the current unrest in Yugoslavia, where the Ei 6CA7 valves are manufactured, there is a supply problem into the UK. Hopefully this will only be short-term. However, as a result the KEL34 E/I version will feature Tesla's JJ-branded EL34s, valves that Gary Devon recommended first time round.

This is a very popular EL34 in the valve industry, as it's very rugged, looks good and has a pure sound. These valves are made in the Slovak republic.

6) The price. Owing to the added expense of the E/I output transformers there has been a slight price increase of £20 for EEC member countries.

To those who purchased the original KEL34 we are offering the option of obtaining a pair of new E/I output transformers for £80 including VAT and postage. These will be supplied with a template for fixing-hole location. The new transformers will be of the upright, double-shrouded variety.





KEL 34 E/I circuit diagram.

SOUND QUALITY

Just as caps, resistors and diodes can radically alter the sound of a piece of equipment, so it is with transformers too. Replacing the standard toroids with our new E/Is turned out to be a major upgrade in every area of performance. The biggest bonus was in imaging and sound staging, both of which were far clearer and more spacious than before - voices and instruments really jumped out of the loudspeaker boxes.

Tonally, KEL34 E/I was a bit of a smoothie compared with the toroidal version, as lower levels of grain and 'hash' all the way from lower bass to upper treble proved. It was faster dynamically as well, plucked guitar strings and bass drum having crisper leading edges and more impact

Measured Performance see p127

KEL34 E/I is available as a kit fron) HFW
KEL34 E/I PCB	
UK (inc VAT and P+P)	£65
Overseas (exc VAT and P+P)	£57
KEL34 E/I transformer set	
UK (inc VAT and P+P)	£130
Overseas (exc VAT and P+P)	£110
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VEL 24 E/L V240/120 (no subset)	
KEL34 E/I K240/120 (no valves)	
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KEL34 output transformer, pair	
UK (inc VAT and P+P)	£80
Overseas (exc VAT and P+P)	£68
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(with valves)	
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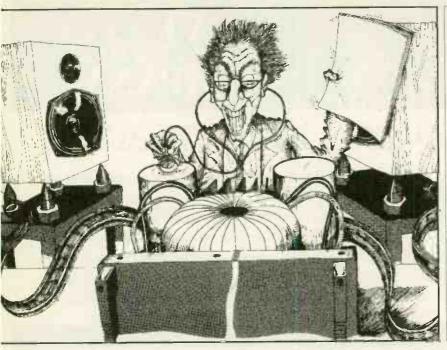
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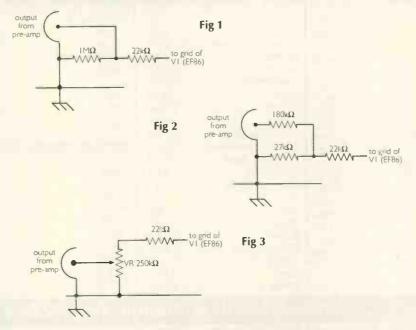
THE SENSITIVE SORT

should like to upgrade my Leak itereo 20 and decrease the input ensitivity. Have you any suggestions for both these queries? Your help would be very much appreciated.

Chris Gould CGould2640@aol.com

To begin with, all the upgrades in the vorld will still leave you with a Stereo 20 when all's said and done; hat is, it will be an elderly, lownower amp. You can certainly improve on things like the decoupling capacitors, assuming they have already been replaced with cheap polypropylene types. Several firms are offering paper-and-foil types which are better than the original metallized paper ones and much less harsh than metallized plastic. Money spent here is arguably the most cost-effective upgrade, so long as you keep the values no more than, say, 25% over the original. It can be a mistake to put grossly over-value capacitors in the signal path: old circuits used coupling caps for more than just DC blocking they also prevent low-frequency signals from setting off 'motorboating' oscillations, so keep by and large to the specified values.

The sonic benefits of this or that type of resistor are endlessly chewed over in certain circles. Acquaintances of many seem to be fairly unanimous in condemning the 1% metal film



types which are the mainstay of most retail outlets. My own experience is that they are certainly bright sounding and if you can find carbon types these give a 'kinder' sound. Holco 1watt non-inductive resistors can sound good in vintage gear. Which you decide on obviously depends largely on your taste and the depth of your pockets.

It is not desperately difficult to convert the heater circuit to DC although poor component placement can nullify the benefits of this by increasing hum pick-up from the mains transformer. Morgan Jones' book 'Valve Amplifiers' (World Library) is very hot on DC heater

supply and HT smoothing, giving a lot of tips and worked examples on both subjects. Do bear in mind that DC heaters mean shorter valve life.

For trimming the input sensitivity Leak used to employ the network shown in fig 2 (one channel only shown). Fig 1 is the standard set-up for comparison. The fig 2 arrangement reduces the input sensitivity to about 1 volt with $200k\Omega$ impedance. A cruder method is shown in fig 3, where a $250k\Omega$ pot replaces the individual resistors. Leak used this in their TL50 monobloc; it has the advantage of variable control but the input is never the ideal place for a pot! RMW



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HEADING FOR SUPERIOR SOUND

I promised a letter on my upgrading results when I bought the HD83kit, so here it is.

Firstly, note that the components supplied with HD83 have an excellent price/performance ratio, so it takes more than a few quid to obtain significant improvements. Secondly, all trials have been with Sennheiser HD580 'phones, so my observations are based on these. This is a good quality headphone, though, and I suspect that after the upgrades listed below, I'll have to go electrostatic for the next upgrade.

UPGRADE PARTS

Upgrades in order of maximum cost-effective improvement:

- 1) Replace C4, C7, C5 and C8 with Black Gates. If you do nothing else, this is the upgrade to go for. I tried Elna Cerafines in the C5/C8 position and, although worthwhile, it's definitely worth the extra for the BGs.
- 2) Replace R9/R16 with Vishay VSRJs. This is purely a rule of thumb from experiments with transistor gear but it seems to work here, too. Always put the very best components in the negative feedback loop. If on a budget, I would use Audio Note 0.5watt tantalum-film resistors here.
- 3) Replace R5-R12 with Audio Note tantalum-film resistors starting at the input stages and working backwards. Do the cathode circuits first and use lownoise resistors (carbon films can hiss here). The anode circuits are next.
- 4) C6/C9 is a fine-tuning element for the deep of pocket. The supplied polyester cap is the carbon resistor of the coupling-cap world the sonic performance for the money is unbeatable. Like carbon films, though, this is not because of super performance or resolution but because the distortion it adds is sonically benign.

I have listened extensively to two upgrades here. Infinicap Setis give superb resolution and detail freaks will love them. Personally, I find the bright, lively nature of the '580s is a poor match for the bright, lively nature of the Infinicaps. Although the presentation is sweet and clean, I find it tiring after an hour or so and couldn't stand a whole evening of it.

Audio Note paper-in-oils are my favourites. I can listen to these all night

SIGNAL CIRCUIT (ONE CHANNEL) **HD83** Headphone amplifier test pt e V1/2 ECL83 Oround at earth place on P.C.B. POWER SUPPLY UNIT VALVE PIN LAYOUT V1/2 ECL83

and still not want to switch off and go to bed. I can only fit the 400V aluminium foils in the HD83 case, however. The copper foils only come in 630V and won't fit on the board. I intend to try some off-board.

I'm sure that anyone who tries these upgrades will be as bowled over by the improvements as I was. This will give you an amp/transducer combination better than most and bettered by few (and definitely not at the price!)

ASSEMBLY TIPS

1) It's worthwhile using extra terminal pins in the positions of all the components listed above and soldering the stock components to them. Then, if upgraditis strikes, components can be

changed from above without having to remove the PCB and all its many peripheral wires.

2) Unless you live alone, solder dummy-load resistors across the output socket which 'switch in' when the phones are removed. This keeps the outputs loaded when the phones are un-plugged. My spouse hit the wrong button on the remote one evening while I was out and started the CD player. Irritated by the cans playing flat out, they were unplugged for the best part of a whole Rock CD. The output trannies seem OK but the valves have gone unusably noisy (what a waste!) Be warned.

John Spriggs john.spriggs@wollaton25.swinternet.co.uk

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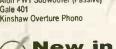
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TESTING, TESTING

Simon Pope and Richard White reveal two more of their favourite recordings for grilling hi-fi components.



THE TEMPERANCE **SEVEN 1961**

PARLOPHONE

There are many reasons why this record, for all its advancing years, remains a firm favourite of mine. For a start, the music is good. The Temperance Seven shot to fame on a novelty ticket but, as this album demonstrates, there is real musicianship here, with a deep understanding of vintage Jazz which puts most of the offerings of the present Trad Boom to shame.

Aside from the excellence of the front-line men, the rhythm section sousaphone, piano, banjo and (mostly) washboard - is fit to take its place with the all-time greats. If you think the combination ought to sound corny, listen to the band. If you still think it sounds corny, perhaps 'real' vintage Jazz is not for you!

If, as the sleeve note claims, the recording was achieved with 'single' mike techniques, there are lessons here for any would-be recordist wanting a natural sound: The Temperance Seven 1961 has some beautifully subtle stereo with seamlessly-integrated ensemble work. On an historical note, Parlophone's hard-pressed staff producer was soon to garner a hit or two with a rather different band and was, I believe, only too pleased to be shot of the 'novelty' market. A pity really - I mean, who on earth remembers The Beatles?! RMW



MOVEMENT (1981) FACTORY RECORDS

Along with, perhaps, the ex-Stockhausen students Kraftwerk, it's probably safe to say that no one has influenced Dance/Rock hybrid music quite like New Order. Movement was their first album released just after the demise of Joy Division (their previous incarnation), so laugh-a-minute it ain't. They took the down-beat cosmos of Joy Division, added slightly to the synthesizers and drum machines they had previously dabbled with and decided the guitarist, Bernard Sumner, could sing marginally more in tune than the late lan Curtis. They also managed to get shot of that slightly tiresome "I'm really depressed - honestly" aspect to the music. The result was this barren and emotionless masterpiece of a record.

Martin Hannet's claustrophobic production separates each and every component of the music and mixes it together with superbly clinical results that seem to match the detached feel of the songs and, indeed, the record cover.

The first track, 'Dreams Never End'. tries so hard to sound slightly happy but, fortunately, fails. From here it's onwards through seven more songs - all as good as each other - that appear to have no structure (and you never remember their titles) but are curiously addictive. Best kept for an overcast Sunday afternoon and taken with a neutral, clean-sounding system. SP

Mission Argonauts

Gale 301

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ACURUS DIA 100 Integrated Amphifier	Mint Lx. Demo	£1100 £	699
	Mint Ex. Demo	£650 £	425
CLASSÉ CP 50 including Phono. Fully Balanced Remote			
Preamplifier (Black)	Mint Iv.Demo	£3190 £19	995
CLASSÉ CA-100 100w/350w Balanced Stereo/Mono Switchable	:		
Power Amplifier (Black)	Mint Ex.Demo	£2000 £1	195
CLASSÉ CA 200 200w/500w Balanced Stereo/Mono Switchable	:		
Power Amplifier (Black)	Mint Ex. Demo	£3(%K) £2	195
CLASSÉ CA-300 300w/1100w Balanced Stereo/Mono Switchab	le		
Power Amplifier (Silver)	Mint I v.Demo	£4250 £2	995
COUNTERPOINT SA 20 220w Valve Hybrid Power Amplifier	Mint. Schland	£3000+ £	995
EAD CD 1000 20 Bit HDCD CD Player	Mint S/Hand	£2008) £1	
KORA D30 30w Pure Class A Integrated Line Tube Amplifier	Mint Ex. Demo	£1850 £1	
KORA D50 50w Pure Class A Integrated Line Tube Amplifier	Mint Lx. Demo	£27(%) £1	95()
KORA 100SB Pure Triode Monoblocks + Bal & S/E Inputs			
& Resonance Tuned Chassis	Min Hx. Demo	£5350 £3	950
LINN INTEK Integrated Amplifier	VGC S/Hand	£	195
MARK LEVINSON no. 27.5 Power Amplifier -			
Still under warranty - As new -	Mint S/Hand	£54(R) £2	(650)
MIRAGE:			
M-290 2 Way Audiophile Compact Monitors	Mint Lv. Demo		1235
M-390is 2-Way Tuned Vent Floorstander (Black Ash)	Mint Ex. Demo	£550 £	2295
M-490is 2-Way Tuned Vent Magnetically Shielded			
Hoorstander (Piano Black)	Mint I. Demo		1395
BPS-100 Active 100w Subwooter (Black Ash)	Mint Shand	£600 i	£375
REGA Planet CD Player with Remote Control	Unused		£399
TEAC VRDS 10 CD Player	Mint S/Hand	£770	£425
HOME CINEMA			
CLASSE CAV-150 Multi Channel Switchable Power Amplifier,			
3,4,5 or 6 Channells (6x150w - 3x300w) Balanced	Mint Ex. Demo	C26/00 C	2105
and S/E Inputs (Silver)	Mint Ex. Demo	LYDIAL	2443
EAD Theater Master I neore AC 3 & DTS Processor/	Mint I-N. Demo	C2000 F	225()
Preamplifier (Silver)	MINUEN. Demo	L.MARI L	22,10
FAD Theater Vision Ultimate NTSC Laserdisc Player, AC-3			
Output Finished in 2crt Gold. *No 1 of only 5 ever	Mint Fx. Demo	66100 F	78(%)
made in Gold - Unique	Mint Ex. Demo		
RCF 3001 CRT Projector	Mostly new sea		-02.07
LASERDISCS Various available - call for titles and prices	worthy new sea		

Information available on the following:-

acurus: AERIAL ACOUSTICS

Barclay: Cairn: Classé Audio

EUPHONIA ISOLATION DEVICES

RENAISSANCE AUDIO KORA MIRAGE

For your nearest stockist contact AUDIO ILLUSION

LAT INTERNATIONAL

World Class Cables Made in U.S.A.

AC-2 Power cable - Silver clad, Teflon insulated at 10awg; this is the largest gauge of power cord we know of. The design of our shielding system effectively eliminates interferences from RF and EMI sources. 2ft £49, 3ft £59, 4ft £69, 6ft £89. 4, 6 and 8 way all steel distribution boxes also available. Analogue Interconnects, IC-50, IC-80, IC 100, IC, 200. Speaker cables - \$\$800, BIWIRE, \$\$1000





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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TUBE PRE AMP, POWER AMPS 300 & 600 wpc, FIVE CHANNEL AMP 200 wpc, TRUE SUB-WOOFER 11 INCH CUBE 18 HZ

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NEW EX-DEM & PART EXCHANGE **EQUIPMENT FOR SALE** 0181 225 0572/0973 436135

	LIST	SALE
Alchemist Forsetti pre + power	£2398	£POA
Alchemist Kraken Anniversary MkII	£579	£POA
Anthem CD player (5 star What Hi-Fi)(ex/d)	£1699	£1250
Apogees r bbon monitors (new & ex/d)	£999	£699
Audiomeca Mephisto CD transport	£ 2400	£1250
Audio Research SP14 pre (boxed)	£3300	£1095
Audion Black Shadows 845 valve monoblocks	£4000	£POA
Audion Si vernight 300B monoblocks	£2250	£POA
Chario Academy 1 solid walnut (ex/d)	£1299	£800
Chario Academy 2 solid walnut (ex/d)	£1649	£1100
Chario Academy 3J (ex/d) floor standing solid		
walnut speakers	£5999	£2699
Conrad Johnson MV55 valve amp	£1995	£1195
Ear 859 pwr	£1700	£750
Ear 834L pre	£449	£235
Genesis Gen 500 spks in built active bass (ex/d) SUPERB	£11000	£6499
Genesis Ampl spk (ex/d)	£9000	£3999
Krell Kay 3001	£2495	£POA
Krell Kav 250A	£3149	£2149
Macintosh C26 pre		£395
Macintosh 2100 (looks like 275)	-	£450
Micromega T drive & T DAC & XLO cable	£2150	£999
Nakamich 1.5 cassette	-	£200
Nakamich LX5 cassette	-	£350
Quad 77 Int. Carbon	£700	£450
Restek 6ch pwr amp	£900	£595
Revoc H1 cassette	£1150	£650

Wazoo integrated amp from Bow Technologies now on Dem

A NEW RANGE OF AUDION AMPS ON DEM - THE BLACK SHADOWS 845 TO THE GOLDEN DREAMS - WITH CADENCE ES MK II'S -

LISTEN & BE PERSUADED

ON DEM - Alchemist, Anthem, Audiomeca, Audion Valve Amps, Cadence Spks., Charie, D.P.A., Monarchy, Ortofon, Pink Triangle, Project T-T, Sonic Frontiers, Triangle Spks., Trilogy Valve Amps, Vand den Hul.

VISA/MASTERCARD ACCEPTED

Audio Note Kit Amplifiers

Power-Amp Kit

The Audio Note Kit One (Illustrated)

Based around the justly famous 300B directly heated triode, we see this kit as the introduction to real Audlo Amplification, as it covers all the important aspects of design necessary, Single Ended, No-Feedback, Class A, Directly Heated Triode, to become a member of this exclusive club of amplifiers.

Kit One has one 300B per channel running at 420 volts with 75mA current giving 8-9 watts of the cleanest power you will ever hear, the input stage consists of a 6SN7GT with a 5687 double triode driver stage running in SRPP. The power supply is capocitor-choke-capacitor configuration with a 5U4G HT rectifier, the 300B's have a DC filament supply for hum-free operation whilst the other valves are AC heated. Component quality is similar to our Level 2 finished products, Aud o Pote paper in oil signal capacitors, Beyschlag 1 watt 1% metal film resistors, good quality electrolytics



Audio Note is happy to provide a wide range of complete kits, output and mains transformers, chokes, paper in oil, aluminium, tin, copper or silver foil signal capacitors, Black Gate, Cerafine or standard electrolytic capacitors, tantalum, carbon and metal film resistors, silver wires, interstage and driver transformers, switches, balance controls, potentiometers, attenuators, chassis's and fittings for the quality oriented DIY'er, whether you are a beginner or hardened experimenter, male or female, we have the best (and not always most expensive) parts for most projects.

Audio Note Loudspeaker Drivers & Kits

We shall be offering the speaker drivers that we use in our own loudspeakers for general sale from now on. You can by the drivers individually or together with matched and tested cross-overs, cabinet drawings and reflex ports.

Audio Note Circuits, Valvedata & Basic Technical Information

If you would like some suggestions which to base a future project around, then we shall be happy to provide you with a circuit pack containing good circuits like ONGAKU, KEGON/KASSAI, NEIRO, GAKU-ON plus several other power amplifier circuits and the M7Tube & M10 pre-amplifiers, which are the best sounding pre-amplifier circuits we have come across.

Audio Note Quality Output Transformers

We are in the process of building up four separate ranges of Aud o Note output transformers, in order to offer the best possible outputs at different pribepoints, they will fall into four categories,

Economy range Selected to ensure quality audio in a price efficient package.

Mid-price range Top quality with specially selected components.

High Quality range Double C-core outputs for single-ended circuits exclusively.

Super High Quality range All-silver wired outputs of the best possible quality.

Audio Note offer a design, prototyping and production service, where we can supply for almost any requirement. Please telephone for details.

Audio Note Mains Transformers

Available for most popular designs. We shall continue to expand the range as opportunities become available.

The Audio Note Kit Two

Kit Two features a single 6550 tetrode running in Single-Ended mode, yielding some 12 watts of pure Class A. With a valve rectified HT for the output stage, stereo chassis, and 6SN7GT input and 12AX7/ECC83 SRPP driver stage, componentry and chassis

Kit Two costs £599 incl. VAT, includes valves, but not postage/packing.

KIT TWO ORDER CODE: AN-KIT-002

The Audio Note Kit Three

Klt Three features 2 x 300B's per channel running in single-ended parallel yielding 16/17 watts in pure Class A. This kit is on two mono chassis with valve rectified HT supplies, no signal feedbock, It uses a 6SN7GT double triode as input valve and a pair of 5687 double triodes running in SRPP as drivers. The Kit Three is essentially a mono version of the Kit One with double the power, the same component choices and on two chassis' instead of one.

The Kit Three costs £1,550 Incl. VAT but excluding delivery.

KIT THREE ORDER CODE: AN-KIT-003

The Audio Note Kit Four

The KIt Four is really our introduction to valve amplifier kit building, the circuit and power supply being mounted on a single printed circuit board. The high-quality pushpull output and mains transformers are all mounted in a small aluminium chassis covering everything so nobody will be able to see that you have succumb to the lure of the valve amplifler which is sweeping the world. The circuit consists of two 6V6GT tetrodes running in Push-Pull class A, yielding about 10 watts, driven by a 6SN7GT and a 12AX7/ECC83 Input stage. Easy to build, even for the beginner. Visually Kit Four matches the Audio Note Pre-amplifier shown here but with a single chrome-plated volume control. As with all Audio Note kits everything (except solder) is included. The Kit Four costs: \$279 Incl. VAT but not delivery.

KIT FOUR ORDER CODE: AN-KIT-004

Audio Note Driver, Interstage & Pre-Amplifier Output Transformers

Here is a product group that you do not see advertised every day! As usual we start small with the intention to grow quickly.

Audio Note Paper In Oil Signal Capacitors

These handmade signal capacitors are sonically superior to any of the plastic or other paper types we have come across. If you have never experienced the difference that a really good paper / oil capacitor can make in a valve amplifier, then you really

Audio Note Paper In Oil Tin Foil Signal Capacitors

The fin foll is better than alu-foil for most applications, we recommend you try them.

Audio Note Paper In Oil Copper & Silver Foil Signal Capacitors

These copperfoil paper signal capacitors are considerably better than both the standard offerings and the fin foils. To start with there will be a few values / voltages of each available and we shall expend as fast as we can to cover all the popular values.

Audio Note Acid & Chloride Free Silver Solder

The best solder available, used in all our ampliflers from OTO to the mighty GAKU-ON.

Audio Note Cables & Wires

Audio Note manufacture a range of high quality copper and silver coax, speaker and wiring cables, which, depending on the overall price of the project, will do justice to any hifi system, regardless of price. Please call for prices and details.

Audio Note High Quality Stepped Attenuators & Switches

These handmade attenuators and switches are manufactured by a friend of Mr Kondo of Audio Note. They are the best you can buy.

Audio Note High Quality Valve Bases

All of our valve bases are of the highest possible quality materials. Ceramic, Tetlon and gold and silver plated. If you want the best look no further - they are the ultimate!

Audio Note Resistors

Audio Note endeavour to stock the entire E12 range of all the different makes of resistor, since most are used in our products stock is generally available within four weeks.

BEYSCHLAG - HOLCO - SHINKOH Tantalum Film Resistors

AUDIO NOTE 1/2 Watt Tantalum Resistors

AUDIO NOTE 1 Watt Tantalum Resistors

AUDIO NOTE 2 Watt 1% Tantalum Resistors AUDIO NOTE Precision Carbon Film Resistors

ALLEN BRADLEY 1 Watt 5% Carbon Film Resistors

Components & Valves

Pre-Amp Kit

The Audio Note Pre-Amplifier Kit (Illustrated)

style potentiometers and all pcbs, valves,

wire etc. Various component upgrades

are available, details upon request.

incl. VAT but not delivery

Cost of The Pre-Amplifier Kit is: £299

A complete kit loosely based on the Audio Note M7Tube pre-amplifler circuit is now available. The moving-magnet compatible phono stage consists of a cascode input, with passive RIAA equalisation and anodefollower output using the 12AX7/ECC83. Line buffer/ amplification for the four line inputs consists of an ECC82 configured in parallel anodefollower mode. For the power supply a valve rectifier and choke-input filtering are employed. All circuitry is housed in a non-magnetic aluminium chassis giving the very best sound quality. Both phono and line stages are built on 'track-less' pcbs allowing easy construction but with the sonic benefits of hard-wiring. The standard-quality version of the preamp kit includes Roederstein polyester film capacitors, Beyschlag 1 watt 1% metal film resistors. Noble open-frame

Audio Note Black Gate Electron Transfer, High Performance, Graphite Foil Capacitors

Audio Note is currently the sole scurce in Europe that holds any significant range of values in stock, we use literally 1000's in production, as we were the first company to realise the tremendous benefits that Black Gate capacitors offer, and we are to date the only high-end audio company in the world to incorporate Black Gate capacitors consistently in our finished products.

There are very few audio parts that promise a guaranteed improvement when replacing practically any other part, but this is what the BLACK GATE capacitors actually do. Exchanging any electrolytic capacitor anywhere in the circuit of an amplifier or in the crossover of a speaker will greatly improve sound quality. We are working on some guidelines as to where, how and which types of Black Gates to use in different circuits, the first such technical guideline is available now and is called "Improving your CD-Player" and can be obtained by sending a stamped addressed envelope to us requesting this leaflet. All AUDIO NOTE Level 2 Signature products use Black Gate Electron Transfer in critical signal / power supply junctions.

Audio Note Cerafine Powdered Ceramic Electrolytic Capacitors

We have at long last secured a reliable source for these fine power supply filter capacitors, a must in any single-ended project. The Cerafines really cover many of the Black Gates values and where the prices for the BG's are prohibitive the Cerafine is a fine sounding alternative. We have increased the range of Cerafines we stock quite recently, and strongly recommend all the Cerafines as a far superior replacement or substitute for ordinary electrolytics, and at the prices offered that should be within most budgets. All power supply Cerafines are supplied with a capacitor clamp and are upright mounting.

Audio Note Potentiometers

The best available from a sound quality / price viewpoint, made by Noble in Japan, utilising high quality conductive plastic film. However a better atternative is the KO-ON volume controls which are used in pre-amplifiers like the M7 Tube. M7Line, and in a mono version on the input in the NEIRO, KASSAI, KEGON and GAKU-ON, these are very good sounding pots by any standard.

Audio Note also carry large quantities of STANDARD TYPE SWITCHES, STANDARD ELECTROLYTIC CAPACITORS (good quality industrial types), RCA, BNC, BANANA, PLUGS, RCA SOCKETS, SPEAKER & GROUND TERMINALS & ..OUDSPEAKER SPADES.

Audio Note Moving Coll, CD Line & Input Matching Transformers

Audio Note now offer moving coil, CD and Input matching transformers for general sale. Common to all of these small signal transformers is that they come in a mumetal screening can with a threaded spindle with a nut for mounting.

Stock Clearance

In anticipation of the arrival of the new in-house made Audio Note copper foil paper in oil signal capacitors, we are pleased to offer a

60% discount on current list price

on all Tobias Jensen made paper in oil aluminium, tin and copper foil signal capacitors.

Offer strictly limited to availability, while stocks last.

Minimum Order 4 pcs single or mixed values or £20.00.

Audio Note Selected Audio Valves

Our valves are selected from the best available sources and are tested to the same stringent standards that we apply in the production of our own amplifiers. They fall into two categories, standard production items and rare, mostly NOS (New Old Stock) valves which are no longer in production. We have compiled a special list of the NOS items, which is available against a stamped self addressed envelope, it you live outside the UK, send US \$2. You should be aware that the valves an this list are NOT cheap, but we have stock of original GE, RCA and United Electronics 211, both standard versions and reinforced anode type for the US airforce, 845 Westinghouse, VT25/10/10/, VT62/801A, WE300B, STC4300A, Mullard GZ34/CV1377, Tungsol 5U4G (best sounding 5U4G we have ever heard!), Chatham 5R4WGY and many others.

Audio Note Recommended Magazines

Listene

Review based music & hi-fi magazine that contains some of the best considered & well written articles in ptint. A very good read \$4 per copy.

The Audio Adventure

Glossy, well produced publication that provides a good alternative to the established magazines. Not afraid to be controversial. £4 per copy.

A full list of available issues on request.



Call us today for more information.

Ask for a full components catalogue or see our web page.

Audio Note now has a dedicated division to keep pace with the growing demand for amplifier kits and specialist components.

Music's Finest Conductor Limited will now be able to provide a specialist service to DIY enthusiasts and record collectors.

Please direct all enquiries to the contact numbers below:



Music's Finest Conductor

Music's Finest Conductor Limited
25 Montefiore Road, Hove, East Sussex BN3 1RD

Tel: +44 (0)1273 770778

Web: www.audionote.co.uk



Affordable Audio - (Northampton) Pre-Owned Hi-Fi Specialists

168 Wellingborough Road Northampton NNI 4DU

Tel / Fax: (01604) 231261 or 845138 Mobile (0370) 877893

A selection of our ever changing offers for sale (all fully guaranteed)	Equivalent New Price	Sale Price
AMPLIFIERS		
Arcam Deta 60 nr. (gc,) s/h Chameleon Ruly, power sum Exposure N vin c/m WCMH Leak Stereo 10 nr. (vgc) s/h Lamley VIP 1000 value ine pre-amp (vgc) s/h Hission Cyrus One (late black version) (g.c.) s/h Hission Depression of the late black version) Nam Mat 3 nr. (mmr) s/h Gel CloUP/200 pre/power amps (fc.) s/h Rotel RB 9908K [Jac6bvarts) power-amp (vgc) s/h Rotel RB 9908K [Jac6bvarts) power-amp (vgc) s/h Rotel RB 9708K [Jac6bvarts) power-amp (vgc) s/h Rotel RB 9708K pre-amp (vgc) s/h Retark N Of 13/108burs knewson nower amp (sr.) s/h Retark N Of 13/108burs knewson nower amp (sr.) s/h	300.00 1200.00 750.00 1000.00 300.00 575.00 700.00 	45.00 399.95 199.95 129.00 200.00 400.00 299.95 149.95 149.95 89.95 169.95
Supplen CST pre-amo (vegt s/h iecruics 31,0400 Mil. 12 x 70 Wass megrated (vegt s/h historin Research Strongly fivo Table thegrated (first) s/h Harantz PH SSSW 2655 Wasseful Remore Int, (first) s/h Harantz PH SSSW 2655 Wasseful Remore Int, (first) s/h Harantz PSSW 2655 Wasseful Remore Int, (first) s/h PM Components MP LLS Mil. II Whe He-amp (MCQ s/h Teomics SU 1900 2e25 Wasse Int (Mint/as new) s/h	450.00 1150.00 200.00 200.00 650.00 150.00	89,95 249,95 795,00 169,95 £90,00 299,95 99,95

THENTARIES/ARMS/CARTRINGES PHONO STACE ETC

TURNIABLES/ARMS/CARTRIDGES PHUNU-S	IAGE EIL	
Audio Technica AJ630 step-up transformer (vgc) s/h		30.0
Audio Technica AT FS/OCC moving coil (vgc) s/h	100.00	50.00
Heybrook TT 2 / Formula Four 7 Grado HC + (vgc) s/h	500.00	249.0
Heybrook TT-2/Mission TT4/Grado T.G (walnut) (vec) s/h	500.00	249.99
Linn IcS carondge (vgd) s/h	70.00	30.00
Linn LP12 (walnut) /Basik arm) k.9 (vgc) s/h	1500.00	445.00
Linn LP12 /Basik Plus / Track M.C. (vgc) s/h	2000.00	549.99
Mission 775 SM/774 arm/VMS 20E (vgc) s/h	loads	399.99
Monacor SPR.6 MM Phono Stage/PSU (Brilliant Value) New	(26.95	377.7.
Musical Fidelity X LP (The One At This Price) MPVMC NEW	220.73	130.00
QED. R232 /arm/RATA RP.20 (gd)	200.00+	109.95
QED. Disc Saver Phono Stage MML (vgc) s/h	35.00	20.00
Revolver Rebel/ c/w arm/AT, cart (mint) s/h	33.00	149.99
STD 305M c/w Mayware Uniprvot/Goldring Elan cart (vgc) s/h	loads	199.99
Sumiko Blue Point High Output MC Cartholee (Mint Royer) 30 hours) s/h	120.00	80.00
Sumiko Blue Point High Output MC Carondge (Mint Boxed 30 hours) s/h Thorens T.D.280 N / A.T. cart (mind) s/h	200.00	129.99
Linn Axis/Basik Plus/IL9 (mint/as new) s/h	500.00	299.99
The rest of the first of the fi	300.00	277.72
LOUDSPEAKERS		
Acoustic Energy AEI/dedicated stands (vgc) s.h Apogee Caliper (piano black) with bases	1250.00	\$95.0
(Restoration project/need finishing) (g.c) s/h	3500.00	\$00.0
Canon 5.35 inc, stands (vgc) s/h	300.00	169.9
Canon SU.15 mini monitors (mint) s/h	110.00	74.9
Castle Durham Bi-wire (black) (vgc) s/h	200.00	119.9
Celestion SL-600 (Bi-wire Conversion) (vgc) s/h	800.00	349.9
Celestion SL 65 (black) (f.c.) s/h	400.00	169.9
Dali SOS floorstanders (mint) s/h	300.00	199.9
	200.00	

A selection of our ever changing offers for sale (all fully guaranteed)	Equivalent New Price	Sale Price
Epos ES12 (Light Ash) (Mint) s/h Epos ES12 (Light Ash) (Mint) s/h Epos ES1411 Br-wire (Black) inc. stands (Mint) s/h Gale 301 (black) (egc) s/h Gale 301 (black) (egc) s/h PW Monitors u/w stands (black) (egc) s/h PW Monitors u/w stands (black) (egc) s/h kel 103/4 Unio-Phoristanders (Black) (egc) s/h Linn Helix LS 150 (egc) inc. stands (black) s/h Monitor Audio R300 MD (black) (egc) s/h Honitor Audio R300 MD (black) (egc) s/h Monitor Audio R300 MD (black) (egc) s/h Monitor Audio R300 MD (black) (egc) s/h Linn Helix LS 150 (egc) inc. stands (black) s/h Honitor Audio R300 MD (black) (egc) s/h Honitor Audio R300 MD (black) (egc) s/h Linn y R300 MD (black) (\$50.00 675.00 80.00 300.00 179.00 250.00 1300.00 450.00 450.00 loads \$00.00	375.00 429.95 59.95 169.95 89.95 139.95 179.95 179.95 189.95 189.95 229.95 249.95 299.95
Cefestion 7 II (black) (mint) s/h Rogers L.S. SS Floorstanders (rosewood) (mint) s/h Lots of L.S. stands in stock including Target/Alphason etc:	250.00 600.00	149.95 269.95

PRODUCT OF THE MONTH

ARCAM DELTA 100 CASSETTE DECK VERY RARE BRITISH TAPE DECK WITH DOLBY S IN VERY GOOD CONDITION UK NAKAMICH!? NORMALLY 900.00 AA PRICE 499.95

TAPE DECKS/TUNERS ETC

Arcam Delta: 00 Dolby S Cassette Deck gcl st/h Denon DRM 6505 Dobby S etc (Hind) st/h Denon DRM10,8K cassette deck / 3 motor / HXLPro etc. (vgc) Rega Radio FM Tuner (Hint/Ms New) st/h Eechnics ST.G.1350 FM Digital Tuner (Hew) Denon DRM 550 MR/PO etc. (mmt/ds new) st/h Technics NS-178313 Fwn/Aduc-RR/Ms-Pro etc. (vgc) st/h Kenwood KX-50805 Dolby S etc. (vgc) st/h	loads 230.00 s/h - 250.00 150.00 160.00 180.00 200.00	499.95 149.95 119.95 189.95 119.95 139.95 109.95 119.95

COMPACT DISC PLAYERS/TRANSPORTS/D.A.C.S

Arcam Delta 250 transport/Black Box 50 DAC (mint) s/h	1250.00	795.00
Cambridge Discmagic 1/ Dacmagic 1 (vgc) s/h	\$00.00	269.9
DPA little bit 3 DAC (vgc) s/h	350.00	199.9
Marantz CD.42 (Ec) s/h		
	250.00	119.9
Micro Mega CD3 top loader transport (Acrylic) (vgc) s/h	1500.00	795.00
Musical Fidelity X-Ray 24/96 player (superb player) (new)	799.00	
Musical Fidelity X.24k DAC (new)	-	300.00
Musical Fidelity X-Act DAC (new)		130.00
Musical Fidelity X-10D missing Link Line Suffer (Mint) s/h	120,00	90.00
Philips CD1 210 (interactive) (mint) s/h	400.00	109.95
Pioneer PD-102 Basic CD Player (gc) s/h	150.00	89.9
Pioneer PDS 703 (stable platter) remote (vgc) s/h	450.00	179.9

(all fully guaranteed)	Mew Price	Price
Rotel RCD.970BX Remote CD Player (Mint/As New) s/h	350.00	249.95
Rotel RCD.9708X Remote (another one)(Mint/As New) s/h	350,00	249.95
Sony CDP 35 Midi player (mint/as new) s/h		65.00
Technics SL PSSO remote (vgc) s/h	-	129.95
Technics SL P777 remote (vgc) s/h	350.00	129.95
Teac YRDS.7 (mint) s/h	600.00	379.95
Marantz CD63 S.E. Remote (mint/as new) s/h	350.00	199.95
Marantz (D67 S.E. Remote (IGmber power cable) (mint/as new) s/		
Technics SL PD 888 S.Disc Remote Multi-Player (vgc) s/h	180.00	
Sony CDP.X339ES Remote (Battleship) CD Player (vgc) s/h	\$00.00	249.95
OTHER ITEMS OF INTEREST		
OTHER ITEMS OF INTEREST Alphason Glass 4 shelf mini stand (ideal for X Series) (mint) s/h Mordaunt Short Decoder One (Dolby Pro Logic Processor)	100.00	69.95
Alphason Glass 4 shelf mini stand (ideal for X Series) (mint) s/h Mordaunt Short Decoder One (Dolby Pro Logic Processor)	100.00	69.95
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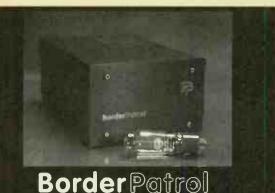
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MEASURED PERFORMANCE

AMPLIFIERS

PAPWORTH MVH-200

The Papworth is massively powerful, delivering 200watts per channel into 80hms and 225watts into 40hms. This is enough to handle any loudspeaker in just about any room and make it go very loud. With good low-frequency extension down to 10Hz the amplifier should have plenty of bass oomph too.

Frequency response was wide and distortion fairly low, although there was some rise in non-linearity at high frequencies, yielding a distortion figure of 0.2%, with extended odd-order harmonics, as our analysis shows. This may result in a little sharpness or hardness to the treble.

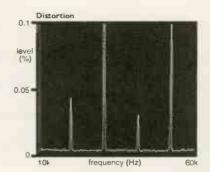
Channel separation measured well and

noise was very low, unfortunately because the amplifier lacked gain, possessing an unusually low input sensitivity of 750mV on all inputs. Most amplifiers have a sensitivity of 200mV or so these days and 300mV is a minimum if old sources like cassette decks are to match. Nowadays, many sources still deliver no more than 500mV out, so the Papworth will not suit them. Apart from this peculiar feature, the Papworth measured well enough. NK

Power	200watts

CD/tuner/aux.

Frequency response 10Hz-60kHz



Separation	71dB
Noise	-107dB
Distortion	0.04%
Sensitivity	750mV
DC off-set	2.7/1.6mV

LOUDSPEAKERS

ARCAYDIS ASC

A small peak in frequency response around 1.5kHz may give these loudspeakers a degree of forwardness, perhaps a little brightness or spitch on vocals.

Otherwise they should sound detailed and accurate, since frequency response was pretty even from 18kHz down to 100Hz. However, low bass rolled away, meaning the 'speakers are a little overdamped and best used near to a rear wall to augment lower-bass output.

Impedance did not drop below 60hms and measured out at 90hms overall, a rel-

A +4dB bass peak around 200Hz will

ensure the Veritas has plenty of upper

bass, giving a good impression of 'speed'

to drums. Lower bass output falls away steadily to become -6dB at 63Hz. The

'speakers will need to be used close to a

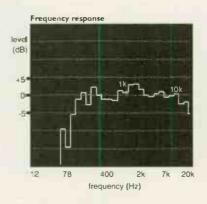
response measured flat and phase matching between the drivers was quite good over a usefully wide forward angle, so seating position will not be too critical. The 'speakers are accurate and should

sound detailed but smooth in their treble.

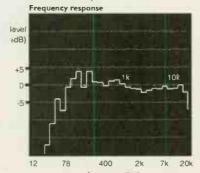
rear wall to lift lower bass slightly.

Further up the range frequency

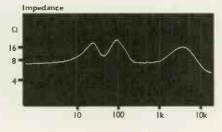
at vely high value. In spite of this, sensitivity was good at 87dB from one nominal



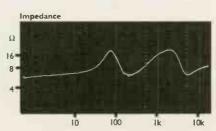
The impedance curve swings around 80hms and measures out at 80hms overall, using a music-like pink-noise test signal. Low curve slopes mean the Veritas



watt of input, demonstrating good efficiency from well-made drive units. With gentle slopes to the impedance curve indicating low reactance, the Arcaydis will be an easy enough load for any amplifier. NK



do not possess much reactance and will not be too difficult a load. However, sensitivity was low - just 84dB SPL was produced from a nominal watt of input (2.84V), relatively poor nowadays. To go loud these 'speakers will need a powerful amplifier of 60-100watts per channel. NK



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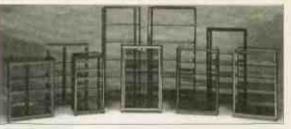
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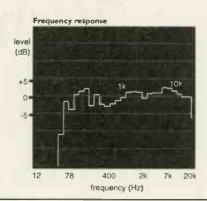
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YAMAHA MSP5

Measured frequency response of the small Yamaha MSP5 powered loudspeakers was not overly impressive. They have a forward midrange and some lift in their treble around 5kHz, both of which will result in brightness. Below 1kHz output dips down to 400Hz before rising up to peak at 160Hz. This will weaken any sense of fullness and body in the sound as well as producing peaky bass. Below 160Hz output falls slowly down to 60Hz, before rolling off rapidly below this fre

quency, so downward extension was good for the size of the cabinet.

Integration between the drive units was tight: the 'speakers gave a consistent sound over a wide range of forward positions. Sensitivity was high too: just 50mV of sound would generate a loud 90dB sound pressure level one metre in tront of the loudspeaker. This is more than enough for the Yamahas to go very loud working directly from the output of a CD player. NK



TUNER

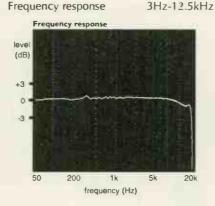
DENON TU-260L MKII

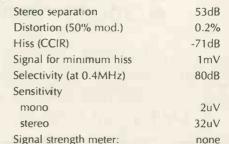
The TU-260L gained a reputation for its warm sound coupled with good all-round performance at a low price. The MkII differs little. If memory serves, it had a greater response roll off than the MkII model tested here. However, some warmth will still be evident I suspect.

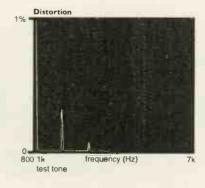
Channel separation was high right across the audio band, which is helpful in reducing distortion since crosstalk signals are often heavily distorted. Noise was reasonably low at -71dB, low enough not to be audible, but as always this does assume the tuner is receiving a strong enough signal of 1mV or more from the aerial and the TU-260L MkII is no different from usual here. Both sensitivity and selectivity were up to scratch too. Denon fit an effective pilot-tone filter to eliminate signals at and above 19kHz, so the audio output is clean.

The TU-260L MkII measured very well and seems little changed in most areas, but it is likely to sound a little less warm than before. NK

Frequency response





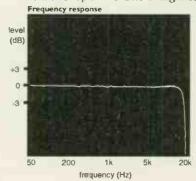


ONE THING DEMODULATOR

This decoder had accurate 50µS deemphasis, so frequency response was flat and extended to 14kHz (-1dB), as our analysis shows. It will have a good balance to its sound quality as a result. Channel separation was high at 45dB in the mid-band and 31dB at 10kHz; these are very good figures. Distortion measured a miniscule 0.12% and noise was absolutely minimal. However, the excellent noise performance probably resulted from the lack of gain before the decoder chip, which in turn made it insensitive. A minimum of 300mV in is needed to trigger the stereo beacon, yet maximum input was 800mV, before overload distortion set in. The makers state most tuners offer more than 300mV MPX out but in my experience MPX out signals can be

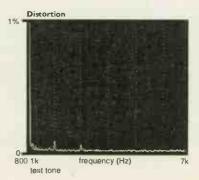
quite weak - 50mV or so. Perhaps my experiences are unrepresentative. Whatever, it would help if this unit had under/over lights, a small amount of variable gain or some other way of coping. Users otherwise are best advised to measure output from their tuner to ensure compatibility.

This matter apart the One Thing mea-



sured very well and will do justice to high-quality tuners. NK

Frequency response	2Hz-14kH z
Stereo separation	45dB
Distortion (50% mod.)	0.12%
Hiss (CCIR)	-78dB
Trigger level	300mV
Max input	800mV



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M60 r/wood	£2500	£1875
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ı	& 15 tuner the very first mo	d	
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COMPACT DISC

CREEK OBH-14

Fed a normal test signal, the Creek displayed a perfectly conventional performance. It has a smooth frequency response with a roll-off at the top-end that will soften and warm the sound just a little, helping to banish harshness.

There was little distortion on either channel. Our analysis shows a complete absence of distortion and quantisation products when fed a -30dB signal. Further down the dynamic range the Creek remained relatively linear, low distortion at -60dB yielding an impressive EIAJ dynamic range of 110dB. With a normal output of just over 2V, plus good channel separation, the OBH-14 offers a fine measured performance. NK

level (dB)		
+0.5		-
-0.5		
62	frequency (Hz)	25k

left

0.01

0.4

0.018

Frequency response

Frequency response

Distortion (%)

-6dB

-30dB

-60dB

-90dB

4Hz-20.7kHz

right

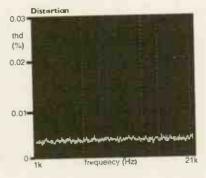
0.01

0.018

0.37

30

Separation (dB)	left	right
1kHz	89	97
20kHz	63	80
	0.5	-105dB
Noise		-105dB
with emphasis		110dB
Dynamic range		2.17V
Output		2.17 V



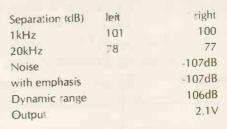
HARMAN/KARDON HD740

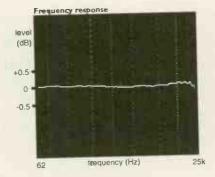
The HD740 has a slight rise in its treble above 5kHz, possibly enough to add a slight brightness to the upper midrange. It may well sound fast and detailed.

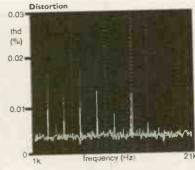
Distortion measurement through the dynamic range revealed a normal result. At -30dB there are harmonically-related products up to 13th, which is common for CD. At around 0.03% overall distortion levels on both channels were low right down the range.

Channel separation was wide and noise very low. Dynamic range was a healthy 106dB and output normal at 2.1V. The HD740 measured well in all areas, but it might be a little brighter in its sound than many players. NK

Frequency re	sponse	4Hz-21.5kHz
	left	right
Distortion (%	.)	
-6dB	0.007	0.007
-30dB	0.027	0.035
-60dB	0.5	0.48
-90dB	26	27







SON	/ PR	D-V	30

The Sony does not reach hi-fi standards for CD replay so much as offer good headphone listening. Our response analysis shows filter ripple affects performance above 1kHz, but as the trend is downward some warmth should result.

Distortion levels were higher than usual, with values of 0.12% at -30dB against 0.02% for a normal hi-fi player. Harmonics and quantisation products were extended. This sort of thing adds coarseness. All the same, the Sony still puts up a reasonable performance in absolute terms and will not sound obviously distorted in practice.

Low-level signals, below -60dB, were not well resolved: the player is ineffective here, but again it will only remove a little detail and subtlety from the sound and such properties aren't expected from

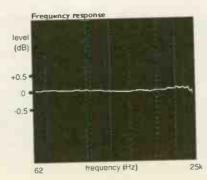
The noise level was higher than usual at -71dB, but low enough not to be an audible problem. This sort of performance is not great but it does look good against

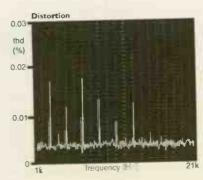
portables in any case

cassette. NK
Frequency response 4Hz-20.3kHz
left right

Distortion (%)
-6dB 0.02 0.02

-30dB	0.12	0.12
-60dB	3	4.7
-90dB	100	130
Separation (dB)		
	left	right
1kHz	70	70
20kHz	68	68
Noise		-71dB
with emphasis		-71dB
Output		0.6V
Output		







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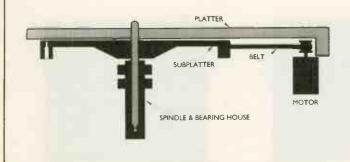
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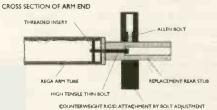
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GOODMANS DELTA 901

A steadily falling frequency response, shown in our analysis, will give the Delta 901 CMD a warm sound. Distortion was double that normally encountered, but still not so high that it should be too intrusive. However, with no less than 1.35% at -60dB, against a common value of 0.5%, the 901 CMD obviously doesn't look too hot on paper and this result held dynamic range to 100dB. Top players manage 110dB. The player may well sound a little less smooth than lower distortion models, but differences will be small and the warm sound will help ameliorate the situation. Recording digitally to MiniDisc and replaying through the same D/A and analogue stages gave the same performance.

With good channel separation, normal

DIAMOND RIO

The test figures disguise the Rio's main problem, that of high-level signal compression on a full-level mono (L+R) signal ripped from CD. This induced low-rate amplitude modulation which introduced sidebands and compressed fundamentals. Our third-octave analysis of 16Hz, 1kHz and 16kHz L+R tones at 0dB clearly shows low-frequency hash and 10dB of signal compression at 16Hz. There was also 3dB of compression in the midband. It affected sound quality significantly, making it swimmy and ruining stereo. CDCOPY software overcame this problem, the drawback being significantly slower encoding speed.

Frequency response fell smoothly above 1kHz to become -4dB at 16kHz, above which it plummeted. Xing claim their encoder runs to 20kHz, so the upper response limit is software defined, rather than affected by the Rio itself.

. Channel separation was high and noise very low. In spite of signal compres-

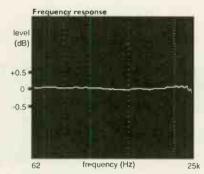
KEL34 E/I

With sturdy output transformers KEL34 delivers 40watts per channel from one pair of EL34 valves. With this sort of power, considering around 5watts average is needed by reasonably sensitive loudspeakers, there is plenty of headroom for musical peaks. KEL34 can drive most modern loudspeakers without difficulty.

Frequency response is flat from 22Hz to 77kHz within 1dB limits. Distortion at 1kHz measured 0.08% at 1watt, rising to 0.8% at full output. Since most of this was second harmonic, it has little impact

output and adequately low noise, the Delta 901 CMD measures well enough considering its price and facilities. NK

Frequency respons	se left	4Hz-20.5kHz right
Distortion (%)		
-6dB	0.015	0.015
-30dB	0.04	0.04



sion, there was little in the way of harmonic distortion from the Rio.

At full level the MusicMatch software supplied with the Rio had problems if asked to encode both channels, although it was fine encoding one channel to 0dB. From -3dB down though, it worked well, offering low distortion, good channel separation and very low noise. Frequency response could usefully be flatter; at present it gives a warm sound due to treble fall. NK

Frequency respon	ise	10⊢z-3kHz
	left .	right
Distortion		
-1dB	0.1	0.1
-10dB	0.01	0.01
-30dB	0.014	0.016
-40dB	0.03	0.032
Separation	left	right
1kHz	89	88
10kHz	71	70

upon sound quality. It's much the same at high frequencies, our distortion analysis showing second harmonic predominates.

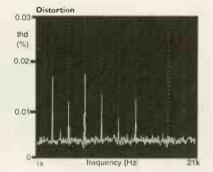
Sensitivity is high enough for the amplifier to generate full output from most sources measuring 280mV. Noise was low at -96dB and channel separation good at 62dB. NK

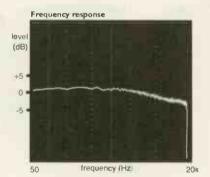
Power 40watts

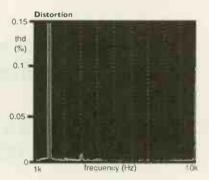
CD/tuner/aux.
Frequency response
Separation

22Hz-77kHz 62dB

-60dB	1.3	1.35
-90dB	30	31
Separation (dB)	left	right
1kHz	83	87
20kHz	68	63
Noise		-91dB
with emphasis		-91dB
Dynamic range		100dB
Output		2.2V

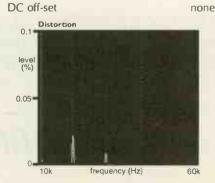






Output	0.9V
Noise	-96dB
Distortion	0.08%
Sensitivity	280mV

Noise



-95dB

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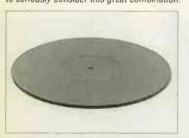
THE REVIEWERS

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Cassette

Verdict

Yamaha TC-800GL

Early classic in serious cassette. It's ski-slope looks got it a cult following once it had ceased to be simply ugly.

CD Players

Verdict

Meridian 207 Pioneer PD-91 Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output. Built-to-last player with easy upgrade routes for the modifier. Not knockout as it stands but get one cheap and have a go!

Amplifiers

Verdict

Verdict

Leak Point One TL12 & TL10 Leak Pre-amps Leak Stereo 20 Leak TL12+ NAD 3020 Quad 33 Quad II Sugden A21 PA Technics SE-A5 Mk2

Ancestors of Hi-Fi, consequently expensive nowadays. As with all vintage stuff, overhauling is de rigueur before Line of 'good for their time' pre-amps. Use of EF86 pentode for high gain rules out ultra performance. Not the highest-fi workaday classic. In good order the 20 will not disgrace itself. Various upgrades are available from specialist repairers Plentiful monobloc equivalent of Stereo 20. Reasonably inexpensive and a tweakers' dream. Genuine hi-fi on a budget. You can't argue with success! NAD's budget integrated gave thousands their first taste of hi-fi and remains great value. By no means a bad Job and value for money. With its matching 303 pre-amp makes a good introduction to audio classics. One of the all-time classic mono amplifiers. Unusual circuit but it works beautifully. 22 pre-amp not up to today's standards. Seventies transistor integrated has an eminently likeable smoothness and musicality. Limited inputs via DIN sockets. Nice transformer and electronics, shame about the casework. With tweaking, this 150watter can sound sweet.



Leak TI 12.

Loudspeakers

Klipschorn

Leak Sandwich Lowther PM6A Magneplanar SMGa Mission 770 Quad ESL57 Tannoy GRF & Autograph Wharfedale Super 8 RS DD Yamaha NS1000M Tannov York, Lancaster etc.

Not exactly plentiful or cheap but a splendid beast. For efficiency they have seldom been equalled. Space hungryf ounding big infinite baffle but cheap with it. With reasonably powerful amp can sound quite satisfying. High quality full-range driver; still manufactured. High sensitivity, as fitted to many classic horn designs.

Touch dry in the bass but a technological 'speaker with genuinely musical abilities. Usual warnings re: dipoles apply Father of the 77 range which continues to this day. Well mannered with a warm sound and a kind load to amplifiers. Unrivalled. Properly serviced there is nothing like 'em. Their natural presentation may make them caviar to the general. Folded horn monsters which certainly sound good if you have the space. For Tannoy vintage see HFW November 1998. Ideal experimenters' driver. High sensitivity ~14,000 Gauss magnet and extended frequency range. Inexpensive too! Hi-tech favourites of the Japanese and Americans. Viewed more warily in the UK but can give excellent results Many similar models of infinite baffle or reflex design. Not the last word in tautness but the drivers work well in modern cabinet.

Vinyl

Verdict

Acos Lustre Alphason HR100S Ariston RD11 Garrard 301 & 401 Goldring Lenco 88 & 99 Hadcock 228 Linn Axis Michell Focus One Shure M75 SME 3009 IIS Thorens TD124 Thorens TD150 Trio L-07D

Very honest piece of kit, well made and easily adjusted. Vinyl beginners could do very much worse. First class arm, up to present-day standards. Buy carefully, though, as there's no service available now A one-time king of turntables very similar to the Linn LP12. Now deposed but worth a look at the right price. Legendary and fairly plentiful. Excellent back-up available; many different custom plinths available. High quality. Great deck for the kitchen table enthusiast. Garrard fans won't look at 'em but cheap and capable. Servicing available. Recently out-classed by Hadcock's updated 228 Special Edition but a proper hi-fi arm for all that. Makers still service. Uncomplicated, lower-price version of the famous Sondek. Considerably less expensive than some of its stablemates. 20 years and still going strong. Early runner in the 'modern' tumtable cycle with a first class arm. Factory servicing available. Recent line-contact Improvements have left the M75 behind but the wide range of needles make it a handy tool. Everlasting classic tone-arm. Spares permanently available from SME. No longer the last word but peanuts second-hand. Best classic deck ever? Judging by the prices they fetch it's possible - 78rpm too! Mid-price deck with a keen following. No real difficulty with servicing - novices may find the suspension system unnerving.

Knockout heavyweight from 1980 with stainless bearing and 11lb platter! Not a give-away and beware! - spares scarce.



Thorens TD124.

Tuners Verdict

Leak Troughline (original) Leak Troughline II & III mono Leak Troughline III Stereo Marantz ST-8

Interesting ornament but no longer hi-fi. Bandwidth limited to 88MHz to 100MHz only Arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Excellent tuner with indifferent stereo decoding circuit. Best when adapted to use modern outboard decoder. Possibly the ultimate Tardis console, including an oscilloscope for checking the strength of signal. Expensive even now.



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Well Developed

David Price examines one of the best-kept secrets in turntable bargains, Strathclyde Transcription Developments' STD305S.

n hi-fi as in life, some good ideas just never catch on, and STD's 305 turntable is a case in point, Launched in 'the Linn era' back in the late Seventies, the space-age 305M was a capable design. A large and very heavy suspendedchassis belt-drive finished oif in slinky brushed metal, it looked every bit the expensive piece of kit it was. The problem was that, such was the degree of Linn hysteria, no one really noticed.

This was a shame, because the STD was a damn fine deck. Thoroughly engineered, nicely finished and attractively styled, it was as good as all bar the best super-decks around at the time. Fitted with the SME Series III with which it was usually supplied (along with a moving magnet from the likes of AKG, Stanton or Shure) the 305M was an addictive music maker.

Although it was obvious that Strathclyde Transcription Developments knew how to assemble a decent discspinner, they proved less adept at the marketing side. Although the deck got a few good reviews, its £300 price put it far too close to the LP12, and as a result it struggled in the shops.

Next came STD's single-ended valve amplifier. Considering this was 1979, when glowing bottles were about as fashionable as The Brotherhood Of Man, you'd be justified in thinking them naive. The fact that it sounded great in a 'mouse that roared' single-ended sort of way simply wasn't enough when the only amps Britain's hi-fi press of the day were recommending were very large black boxes with Naim writ large on the front. Hell, it was a valve amplifier, which we all knew were tubbish because the mags said so'

STD's money-making scheme number three was considerably more intelligent. It was evidently best to abandon all plans of competing with Linn and educating a transistor-loving world in the joys of thermionic amplification. Instead, why not produce a stripped-out version of the 305M without the chintz for about half the money? Basically, by putting their top deck's mechanicals into a plain plinth, they could offer nearidentical sound at half the price. Bingo! Thus was born the STD305S. Selling for a trifling £149 in 1981 - not that much more than a Rega 3 - it well and truly put the feline amongst the feathery things.

A two-speed belt-drive with manual speed change mounted in a large (480mm by 365mm by 155mm) black plinth, it featured a four-point sprung sub-chassis with bituminous damping. The 2kg alloy platter had a thick rubber mat and sat on a large, precision-machined sub-platter with integral bearing spindle. This titted into a bearing housing which wasn't a million miles from the original pre-Cirkus LP12 design. The motor was a beefy AC synchronous unit which made slightly more noise than it should have done,

although little of this seemed to be transmitted into the platter. In fact, all the critical parts of the drivetrain were made to a very high standard not out of keeping with a top deck of the day.

Even compared to current competition, the STD305S is an excellent way to play

records. It certainly isn't going to scare the best modern decks but it's remarkably convincing in isolation.

Speed stability is very good - excellent in fact seeing as it doesn't have a fancy quartz-referenced mains supply - and rumble is impressively low. The sub-chassis gives it fine isolation too, and lets the quality of the main bearing shine through.

Most of the examples around today have SME cut-outs on their armboards, and most likely a 3009S2 already fitted. These make a nice enough noise - pretty fast, bouncy and musical if a touch rough around the edges - but the deck's easily good enough to house a modern SME 309. Better still would be to have a Rega armboard made and fit an Origin Live RB250 with a decent budget moving coil. Thus equipped, the STD's capable of whipping practically any CD player at any price, and gives the latest crop of sub-£1000 LP spinners a thing or two to worry about.

The great thing about this deck is its Seventies sound, which means tunes a go-go without fixating on stuff like pinpoint imaging and detail retrieval. It's also got a warm and fruity tone which makes all music sound so much more enjoyable. Best of all is the second-hand price - there are still quite a few around at between £50-£100. Given a new belt, a bearing oil-change and a suspension tweak, the STD305S should go on for another 20 years making sweet, analogue music. If only the same had been true of the company•

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APOGEE STAGE Speakers, mahogany sides £800. Tel: 01604 645 590 (Jun(I)

QUAD ESL 63 loudspeakers with Quadrapod spiked stands £1000. Tel: 0181 758 9210 (Twickenham) (Jun(I)

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MERIDIAN 206 $\Delta\Sigma$ 1993 £275, NAD 533 & RB250 + Rega cart. £125, Linn Axis, Akito, K18 £245, Linn Mimik Anniversary model £440, Linn Majik phono £365, Linn Keilidhs no stands, black £385. All P&P. Tel: 01369 702 358 or 07801 587407 (Jun(I)

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CELESTION SL600 speakers, brown, very good condition £250. Target stands, black 18" £25, Tel: 01256 324 901 (Basingstoke) (Jun)

QUAD ESL 63's £950, CD67, £450. 33 pre & 303 amps conv. Academy Sound £300, Garrard 401 & Decca MkIII arm & two heads, £250. Two Leak Troughline tuners & one decoder (Tim de Paravacini) £400. Tel: 01247 667 347 (Jun(l)

TANNOY CHATSWORTH speakers, rectangular style, in excellent condition £390. Tannoy Devon speakers, excellent sound, a little tatty, hence £150. Heybrook HBSI speaker stands £25. Tel: 01276 650 54 (Jun(I)

NAIM NAC 52 & PS. Mint condition, can demonstrate £2500. Tel: Colin 01293 416 022 (Crawley) (Jun(I)

SUMIKO BLUE Point special cartridge, Brand new, never used (£250 new) £175 ono. Audio Technica AT630 moving coil transformer £25. Tel: 01633 881 722 (Gwent) Email: andrews@magor3.freeserve.co.uk (Jun(I)

QUAD ELECTROSTATIC loudspeakers £300. Quad valve set original near mint condition. Systemdek IIX 900, Rega, £200. Audio Innovations First Audio Triode £500. Leak TL12. I original components £450. Leak TL12+ £100. Tel: 01935 891 342 (Jun(I)

NAIM 250 power amp £800, Naim IBL loudspeakers, black £350, Lexicon CP2 digital surround processor £400, Rotel RB956AX 6 channel amp £200, Celestion MPI loudspeakers £75. All mint condition. Tel: 0116 271 5439 or 0116 289 9728 (Jun(I)

B&W DM7 Mkl speakers £300. Exposure XX integrated amp £430. Marantz CD 80 with remote £325. Musical Fidelity MVT Mk3 preamp, excellent phono stage £325. Tel: 01273 605 310 (Jun(I)

LOWTHER TP1 original PM3A mint £1600. Lowther Audiovector original PM4As + PM6As mint £1950, Vitavox 12" dualconcentric loudspeaker £280, Burmeister 785 preamp £290, Unison Research Smart 845 monoblocks mint £2100. Tel: 0802 431 172 (after 6pm) (Jun(1)

QUAD 405 power amplifier £160, Quad 306 power amplifier, Quad 34 control unit, £280 the pair, will split. Tel: 01302 859 095 (Jun(I)

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NAIM CD2 CD. 1 yr old mint, boxed with receipt £1200. Musical Fidelity MA65 monoblocks Class A c/w matching Pre 8 pre amp, immaculate, boxed, manuals £650. Tel: 01530 831 574 (Jun(I)

ARCAM ALPHA 8 CD player, Arcam Alpha 9 integrated amplifier, Arcam Alpha 9 power amplifier, B&W DM603 speakers. 4X6m Pure Sonic quality speaker cable and two sets of Cable Talk interconnect cable. Slight mark on integrated amplifier covered when stacked with CD player. Two years old, boxed with manuals, £1100. Tel: 01772 882 189 (Jun(I)

MERIDIAN 504 tuner mint £385, 204 tuner £250. Cyrus dAD3 CD player mint £385. Kenwood DPC981 portable CD player with headphones £85. Sony MDS37 midi MiniDisc recorder £85. Celestion SL600Si speakers with DLP unit £385. Kudos \$100 50cm. speaker stands £75. Teac P700/D700 CD transport/DAC £650. No offers. Tel: 0181 871 2345 evenings. (Jun)

MISSION 752 Freedom loudspeakers in rosewood. Immaculate condition and sound/boxed. Best Buy in 'Hi Fi Choice' etc. (Cost £650) sell for £405. Tei: 01803 770 006 (evenings) (Devon) (Jun(I)

LOWTHER FIDELIO horns, teak £375, Chapman valve tuner £30. Infinity 100 watt subwoofer boxed £150. Audio Synthesis DSMX (DAX) DAC mint £400. Decca London re-tipped low use £75. Tel: 01827 261 082 (Tamworth) (Jun(I)

CYRUS 1, £95; Target TT4 (2 full & 2 half-width shelves) £50; Interconnects - Audioquest Ruby (1m) £35, Chord Chrysalis (0.5m) £20. Wanted: Black Cyrus PSX. Tel: 01380 721 715 (Jun(I)

MUSICAL FIDELITY F22 remote valve pre with MC phono £400, mint & boxed. X-LP £50, X-Tone £50, X-PSU £50, X 10D £30, all mint and boxed. Tel: 0181 851 9198 (Jun)

QUAD IIs, new and original valves, £400 ono. Denon DRM700A 3 head cassette, little use, £150 ono. Tannoy 15" HPDs, custom boxes, perfect, offers or swap 12". Tel: 01494 874 381 (Jun(I)

GALE 401 loudspeakers, black with chrome ends and matching stands £275. Tel: 0181 977 6656 evenings) (SW London) (Jun(I)

NAKAMICHI 1000ZXL cassette deck original manuals, sep Dolby B&C unit, mahogany surround, excellent condition £1500 ono (all offers welcolme) Revox B77 II high speed, mint £495. Tel: 0181 942 6553 (Jun(I)

ELECTROMPANIET EC1-2 integrated amplifier, high end bargain. Bold and fluid, near mint. Nordic beauty. Any trial. £550. (£1000 new). Tel: 01308 868 044 (Jul(I)

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Rogers LS3/5 loudspeakers
(150hm); Vintage: Quad I
amp xI, Quad API2xI,
Tannoy GRF original xI,
Tannoy Dual Concentric 15"
silver drive units. Tel: 0802
431 172 (after 6pm) (Jun(I)

NAIM NAC82 with MM boards, about 18 months old, £1500. Hi-Cap old style serviced by Naim about 6 months ago £350. DPA Little Bit Three digital to analogue converter £150. Tel: 01453 511 279 (Jun(I)

TARA LABS Master Gen2 Im RCA £250, Wadia 21 CD player, digital volume control, £1995 (£5500 new), Wilson Watt 5/Puppy 2, gloss black, accessories, £6995, all equipment mint Tel: 01449 676 335 (Jul(I)

DYNACO PAT transistor preamp £75, Cambridge P50 stereo amp £55, Cambridge T55 stereo tuner £45, Technics SU600 stereo amp £60, QED MC preamp £30. Quad 34 MC module £15. Tel: 01372 467 264 (Jun(I)

NAIM 32.5 / HiCap rebuilt by hand to Avondale spec, to accomodate this stunning power supply, phono outputs leads £425. Eikos interconnect £50 ono. Tel: 0118 981 5681 (Jun)

TWO TANDBERG 300X reel to reel tape decks with some 50 tapes - both need attention - free to anyone willing to pay carriage - must be taken as one lot. Tel: Mr. Wood 01452 713 211 (Jun)

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NAIM NAP 250 power amplifier (old style) serviced Naim April 99 (guarantee transferrable) £825 or offers. Tel: 01273 58 3996 (Jun(I) YAMAHA CT 7000 tuner. Excellent condition, recently serviced £300. Tel: Mr. Wood 01452 713 211 (Jun)

REGA PLANAR 3 with Origin Live fully modified silver wired RB250 (£175) £230. Linn Intek integrated amp, mint £180. Bose Acoustimas 5, brand new £320. A&R tuner £40, Denon tuner £40. Tel: 0181 952 2044 (Jun(I)

ARCAM BLACK Box 5 £140, Audioquest digital interconnect £15. WANTED: Exposure stereo 18, VDH First or Second. Tel: Steve 01954 718 038 (ansaphone) (Jun(I)

WANTED: CHORD 1200, 1200B, 1200C power amp, Quad FM4 tuner. Tel: 01993 883 523 (Jun(I)

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preamp £100 (£800). Krell
KSA 80 power amp £1250
(£3500) Tel: 0181 203 3150
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QUAD 707 power amplifier £575 ono. QED MA30 high definition headphone/speaker switch unit £25 (£50 new). Cable Talk Monitor 2 stereo interconnect £20 (£50 new). All mint. Tel: 01703 738 935 (Southampton) (Jun(I)

SUGDEN A25 MosFet amplifier & non working one for spares £75. Aiwa F770, three head cassette £75. Kenwood KA3020 amplifier £85. Kenwood KA 1060 £49. Radford HD250 amplifier £95. Tel: 01484 846 253 after 7pm (Huddersfield) (Jun(I)

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MANA ACOUSTICS 6 shelf amp stand, boxed £500. AVI \$2000 MP line level preamp with remote. Boxed, late spec model. £950 new, £450. Tel: 01524 381 389 (Jun(I)

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LEAK TL12 Plus amplifiers, rebuilt, one black, one gold, £125 each. Leak Stereo 20, rebuilt, unmarked, £250. Varislope 2 vgc, £40. Troughline 3 stereo, unmarked £115, mono version £65. Tel: 01633 422 559 (Jun(I)

QUAD 2 power amplifiers, 22 control unit, tuner (fitted decoder) excellent £450. Quad 57 electrostatic speakers £350. Kef 104s original 1977 £350. Verdik quality 10 monoblock and controller £60. Tel: 01633 422 559 (Jun(I)

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QUAD E50 monoblock power amps £150 the pair. Arcam Two loudspeakers on Arcam stands £150. Heybrook HB One speakers £80. Marantz CD42 £75. Tel: 01495 350 677 (Jun(I)

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MERIDIAN 557 power amplifier £895. Quad 33/FM3/303 £220. Pair Quad 50D power amplifiers £170. Quad 44 preamp £200. Various Quad 44 inpout modules some unused, call for details. Tel: 0181 948 6250 (Jun(I)

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DENSEN BEAT 100 integrated amplifier, 60 watts, 6 inputs, pre out, bi-wire, £450 ono. Chord Cobra 2, phono to phono, Im £40. Tel: 01684 569 851 (Worcester) (Jun)(I)

REGA RB300 arm, perfect.
Rega RB250 arm - Origin Live mod, needs internal wiring, otherwise perfect £200 pair or split. Audio Alchemy
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841 5782 (Northolt) (Jun(I)

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Audio Innovations 400 Integrated Valve Amplifier	1099	450	Naim Audio Hi-Cap New Style
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Audio Note ANCD2 Valve CD player new boxed	1000	695	Orelle SA 100 Amplifier
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Conrad Johnson PV10 AL SE	1299	750	Roksan Caspian CD Player
Decca London cartridge re built	N/A	199	Roksan DA2 DAC
DPA Little Bit III 4 months old	300	195	Roksan DS 5 Power Supply
Elemental Audio SCZ Custom Loudspeaker Stands	1399	750	Roksan DS1 Power supply Black
Epos ES 11 Loudspeakers Black	485	249	Roksan ROK-1
GM Audio Heavy Speaker Stands 24"	599	250	Roksan Shiraz 350hrs use
Harbeth HL-K6 Cherry	1049	599	Roksan Xerxes SME cut/XPS2 Blk - (needs a paint jo
Heybrook TT2 Turntable Black	N/A	175	Roksan Xerxes Syrinx PU2 Supex 900 MkII
Impulse Lali Cherry Loudspeaker	1750	1295	Roksan Xerxes Tabrizi XPS 3.5/DSU
Impulse Maya Loudspeaker	695	459	Roksan Xerxes XPS3.5/DSU/Tabrizi/Corus Black
Impulse Moskito/RB300 Turntable New & Boxed	695	399	Rotel RC 970 BX Pre Amp (new)
Koetsu Tonearm	N/A	250	Ruark Talisman II Dark Oak
Krell KPS 20i/L CD/Pre	11,000	5999	Sonus Faber Extrema's
Krell KRC HR Remote Preamp	6950	4500	Stax Sigma Electrostatic Headphones/SRD 7
Linn Ekos MK1 Boxed Immaculate	1500	650	Sugden SDT-1 Special Edition CD Player
Madrigal HPC Digital 0.5M RCA/RCA	N/A	50	Systemdeck 2X2 Cherry/RB250 Turntable
Meridian 203 DAC 7	499	169	Theta Pro Basic IIIa D/A Converter
Michaelson Audio Chronos 2 Box Valve Preamplifier	4700	1250	Transparent Music Wave Plus 2x2,44m
Michell Engineering Orca Pre amplifier 4 Months Old	1650	1195	Transparent Reference Balanced Music Link 1.5m
Micromega CD3/ Duo Pro DAC	3000	1195	
Naim Audio 110 Power amplifier (old style)	N/A	179	Midland Audio X-change is looking for go
N. C. A. E. OLIV. O. V. O. V.			A

is looking for good used British & American Hi-fi, cash paid call John Roberts on 01562 822236

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689

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535

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1650

1799

175

750 6500

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1499

629

2990

2895

428

Now 159

375

450

149

299

1295

375

695

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25D

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1795

295

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Naim Audio 2/4 X-Over New Style

Those guys in Borehamwood have done it again; The Gyro SE takes the bull by the horns at the sub £800 turntable market. They have taken the Gyro off it's Perspex plinth and given it a stand alone motor, (this can be upgraded to a

full gyro at a later stage) the price without tonearm and with a standard power supply - £775.00

650

350



Aria S2 a single ended triode valve amplifier, the sweetest little thing you ever saw with a superb sound quality to match. From the Unison Research factory in Italy this EL34 10 watt per channel amp has stunned everyone who has heard it. It's level of build quality is second to none stainless steel and matured walnut meet in a heavenly combination and all for the angelic sum of - £1050.00

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Audio Prism CD Black light	£39.95
Audiophile Record sleeves	£12.95
Decca CA2+2 Record cleaning brush	£9.95
Densen De-magic	£9.95
Discwasher D4 System	£18.00
Eco 2 Demagnetiser fluid/spray	£29.95
Einstein Octopus mains filter/conditioner	£199.00
Kontak Electrical contact enhancer	£14.95
Last All-purpose record cleaner	£19.50
Last Power cleaner for records	£32.50

Xerxes X Special Offer - Limited numbers available.

.

Due to overstocking on Roksan Xerxes X Turntables, we have devised a special price on a complete package from this top turntable manufacturer:

XPS 3.5/ D.S.U. Tabriz Tonearm Corus Black Cartridge Total Price	£1200 00
XPS 3.5/ D.S.U. Tabriz Tonearm	£2072.00
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	£320.00
Norwood A III Trooping of Didon.	£320.00
Xerxes X in Rose/w or Black.	£1295.00

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Amanda McBroom - Midnight Matinee, 180 grm.	£21.95
Buena Vista Social Club Feat - Ry Cooder	£31.95
Charlie Hunter - Natty Drend	£15.95
DiMeola, McLaughlin, DeLucia - Friday Night	£19.95
Dr. John - Anutha Zone, 120 grm.	£14.90
Eric Clapton - Pilgrim	£15.90
Gomez - Bring It On	£15.90
Hank Mobley - Roll Call, 180grm	£21.95
J.J.Cale - Naturally, 180 grm.	£19.95
Janis lan - Breaking Silence, 180 grm.	£24.95
Jewel - Pieces Of You (limited edition)	£15.90
Kebmo - Kebmo, 180 grm.	£19.95
Linda Rontadt - Greatest Hits Vol 2 DCC, 180 grm.	£21.95
Lori Lieberman - Home Of Whispers, 180 grm.	£21.95
Massive Attack - Mezzanine	£15.99
Midnight Sugar - E B M 23, 180 grm.	£17.95
Mo-Fi - 200 grm. (Special Offer)	£19.95

A postage charge of £2.00 per consignment will be made

6 PAGES OF BARGAIN HI-FI

SPECIAL INTERNET OFFER SEE PAGE 154 FOR DETAILS

CASTLE HOWARD loudspeakers, top of the range (Santos rosewood). What Hi-Fi 5 star rated, cost new £1400. £695 boxed. WANTED: active crossover kit for Linn Kabers. Tel: 0121 358 0459 (W Midlands) (Jun(I)

HEYBROOK QUARTET speakers walnut finish with matching stands, excellent condition £400. Ortofon T20 Mkll step up transformer £110. Stax SR34 headphones £80. Soundstyle X053 stand £80. Tel: 01525 854 652 (Jun(I)

LINN KABERS. Activ crossover cards. Granite stands. Walnut veneer, especially nice grain. £799 ono (£2500). LK100 £300. Genexxa LX5pro linaeum £50. Excellent condition, boxed. Tel: (eve) 01256 896 870 (day) 0118 920 6137, Email:leigha@uvo.dec.com (Jun(I)

PHILIPS 544 speakers wanted at a reasonable price by experimenter. Buyer will collect or pay carriage. Tel: 0117 935 0239 Email: jst6@tutor.open.ac.uk (Jun(I)

AUDIOLAB TUNER 8000T, excellent, hardly used £550 ono. Linn Sara Nine speakers, vgc, c/w stands £375 ono. Naim 62K (MC) boards £30. Tel: 0973 406 305 eves (Hitchin) (Jun(I)

EPOS ES30 speakers, as new £1500, Myriad T40 amplifier £225, Rogers Avanti 625 speakers £250. Rogers 628 speakers £500. All items mint, also Audio Sythesis DSM DAC plus AP5-02 power module £500, Rogers Unique Prologic receiver £200. Tel: 01344 872 568 (Jun(I)

TEAC VRDS10SE CD player, in mint condition, boxed. £425 ono (£850 new). Tel: 01582 758 049 (Luton) (Jun(I)

BRAND NEW Quad 99 series separates (mains) pre amp, power amp, CD player, tuner cost £2800, untouched, still in box with receipt, offers over £2200. Tel: 01203 459 009 (Jun(!)

LOWTHER TPI corner unit with rebuilt PM3A. Plus Thorens 124 with 12" arm, Quad valve amplifier and cabinet. £1100 only or may seperate. Tel: 01932 821 563 (Surrey) (Jun(I)

NAIM SYSTEM CD1 CD player, NAC82/NAP180 pre/power, 2 Hi-Caps, SBL speakers (latest bass/midrange units). Half cost of units new £4200 ovno. Genuine reason for reluctant sale. Tel: David Freeman 01256 328 117 (Jul(1)

ARCAM DELTA 170 CD transport upgraded to 170.3 specification plus Black Box DAC 5 with sync lock. Mint condition with boxes and manuals (£1295 new) £450. Tel: 01264 359 346 evenings (Hampshire) (Jun(I)

CAT SL1 Mk2 phono valve pre, plus Counterpoint SA4 valve power amps (120W). Beautiful sounding combination, only £3500 all together. Tel: 01784 458 176 (Staines) or 0468 476 315 (Aug(I)

GARRARD 401 Turntable. Excellent original condition. No plinth. Acos Lustre arm with Shure M55E included £200 ono. Tel: 01483 726 254 evenings (Surrey) (Jun(1)

NAIM HI-CAP New style, Dec 96, boxed, excellent condition £500. Tel: 01473 785 659 (Jul(I)

MAGNUM IA-170 integrated amp with MM/MC phono, as new £225 (£330). Stax SR-84 electrostatic headphones plus SRE-15N extension cable, vgc £150 (£300). Tel: 01865 308 415 (Oxford) eves (Jun(I)

LINN LP12 Aro arm. Lingo, Cirkus, Trampoline. One owner, just serviced £1200 ono. Tel: 01482 641 261 before 7pm (Jun)

MARTIN LOGAN SL3
Hybrid electrostatic moving coil speakers £2250. Michell Gyrodec 'Bronze' Alphason HRS 100 MCS silver wired arm, Denon 304 cartridge, Gyropower supply/speed regulator £1100. Michell ISO Hera power supply £300. Tel: 0181 963 0851 (Jun(I)

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pre/power, I year old,
£810. Linn Kairn, pre
Brilliant, £620. Ruark
Sceptre £390. HFW HD83
headphore amp £150.
(Built, upgraded) Tel:
01530 831 357 or mobile
0831 565 010 (Jun(I)

SENNHEISER HD580 Jubilee headphones, £140, EARmax OTL valve headphone amp £230. KEF Reference 4 speakers, rosetta burr finish, £2500. All boxed, mint condition. Audio Analysis Epsilon ribbon speakers, £2300. Tel: 01474 743 326 (Gravesend)(Jun(1)

NAKAMICHI CASSETTE Deck I, mint, boxed, instructions. Serviced Nakamichi (B+W) £425 ono. Tel: 01202 481 386 (Jun(I) LEAK SANDWICH Speakers, teak, 15 ohm £100. Tel: 01903 208 552 (Jun(I)

MERIDIAN 551 Amplifier with MSR £440. Meridian 504 tuner £340. Both as new. Hardly used. Tel: 01642 559 204 (Jun(I)

YAMAHA NS 1000M (stands) £450. Quad 606 serviced £350. Croft Micro £75. Naim 42.5 pre £110. Audio Alchemy DDE VI DAC £190. May P/E. WANTED: Camax adaptors for Mark Levinson pre. Tel: 0191 422 3415 (Jun)

MAGNAPLANAR LARGE panel speakers MG2/CS, light oak/beige £800. Nakamichi preamp CA/5E, Nakamichi power PA/5E £550. Arcam Alpha Plus CD £150. Celestion Ditton speakers £35. Tel: 01202 721 555 (Poole) (Jun(I)

PAPER IN Oil reservoir capacitor clear out. NOS Dubilier 0.5µF at 2500V £5 each. Kenwood KA1000 integrated. 100 watts per channel, outboard power supply, dual mono with Sigma drive loudspeaker feed back, £185.ono. Meridian 207 CD player, vgc, £190 (cost £725). Ferrograph SI monitors with stands, immaculate, £200. Aurex System vgc, pre/pwr/tuner/tape plus MiniMax speakers £175. WANTED: Trio L Series separates, working or not. Tel: Jon 0181 904 8023 (Jun(I)

GARRARD 401 Turntable chassis together with Audio Technica AT 1005 arm £120. Old Rogers valve amplifier chassis, working but need some attention £15. Tel: 01789 762 2201 (Warwickshire) (Jun(I)

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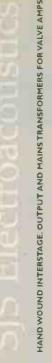
Jason Kennedy on the Model 1 in Hi-Fi Choice Sept '97

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WANTED - EARLY HI-FI LOUDSPEAKERS Tannoy, Lowther, Parmeko, Voigt, Vitavox, RCA WE etc **TURNTABLES** Garrard, BBC301, EMT SME, Ortofon, Decca, etc. **VALVE AMPLIFIERS** AEI, EMI, Leak, Rogers, PYE- Quad, WE etc **AUDIO VALVES** DA30, KT66, KT88, PX4,PX25, PP3/350,WE300 **CLEAR CRYSTAL** SYSTEMS John Petrie-Baker Tel: 0171 328 9275

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MUSIC IS ALL ABOUT TIMING F YOUR MUSIC IS OUT OF TIME CALL ME I CAN HELP PAUL HYNES PHASE DESIGN Tel/Fax: 01931 712 822 (Jun(i) VINTAGE & MODERN Hi-Fi Bought, Sold, Excharged. FOR SALE: Quad II, Leak TL12.I-TL10. All Somus Faber loudspeaker ex demo available. WANTED: Valves: KT66, KT61 KT88, PX4, PX25, 300B - Any Garrard turntable (301/401) Lowther, Jadis, Conrad Johnson, Audio Note, Quad. Tel. 0790 1976 441 (Jun(I)

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Levinson 333 £5500,
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977 (Jun(I)

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Studer A710 £500, Studer
B67 £600, Studer A807 £850,
Revox PR99 £600, EMT 950 £750, EMT 948 £450,
Marantz CP230 £100, Uher
RM £250. Tel: 01246 275 479
or Fax: 01246 550 421 (Jun(I)

HEYBROOK DUETS (£799) £599, Castle Howard MkII £799. Alchemist Kraken Mkll pre/power £799. Neat Critiques (£399) £289. All above X/display. Audiolab 8000CDM & 8000DAC £899. Studio 12 Monitor Audio, piano rosewood (£1500) £859. DPA PDMII two box DAC (£2600) £699. Others available. Hi-Fi purchased. Objective Audio 01279 426 647 or 0973 452 368. objectiveaudio@cwcom.net (Jun(I)

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