

hi-fi news

& Record Review

MUSICAL CHA'AM

Emillé's new valve amp steals our hearts!



'Vintage
Garrard
deck still
shines!'

Tested p112



SUPERTRAMP
Breakfast In America LP

Sumiko pick-up
Flagship Palo Santos MC

Moon 750D
Radical 32-bit CD player/DAC



B&W 805D
Standmount speakers

Tube phono amps
Group test of the best
£1-2k valve phono stages

Bryston monos
Massive 7B SST² piles
on kilowatts of power



• **PLUS** 13 pages of music • **VINYL RE-RELEASE** The Byrds' *Mr Tambourine Man* on 180g LP
• **AUDIO MILESTONES** Sennheiser HD414 headphones • **INVESTIGATION** Secrets of Vinyl pt2
• **VINTAGE** Garrard's 401 turntable revisited • **READERS' CLASSIFIEDS** Scores of hi-fi bargains

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MUSICAL FIDELITY

AMS CD CD/DAC

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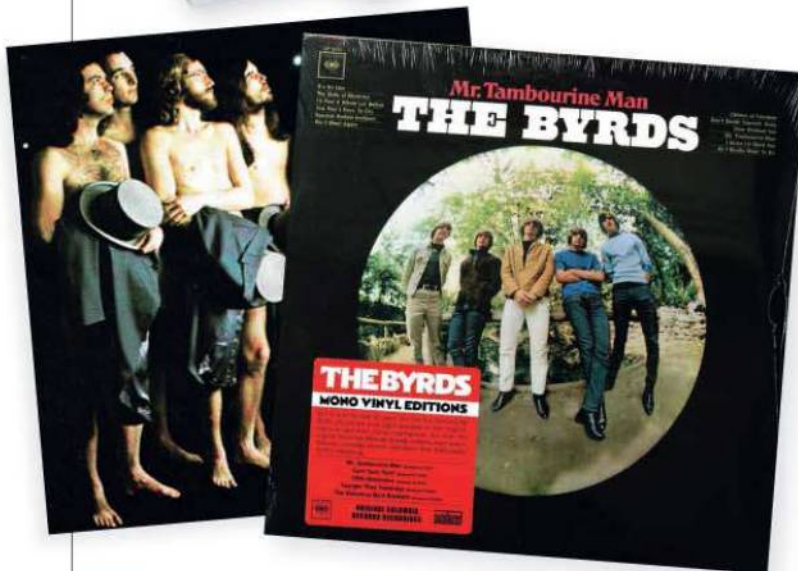




ABOVE: Authority, power and slam to spare. Bryston's got it all, p34



LEFT: Sumiko's fabulous MC flagship, the Palo Santos Presentation is premiered exclusively in HFN/RR on p50



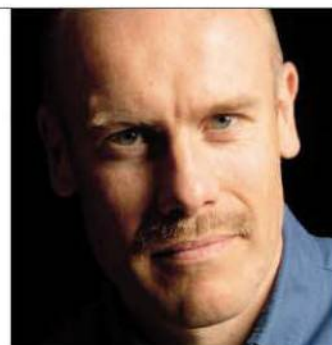
VINYL: Supertramp's *Breakfast in America* is our Vinyl Icon (p70) while we hear The Byrds' re-released *Mr Tambourine Man* on p68

Certainty. It's hardly the watchword of our times, I'm sure you'll agree. As we go to press, politicians remain behind closed doors, deciding the final hue of our next administration. Perhaps some new consensus will bring about a few surprise U-turns.

I'm not sure how many votes the Hi-Fi Party scored, but perhaps now's the time to bring added pressure to bear in the struggle for enthusiasts to retain good quality FM radio. After all, none of us is especially relishing the prospect of low-bitrate DAB (or DAB+) being daubed across the UK in the wake of the impending analogue 'switch off'.

Whatever else is happening in the UK and broader Euro-zone, the *Hi-Fi News* manifesto remains like a rock of stability for the audio enthusiast. Thanks to you we remain the UK's highest selling and most respected specialist hi-fi magazine. We're the oldest too, with a heritage that stretches back to the very dawn of stereo and more than a decade before the transistor sought to do battle with the thermionic valve.

Of course, I don't need to remind you that this battle royale is on-going, a chasm of technology and idealism reflected in this very issue by the gloriously tubular Cha'am



amplifier from Emillé (p22) and the take-no-prisoners solid-state sleight-of-hand that is Bryston's 7B monoblock (p34). Somewhere between the two lies a country populated by hi-fi of every colour and persuasion, but I don't expect our two polar opposites to reach any sort of consensus anytime soon.

Many have tried to seek a middle way, typically realised as a hybrid of preamp tubes

'Many have sought the middle way – a hybrid of tubes and transistors'

and power amp transistors, but few have succeeded in wholeheartedly converting the hard-core from either party. Ken Kessler touches on this topical nerve in his review of the unusual Valvets (p60). 'What's so unusual about a valve-based preamp partnered with a solid-state power amp?' I hear you ask. When a solid-state candidate starts talking like a tube amp...

PAUL MILLER EDITOR

HI-FI NEWS' EXPERT LINE UP: THE FINEST MINDS IN AUDIO JOURNALISM BRING THEIR EXPERIENCE TO BEAR ON ALL AREAS OF HI-FI & MUSIC



BARRY FOX
Investigative journalist supreme, Barry is the first with news of the latest developments in hi-fi and music technologies



JOHN BAMFORD
JB brings huge industry experience, a penchant for massive speakers and a love of hi-res audio in all its diverse guises



KEN KESSLER
is currently our Senior Contributing Editor and almost singularly responsible for the renaissance in valves and 'vintage hi-fi'



KEITH HOWARD
has written about hi-fi for 30 years, and edited *Hi-Fi Answers* for nine. KH performs our speaker and headphone lab tests



STEVE HARRIS
Former Editor of this very title from 1986 through to 2005. A lifetime in audio and a love of jazz makes Steve a goldmine



JOHN HOWES
Foremost collector and archivist of vintage hi-fi, famous for the UK's bi-annual Audio Jumble, John shares his experience with HFN



STEVE SUTHERLAND
Worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages

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Levinson in pole position

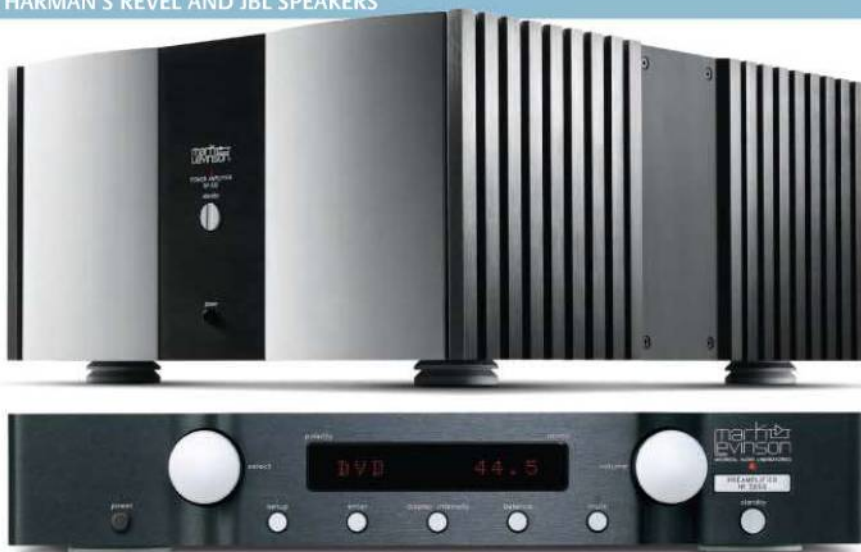
LEVINSON'S LATEST £25,000 PRE/POWER DRIVES HARMAN'S REVEL AND JBL SPEAKERS

It's not every day that Harman International's 'Formula One' HPAV (High Performance AV) division announces a new Levinson pre/power amplifier. Pictured here are the latest masterpieces from the famous American marque, the No.326S preamp and vast No.532 power amp, rated at 400W per channel.

Levinson's design team has gone to extraordinary lengths to reduce noise and distortion in these balanced dual-mono designs by filtering AC power and isolating audio, control, and power supply sections. When viewed from above the No.532 resembles the letter 'E', with three prongs of its chassis separately housing the control circuitry and left and right audio sections. Its massive transformers and power sections are located at the front in an isolated chamber.

CSE Custom, 01423 359054

www.csecustom.com



What a Neat idea...

ULTIMATUM SPEAKER RANGE SEES NEW ADDITION



Making its debut at this year's Munich High End show [full report next month] was Neat Acoustics' Ultimatum XL6 floorstander, the first new model to be added to the company's top-of-the-line Ultimatum range for eight years.

Priced at tad under £7000 the XL6 features a multi-chamber enclosure housing a pair of isobarically-loaded downward-firing 168mm bass drivers at the bottom of the speaker. On the front baffle is another 168mm bass/mid driver with aluminium phase plug, while the 26mm Sonomex dome tweeter above it is housed in a separately sealed chamber.

In a further sealed chamber are two upward-firing 25mm EMIT planar/ribbon super high frequency units, which the firm says 'adds a sense of space and realism to the performance'. Neat has also launched its £1325 Motive SE2, a compact floorstander that was shown in prototype form at the Bristol show in February.

**Neat Acoustics,
01833 631021
www.neat.co.uk**

HI-FI NEWS' NUGGETS

DENON'S 100 YEARS

This year sees Denon mark a century in the audio business. As part of the celebrations it plans to release some limited edition anniversary products over the coming months. Log on to www.denon100.com for more details.

NOW HEAR THIS!

Courtesy of istereos.co.uk the iconic NHT (Now Hear This) speaker brand is once again available in the UK. The range begins with the Absolute Zero at £299 all the way up to the Absolute Towers at £999. Every speaker in the range enjoys 'ten coats of hand rubbed, piano gloss black lacquer' on the outside of its 'extensively braced, high density cabinets'. To find out more, visit www.istereos.co.uk and look under 'speakers'.

RIVES PARC

The Rives PARC (Parametric Adaptive Room Compensation) system is a purely analogue design, free of any DSP technology, that sits between pre and power amp. The 3-band parametric equaliser is designed to compensate for up to three dominant modes in a room. Price is £2690. See www.advancedacoustics-uk.com.

Electro revamp

CLASSIC LINE HAS NEW AMPLIFIER

Norway's Electrocompaniet has re-worked its ECI-5 integrated amplifier. Pictured below is the new ECI-5 MkII, which the company says is a brand new model in most respects since it employs a more powerful output stage. While rated at the same 2x120W into 8ohm it uses twice the number of output devices to increase stability when driving heavy loads while the capacitor bank has increased from 70,000µF to 80,000µF.

The design features a new overload detection system, with the output stage now connected directly to the loudspeakers with no relay in the signal path. It has six inputs – two balanced, three single-ended and one direct home theatre input – and its balanced output can feed an additional power amp in bi-amped systems. The MkII also sports a larger display. UK price is £2890.

**EC Distribution, 020 8893 5835
www.electrocompaniet.no**



High-end phonography

LINN PHONO STAGE PROMISES ANALOGUE EUPHORIA

While its main focus is on pioneering the brave new world of advanced resolution digital downloads and hi-res audio streaming, Linn Products certainly hasn't turned its back on high-end vinyl replay. Developed from Linn's reference internal phono stage for its Sondek LP12 turntable, the Urika, the new standalone phono amplifier pictured below – called Uphorik – is being hailed by the Glasgow firm as the best it has ever produced.

Priced £1850 the Ephorik is designed to be compatible with all playback systems and all phono cartridges. It features separate inputs and totally independent circuits for moving-coil and moving-magnet pickups, with adjustment switches allowing you to optimise settings to your particular cartridge. There are also options to internally solder switches to fine tune its configuration. Meanwhile, the design boasts dual mono



topology and a fully screened differential input stage.

Uphorik's flexibility also extends to connections, with a choice of balanced or unbalanced outputs, and both RCA and XLR inputs.

Talking of high-end systems, while Linn's Ephorik might be the stuff of dreams for many LP lovers at nearly £2000, we recently spotted the new Phono Preamp 100 from Germany's Burmester brand [see above]. Priced a whopping \$23,000 in the US it features two balanced

inputs, an auto-adjust facility to compensate for imbalances in a cartridge's output, A-to-D converters and S/PDIF and USB outputs for archiving vinyl at up to 24-bit/192kHz.

Don't get too excited: while once upon a time Burmester amplifiers were on sale at many specialist dealers up and down the country, its products haven't been available in the UK for many years...

Linn Products, 0141 307 7777
www.linn.co.uk
www.burmester.de/en



Fresh Gallic Icons

FRENCH ISEM AUDIO MAKES UK DEBUT



Ikon Audio Consultants, distributor of several esoteric brands such as Germany's Fonel Audio and Audioplan to name but two, is now the official UK importer of products from French specialist manufacturer Isem Audio. Established in 1987, Isem Audio is based in Belfort, half an hour's drive from the Swiss border.

Pictured here is the company's top-loading eGo phase4 compact disc player, which employs a Philips transport floating on a three-point suspended subchassis. In order to avoid interference between servo-board, control board, D/A section and analogue stages, the eGo phase4's power supply includes

multiple series regulators with independent filtering cells. The D-to-A section uses 24-bit/96kHz DACs from Burr-Brown, while its output amplifiers use JFETs and bipolar transistors operating in Class A.

One of several models in Isem Audio's comprehensive range of disc players, integrated amps and pre/power combos, the eGo phase4 is bereft of conventional disc transport buttons. As with all of Isem Audio's components, it is operated by what the company calls its OTC button on the front panel (One Touch Control).

No news yet on UK prices. **Ikon Audio, 01473 217 853**
www.ikonaudioconsultants.com

Listen to her sing...

MOREL REVEALS ITS 'FAT LADY' FLAGSHIP SPEAKER DESIGN

Called the Fat Lady – we kid you not – this dramatically sculpted floorstander is the £24,000 flagship from Israel's loudspeaker specialist, Morel, and is already the recipient of a Design and Engineering Innovation Award from the USA's Consumer Electronics Association.

The Fat Lady's cabinet is constructed from a proprietary carbon fibre composite and unlike the majority of speaker enclosures it employs no internal damping whatsoever. The cabinet is allowed to vibrate in a controlled manner, along with the drive units, and this energy is used as part of the reproduced sound. Apparently the cabinet 'sings' with the drive units but stops immediately when the drive units stop, with no delayed resonances. The result, Morel's founder Meir Mordechai says, is a speaker that sounds as if it has no cabinet at all.

The UK importer is Tetra Acoustics, based in Peebles in the Scottish Borders.

Tetra Acoustics, 01721 720936
www.tetra-acoustics.com
www.morelhifi.com



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service@furutech.com www.furutech.com

Tall order

COMPACT TOWER FROM KUDOS

Kudos Audio of Stockton-on-Tees is now shipping its new X2 loudspeaker, a compact floorstander first revealed at the UK's National Audio Show last autumn. Priced £1350, it's a two-way reflex design measuring 780x166x206mm (hwd) with a cabinet made of 18mm high density fibreboard (HDF) finished in real wood veneer. The port vents at the bottom of the enclosure, the plinth providing a fixed boundary gap for optimal reflex loading as well as providing additional stability.

Kudos has drivers made to its specification by SEAS, the new X2 featuring a 150mm coated paper cone bass/mid driver with 26mm voice coil and a 25mm fabric domed tweeter. Finish options are cherry, maple, oak, rosenut, walnut, black and satin white.

Kudos Audio, 0845 458 6698
www.kudosaudio.com



Classic revamp

NAD'S BUDGET 'CLASSIC' AMP IS GREENER

NAD is replacing the entry-level C315BEE integrated amplifier in its affordable Classic Series line-up with a new C316BEE model that promises improved power efficiency. Constructed free of hazardous materials, it's also more eco-friendly thanks to stand-by power said to be now less than 1W.

Features are unchanged from those of the out-going model, with six line inputs including a tape in/out, plus a 3.5mm mini-jack socket on the fascia for portable players. This automatically overrides the line input labelled 'Disc' when in use. Bass and treble controls are included, with a defeat function. There's also a headphone output while the supplied remote handset includes disc transport functions for a partnering NAD CD player. Power is a claimed 40W per channel into 8ohm and the price is £260.

Armour Home Electronics, 01279 501111
www.armourhome.co.uk



Upper Class listening

CLASS A HEADPHONE AMP AND DAC FROM MUSICAL FIDELITY

Pictured below are the latest M1 components from Musical Fidelity, the £499 M1 HPA headphone amplifier (top) and £399 M1 DAC (below) with 24-bit/192kHz upsampling. The M1 HPA has two headphone sockets and a variable output so that it can be used as a high quality minimalist Class A preamplifier. At the rear there's a USB input in addition to its line input and loop output. Meanwhile, the M1 DAC has four digital inputs – coaxial, optical, AES/EBU and USB – capable of accepting sampling frequencies of 32, 44.1, 48, 88.2, 96 and 192kHz. Incoming sampling frequency is displayed via a series of LEDs on the front panel.

Musical Fidelity, 020 8900 2866
www.musicalfidelity.com



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Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- 20 JUNE** Look out for the Hi-Fi News team at The Thames Valley Audio Fayre, The Bracknell Leisure Centre
01628 488727; audiofayre@aol.com
- 3-8 SEPT** IFA 2010, Berlin Messe, Germany
www.ifa-berlin.de
- 10 OCT** Audiojumble, Angel Leisure Centre, Tonbridge, Kent
www.audiojumble.co.uk

Paris Hi-Fi Show

Words and Pictures: Ken Kessler

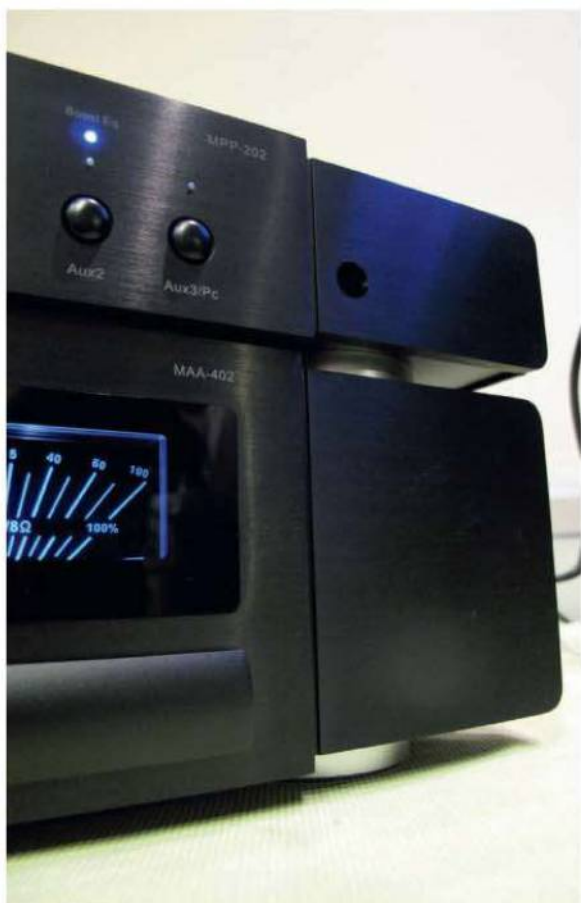


While slightly overshadowed by Milan's and Munich's high-end shows, the Salon Hi-Fi Home Cinema held each year in Paris remains a must-see. One of the longest-running shows on the continent, it gathers the cream of the high-end, a fair smattering of tweaky brands and a decent representation of the major consumer electronics brands.

The French pride themselves in being chic and edgy, so the place was awash with cool iPod accessories and docks. Yet as much

as any market, France deserves credit for the continued success of the valve revival, so KTR Lab, Madotec, AudioValve, PrimaLuna and numerous Chinese-made components glowed here and there.

A smattering of vinyl vendors – heavy on the jazz – and countless accessory stalls completed the event. Above all, it remains the most elegant of all the shows – something our hobby needs if it is to survive beyond the patronage of the hardcore enthusiasts.



Advance Acoustic's MPP-202 preamp and matching MAA-402 stereo power amp were my stars of the show. Like Micromega, the company is showing how the French will survive the global economic crisis with high-value-for-money products: these babies are made in France, not offshore. I'm not kidding: the preamp costs just €250 and the 2x75W power amp sells for €450! Why isn't this stuff available in the UK?! www.advance-acoustic.com.



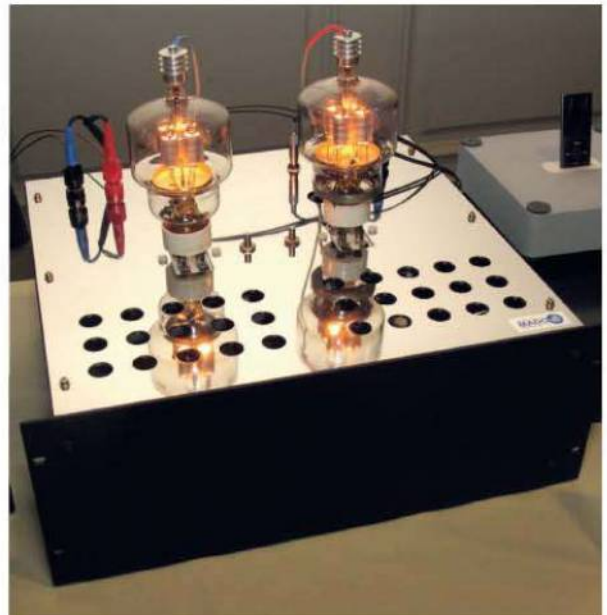
Paris is always good for wacky, geometrically-defined speakers. This year's faceted wonder is the Grande Aventure from JMB Acoustique. Fashioned from MDF panels of both 30mm and 50mm thickness, and occupying 1900x515x650mm (hwd) of your living space, the Grande Aventure contains a compression tweeter, two 150mm mids, a 380mm bass/mid and a 460mm woofer. Price is a cool €20,000. www.jmbacoustique.com.



One down from JMB's Grande Aventure is the plain, ol' Aventure, also angular though approaching the look of an Avalon. Driver complement is reduced to a compression tweeter, a 130mm mid and a 380mm woofer in a 1200x415x470mm enclosure. Price is €7500. www.jmbacoustique.com.



Funkiest and most novel of the new iPod docks was the iTamtam M1 with 360° sound dispersion, housing a 5.5in subwoofer (€360-€430 depending on colours). Add to it an M0 for €199 – identical-looking yet minus the iPod slot – and you have stereo. Available in combinations of gloss black or white, as well as eight metallic hues. www.itamtam.com.



Madotec Electric's 304TL (€7000) is a single-ended integrated amp delivering 16W/ch from a pair of 304 triodes. And, yes, it chose to demonstrate this most venerable of designs with an iPod. Shown here is one of the amp's three chassis. www.madotec.fr.



As well as a tall, plain curved model marking Lowther's 75th Anniversary, Magavox (aka Lowther France) showed this outrageous design dubbed the Shark. No specifications were offered, but with six Lowther drivers, one imagines that maximum SPLs will be copious. www.lowtherloudspeakers.com/france.html.



We loved the idea of an all-in-one from Shanling. The MC-50 Music Center has an iPod dock, a CD player, all-tube preamp section, 2x15W output and looks to die for. Seriously: would you rather have this for your iPod, or some vile plastic piece of junk sold through the Sunday colour supplements? www.shanling.com.



Pro-Ject's boss Heinz Lichtenegger with a pre-production model of the CD Box SE. A slot-loader with a classic two-channel proper DAC, it eschews the compromises of a DVD drive downgraded for CD. Out now, it's priced £450. www.project-audio.com.



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0288 775 3606

AUDIO IMAGES

TIM DEARING
Lowestoft, Suffolk
01502 582 853

www.triangle-fr.com

www.WorldMags.net & www.aDowns.net



Triangle's Grand Concert SW2 – the tall, black speaker – is a bass-reflex three-way divided into sections housing two tweeters, two mids and four woofers, with ports top and bottom. The maximum output is a fearsome 116dB/1m, from a model with only a middling 91dB/1W sensitivity. www.triangle-fr.com.



Previously seen as the Epure turntable, this LP spinner is now part of the comprehensively revived Micromega range – comfortably sharing catalogue space with the company's DACs and a new streamer. www.micromega-hifi.com.



KTR Lab's 845 Push-Pull is a beautifully-constructed, single-chassis stereo power amp using a pair of 845s per channel, as the name says, in push-pull mode. Like Rolls-Royce, KTR, on this occasion, is averse to revealing the power. Also on the stand was a CD player matching the styling of the electronics, but again KTR Lab was saying nothing. www.ktr-lab.com.



Goldmund's Telos 1000 is a monoblock said to deliver a kilowatt into 4ohm, requiring 16 separate power transformers. Features include an internal D/A converter, full DC and output overload protection, balanced and unbalanced analogue input with level adjustment and RCA digital input and output with 96kHz/24-bit capability. Dimensions are 440x495x280 (wdh), weight is 70kg, and price is, er, high. www.goldmund.com.

Next
month

Ken Kessler reports from
The Munich High End Show

Secrets from the groove pt2

Barry Fox brings you the inside story on the making of vinyl in the 1970s

In the late 1970s something remarkable happened. After years of scorning customers who unreasonably wanted flat discs without pressed-in snap, crackle, pop and hiss, the major record labels started to licence their master tapes to third-party companies which did a far better job of disc mastering, electroplating and pressing.

So it was that Mobile Fidelity offered well-pressed versions of Al Stewart's *Year Of The Cat*, George Benson's *Breezin'* and John Klemmer's *Touch*. The re-cut masters had been electroplated on site at JVC's cutting centre in Hollywood, and shipped to JVC's factory at Yamato in Japan. The pressings were then shipped back to the USA and Europe for sale at three times the cost of the poorly-pressed originals.

MAJORS JOIN IN...

Seeing how many copies of these 'supercut' re-issues were selling, the major labels then tried to issue new versions of their own recordings, made with more care, to sell at a higher price alongside their own poor quality originals.

The idea failed, but by then the launch of CD had knocked the bottom out of the supercut market. Through the 1970s I visited some of the most revered pressing plants – Teldec in Germany, JVC in Japan and Nimbus in the UK – as well as some of the not-so-revered – so



RIGHT: Just one example of shoddy manufacturing – a copy of *Saturday Night Fever* as sold to the author in the late 1970s. The label has been pressed into the vinyl in the middle of one side of the music

I have pulled out my notes on what I learned from my travels.

Turning a soft master lacquer into hard metal pressing stampers is a multi-stage electro/mechanical/chemical process, with plenty of opportunity for irrevocable error at every stage. The nitro-cellulose lacquer disc is non-conductive so cannot be electroplated until it has been coated with conductive silver. It was Doug Sax, the engineering mastermind behind many supercuts, who recognised that this should be done as soon as possible – and preferably within an hour – after the groove has been cut.

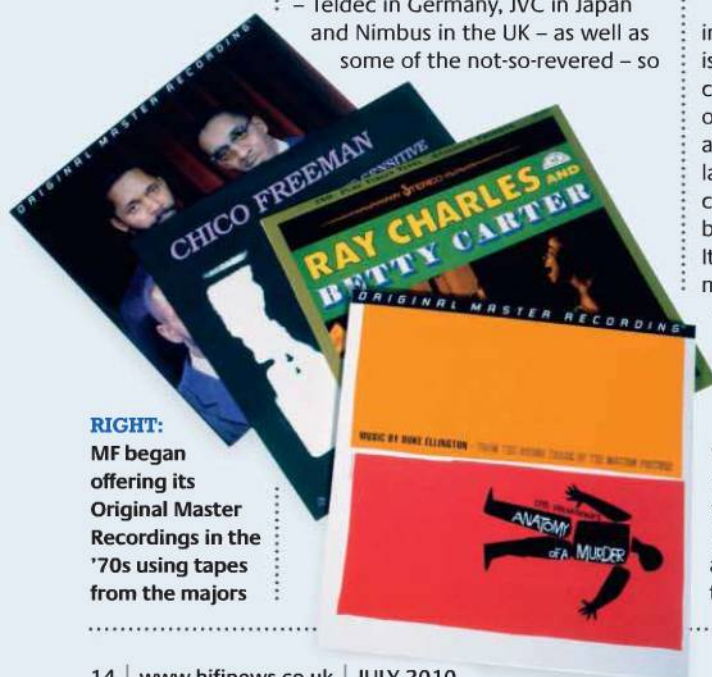
Sax's theory was that not all the audio information is physically cut from the groove walls. Some of the high frequencies are captured only by plastic deformation. After an hour or so the lacquer starts to regain its original state, losing

HF signal by 'memory effect'. Electroplating 'freezes' the HF.

The master lacquer must be surgically cleaned before coating, usually by washing in potassium chromate and rinsing in the purest distilled water. It is then given a molecular-thickness mirror coating of silver by submerging it in ammoniacal silver nitrate and spraying with a reducing agent such as formaldehyde. The now-conductive lacquer is then nickel-plated and the nickel peeled off to give a negative metal master with ridges instead of grooves. This is then electroplated to give a positive mother with grooves that mimic the lacquer master.

The lacquer master is never played. Some plants tried to play the ridged metal master, using a forked stylus, but the grooved metal mother is the first easy opportunity

RIGHT: MF began offering its Original Master Recordings in the '70s using tapes from the majors



to play the recording and check whether the master cut was good. By then the original master lacquer has been destroyed.

If the grooved mother sounds good, negative metal stampers, with ridges instead of grooves, are grown by electroplating for pressing. If the grooved mother is bad another lacquer must be cut from the master tape. If the original master lacquer was direct-cut from live mic feeds the only option is to pray that a safety master cut at the same time was good. Any dirt or dust in any of the plating baths can leave a defect on the metalwork.

Chemical impurity in the water will do similar damage. If the grooves are too deep, because the cutter stylus has been moved too far vertically by out-of-phase signals, the plating fluids will not circulate freely and cause patch blemishes.

STITCH IN TIME

It's not hard to see why Gerald Reynolds of Nimbus (now Wyastone) says he would never go back to making LPs. 'It's the unpredictable nature of the process that drives you mad,' he now recalls. 'I particularly remember the problems we had with "stitching". It's a mysterious burping sound in one channel, one revolution ahead of a loud transient sound. It took us ages to find out what was causing it. We finally worked out with microscopes that it's due to land damage. When you press the disc the vinyl shrinks faster than the metal stamper and as it releases from the mould there may be brief contact which damages the land between the grooves.'

Decca's (long gone) pressing plant at New Malden in Surrey never



'Usually the first pressings would be best'



achieved the quality kudos of its half sister company Teldec (Telefunken/Decca) in Germany, but it had a far better reputation than other UK plants run by major record labels such as WEA at West Drayton, EMI in Middlesex and CBS at Aylesbury.

When I visited Decca I was surprised to see elderly men and women in white coats in a room near the plating paths, picking away at metal masters under microscopes.

'They are repairing faults,' the factory manager

told me, going on to explain that Decca employed staff with watchmaker skills and trained them to use an armoury of engraving tools to pick off, scratch or file away blemishes in the metallised grooves.

Later the factory manager realised that what he had shown me was sensitive, and tried to stop my article going into print. I had to enlist the help of Arthur Haddy, Decca's legendary chief engineer in the company's studios in West Hampstead, to get permission to report what I'd seen.

A PRESSING AFFAIR

A stamper starts wearing out from the very first LP pressed. As the ridge tip gets blunter, the pressed groove shallows and the replay stylus tracks the bottom, creating added random noise. Trying to save money by getting too many pressings from



a stamper was a prime cause of noisy pressings. But opinions on the number of pressed discs that could safely be produced from one master varied widely between factories. Teldec in Germany worked on the principle that around 3000 LPs could be pressed from each stamper for a normal commercial release and around 1000 for a supercut version.

Each electroplated copy made from a metal master or mother degrades the original in an unpredictable manner, too. Doug Sax arrived at a rule of thumb; the single metal master copy of the original lacquer could safely give three or four positive mother copies, and each of these should produce five negative stampers before quality starts to fall off.

Teldec's engineers eventually learned to pull between 30 and 40 high quality stampers from each mother. But for Mobile Fidelity and Sheffield Labs supercut or

ABOVE: Two views of JVC's pressing plant at Yamato in Japan. The company was secretive about the makeup of its super vinyl, but insiders revealed it was not just super pure and thus quiet, but also very rigid

LEFT: 'It's the unpredictable nature of the process that drives you mad...' – Gerald Reynolds, chief cutting engineer and technical director at Nimbus and now Wyastone

INVESTIGATION

direct cut releases the number was restricted to 15 or at most 20 stampers. Plants that didn't care about quality would go on growing copies until the cows came home. So the first pressings of a new title would usually be the best.

GROOVE DISTORTION

The quality of vinyl used proved a key factor in coping with the bugbear of inner-groove distortion. As the pick-up tracks an LP rotating at a constant speed (33.3rpm), there is more ground for it to cover

per revolution in the outer grooves than in the inner grooves.

The pick-up stylus has higher linear velocity – that is, travels faster – along

the outer grooves than along the inner grooves. So the recorded wavelengths for any given audio frequency will be longer in the outer grooves than in the inner grooves.

Just as an ordinary microscope becomes useless as the size of an object approaches the size of a wavelength of light, so audio resolution falls off as the recorded wavelengths in the inner grooves

of an LP approach the size of the stylus tip and the individual particles of the vinyl plastic. If the vinyl is impure, eg if it contains paper from ink-printed labels ground up with recycled discs (as was routinely done by some of the majors), the sound gets progressively rougher as the recording gets to the end of a side.

I expected JVC's plant at Yamato in Japan to be a glistening space-age clean room, buzzing with men in white coats. Instead it was a large hangar-like building with a green-painted floor and a remarkable

scarcity of human beings. Each worker was responsible for eight fully automatic presses loosely based on a US design, but modified beyond

recognition by JVC engineers.

Pressing supercuts for foreign companies such as Mobile Fidelity was only a sideline for JVC. Yamato supplied 25% of the domestic market in Japan. But only the supercuts, and classical releases, were pressed from the famed super vinyl, which JVC had developed for the ill-fated CD4 surround sound system that required frequency response up to 45kHz for

'Decca left its discs to cool for hours'



ABOVE: Pictured in 1948, Peter Goldmark (left) cuts the world's first LPs at CBS Labs in the US

BELOW: A record press stamper fitted to one side of a record pressing mould. A stamper starts to wear out from the very first LP pressed, eventually this causes noise

the rear channels. Most discs were pressed at Yamato on 'conventional' vinyl. All 12in LPs were pressed from virgin vinyl while 7in EP discs were made from an 80/20 mix of recycled rejects and new vinyl.

JVC was very secretive about the makeup of its super vinyl but insiders revealed it was not just super pure and thus quiet, but also very rigid. JVC had found that conventional, softer, vinyl had a 'memory', much like a master lacquer. If a conventional disc is played several times during the same day, the groove walls stretch temporarily, degrading high frequencies. If left for a day or two, the plastic returns the walls to their original shape.

With conventional LPs this means only a marginal, temporary loss of extreme high frequencies. But with CD4 quadrasonic discs, loss of high frequencies meant loss of surround. Super vinyl was tough enough not to deform with playing.

PLAYING IT COOL

After having been pressed from a bun-shaped 'biscuit' of hot vinyl the discs were automatically grabbed by a pivot arm, given only a few seconds to cool and slid (still wholly automatically) into the inner record sleeve. The inner then dropped down a chute into an outer sleeve. The whole cycle from raw plastic biscuit to finished sleeved product took just 22 seconds.

In contrast, Decca at New Malden used to leave the discs to cool for several hours before manual bagging. 'We believe that to handle the discs may cause defects,' the JVC plant manager told me. 'Our reject rates are less than 1%.'

JVC pressings were of legendary flatness, and not just because they were thicker. The factory had found



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INVESTIGATION

the trick was to stack around ten sleeved and bagged discs between metal sheets, and then immediately apply downward pressure from hydraulic springs.

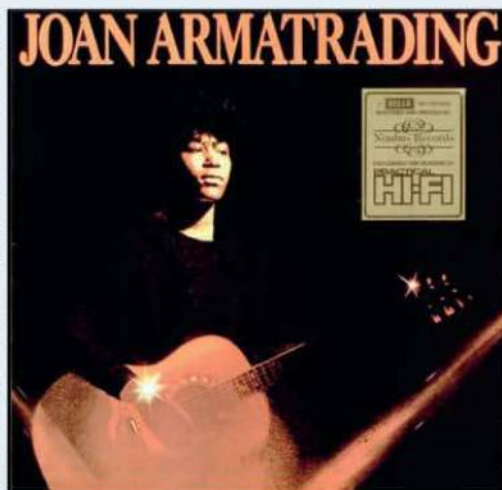
QUALITY CONTROL

The biggest surprise from Yamato was on average stamper life. The LP stampers were only changed every 6000 pressings. The trick here, I was told, was very careful control of press pressure, with equal force all over the stamper area and the absolute bare minimum necessary to form the groove. Also, the 6000 figure only applied if the press kept pressing without stopping.

JVC's principle, the manager told me, was to get the process running correctly and then just let it run. There was a surprising lack of quality control, with discs checked only after a change of stamper, and then only one disc in every 200 played on a turntable with noise detection circuitry that logged clicks, pops and background noise. Anything untoward alerted an operator who then listened to the disc through headphones.

Although WEA owned British classical label Enigma, Enigma gave up even trying to get decent pressings out of WEA's West Drayton plant, and had them manufactured by Teldec in Germany instead.

Teldec used Alpha Toolex presses from Sweden. Some worked fully automatically, controlled by



a punched-card program, and produced an LP every 25 seconds. Teldec's semi-automatic lines took 32 seconds per LP.

Labels are hot-moulded into the vinyl during the pressing process and Teldec regarded label-drying as crucial. The paper and ink

need to withstand tremendous pressures and heat, so must be totally dry before application because even a tiny amount

of water in the paper will turn to steam, ruin the high-gloss finish of the vinyl, and create surface noise when the record was played.

Unlike JVC in Japan, Teldec visually checked every disc for surface defects. Rejected discs, along with the swarf collected from the pressing machines as

'Label drying was crucial to Teldec'



ABOVE: Two examples from the Nimbus 'Supercut' series, available via mail order from hi-fi magazine *Practical Hi-Fi*; today these releases change hands for hundreds of pounds

the discs were trimmed to size by automatic knives, were recycled for EP production. LPs were always made from pure virgin vinyl. Some bagging was automatic, with two machines, one for inner sleeves and one for outer sleeves. But the unions had (still have) a very strong hold in Germany so Teldec did some bagging by hand simply to create work for otherwise redundant staff.

NO REGRETS?

Nimbus pressed its last LP in 1986, two years after its first CD. The company is still pioneering, with its 16x burn-and-print-on-demand service for record companies that want to keep specialist titles in their catalogue but cannot afford to press, package and warehouse by the thousand. The CDs that Nimbus burns and prints to order look just like pressed discs. You probably own some without realising it.

Despite being adamant about never going back to the LP, Gerald Reynolds does admit one vinyl regret though. He recalls: 'One of the hi-fi magazines in the 1970s, *Practical Hi-Fi* (an early title from HFN's owner IPC Media) did a wonderful job in getting the original master tapes for LPs from artist's like Supertramp and Joan Armatrading and we cut and pressed them as supercuts.'

'Although we archived one of everything we didn't keep stocks – which is a real pity because they now change hands at hundreds of pounds a time.'

Tell me about it. I released shelf space for more CDs by selling most of my LP collection, including many unplayed supercuts – just before the current explosion of interest in vinyl. ☺



LEFT: Direct-cut LPs – if the grooved mother is bad another lacquer must be cut from the master tape. If the original master lacquer was direct-cut from live mic feeds the only option is to pray that a safety master cut taken at the same time was good

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- [D] The new version of the Zero range has arrived! Consisting of the 9wpc Zero integrated amplifier, the CD Zero one box player, the CDT Zero/II transport, the DAC0.1x and the R Zero phono stage. The range not only offers performance unrivalled at this price-point, but the elegant looks and superb build quality that one would expect from Audio Note.
- [E] With 120 strands of pure silver in each conductor, split between 3 different wire gauges to further enhance signal transfer behaviour, the SOOTTO rewrites much of what interconnects are supposed to do. Its clarity and dynamic differentiation almost defies what one would have thought possible from a cable. If you want the best, you need to hear the SOOTTO!
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Emillé Cha'am (£8450)

With a sound that is extremely detailed and musically beguiling, the beauty of this exquisite looking valve amplifier proves to be more than just skin deep...

Review: **John Bamford** Lab: **Paul Miller**

Hats off to the industrial designers at Emillé Labs. As with all the company's reassuringly expensive tube amplifiers, the curiously named Cha'am integrated is a masterpiece of industrial design and it looks a million dollars.

You can be forgiven if you've assumed the company is French. In fact, Emillé hails from South Korea, and is a specialist audio division of Kwangwoo Electronics [see 'The Name Rings a Bell' box-out]. While established as a high-end marque nearly 20 years ago, it's only more recently that Emillé has branched out with distribution in the western territories of Europe and the USA.

Just try lifting this amplifier! At 44kg it's a seriously hefty bit of kit, mainly due to its substantial transformers of course, while it weighs no less than 72kg when delivered in its handsome wooden packing crate. It has an extraordinarily large footprint too, which inevitably raises the question, 'Where to put it?' Accommodating the Cha'am in your system will require some consideration, as the majority of equipment racks won't even come close to taking its bulk. As it offers remote control one supposes it wouldn't be out of the question to site it on the floor. Indeed, Emillé manufactures an elegant matching 'plinth' for the Cha'am (and other models in its range) fabricated in aluminium and Plexiglass – but if you'd like one you'll need to budget a further £795.

The amp is a dual mono design employing for each channel a 6922/6DJ8 triode followed by a 6350 phase inverter and two 6350 tubes for the driver stage. The output stage comprises a pair of 6500s while bias meters and adjustment pots are provided to permit individual trimming of bias current – a nice touch

RIGHT: Power meters on the fascia can be switched to operate as bias meters for each of the four 6550 output valves. Recessed trim pots, which enable the user to adjust the bias, are accessed with a small screwdriver

for 'tube rollers' who like to experiment with different makes of valves.

Emillé Labs claims a wide frequency response thanks to its hand-crafted output transformers that are made in-house, while within its chassis the Cha'am employs gold-plated glass epoxy circuit boards with 2oz copper tracks. Internal wiring is silver-plated, along with silver contact relays employed throughout. The motorised volume control is via a Japanese Alps 'Blue Velvet' potentiometer, brief 'stabs' on the handset buttons allowing reasonably precise adjustment of volume.

TAKING ON THE BEST

As Ken Kessler pointed out in our recent group test of budget-priced valve integrated amplifiers [*HFN* May '10], myriad manufacturers of affordable tube amplifiers from the Pacific Rim have been largely responsible for the valve breed's continued popularity among today's audio enthusiasts, especially among hobbyists keen to explore the differences

in tonality available by experimenting with various makes of valves.

Emillé Labs however can be viewed more as challengers to established western manufacturers of thermionic esoterica such as Audio Research, McIntosh, Conrad-Johnson and the UK's EAR-Yoshino. The company's amplifiers exude opulence and display a skilful combination of modern sculpture and retro styling, their immaculately finished anodised aluminium chassis and Plexiglass cover plates creating a most striking visual impression.

Emillé's top-flight KI-120 monoblock power amps will set you back a cool £25,000 per pair, however the company also has some more affordable integrated models in its range including the KI-40L rated at 40W/8ohm (£5760) and 70W KI-270 (£7150) that appears almost identical to this latest Cha'am model. However, what the Cha'am adds is remote control operation via a simple aluminium handset with straightforward volume up/down and mute buttons, plus





a transformer-coupled balanced input that employs Swedish-made Lundahl transformers.

BALANCING ACT

The opportunity to audition the Cha'am coincided with my playing host to Aspara Acoustic's substantial HL1 horn speakers that graced the front cover of our May issue. The timing was propitious, as the combination worked particularly well, delivering a vibrant, engaging sound with a noticeably free-flowing quality that was highly musical.

Substituting my resident Mark Levinson No.383 solid-state integrated amplifier with the Cha'am proved beyond doubt that the exquisite beauty of this Emille model is more than skin deep. It also proved that one should never judge a book by its cover – or, in this instance, by the topology of its circuit design. While the sound of the Cha'am appeared effortless and relaxing to listen to, this was not achieved by delivering a soft, syrupy-smooth balance. In fact the sound was detailed and explicit, with plenty of high

frequency sparkle that created a feeling of air and space and a delightful three-dimensionality to the soundstage with good recordings.

The string bass on Diana Krall's 'My Love Is' from 1997's *Love Scenes* [Impulse IMP12342] sounded rich and resonant, while the halo of reverberation around Diana's voice was highly resolved. The percussive clicks were crisp and fast, with a lightness of touch that helped deliver a bouncy, spirited presentation with vivid clarity.

The amp sounded mighty powerful too, delivering high sound pressure levels when the occasion demanded. Listening to the grandiose 'Waiting For The Big One' from a Japanese pressing of Peter Gabriel's eponymous first solo LP [Poystar/Charisma 205-100] the Cha'am produced a cavernous soundstage of aircraft hangar proportions, while guitarist Steve Hunter's get-down-and-dirty guitar chops possessed urgency and not a little anger. The sound was both

*'The Cha'am's
lucid treble created
an exceptional
sense of occasion'*

ABOVE: While the amp's power on/off and source selection is manual, volume control is via a motorised potentiometer

resonant and explosive with headroom to spare, with tremendous presence and atmosphere and no sense of stridency despite the sharp clarity.

Similarly the cold, icy European synthesised sound of The Eurythmics was presented with uncommon civility. The title track from 1983's *Sweet Dreams* album [RCA 71471] was delivered devoid of any unpleasant grain, edge, or stridency despite the 'thin' electronic treatments on Annie Lennox's vocals that can all too easily become hard and brittle.

Again, the Cha'am managed this without in any way sounding soft and rolled off. The track's electronic percussion was crisp and sharply-etched while the synthesizer riffs displayed a vivid disposition that buoyed musical lines along with infectious pace.

THE NAME RINGS A BELL

Founded in 1975 in South Korea by Mr Keun-Bae Lee, Kwangwoo Electronics was manufacturing vacuum tube components such as plates, cathodes and grids for the gigantic Samsung company before setting up a separate audio department in 1991 dedicated to producing high quality valve audio amplifiers. The brand name chosen for its hi-fi amplifiers was Emille (pronounced em-ee-leh), named after a 20-ton bronze bell located in Kyungju city, 60km from the company's factory. First hung in the Bongdeoksa Temple, the Emille bell dates from 771AD and is famous in South Korea for being the largest in the country. Featuring intricate patterns and carvings it was cast using a wax process brought from ancient India. Its structure gives it a reverberation time over three minutes, and when rung it is said to be audible 40 miles away on a clear day.

KNIGHT'S CHALLENGE

Switching to my towering Townshend Sir Galahad loudspeakers it was still apparent that the Cha'am has the ability to float a large three-dimensional soundstage with delicious transparency of midrange and high frequency details. What the amplifier doesn't resolve – when your loudspeakers have the ability to plumb the very lowest bass registers – is bass texture and detail in abundance.

With the Dallas Symphony Orchestra's 1967 recording for Vox/Turnabout

VALVE INTEGRATED AMPLIFIER

LAB REPORT

EMILLÉ CHA'AM (£8450)

It is possible to achieve 100W from a pair of 6550 beam tetrodes operating in push-pull, so Emillé's 70W/8ohm specification is not wildly optimistic, particularly as its 44kg bulk promises substantial transformers to match... Nevertheless *continuous* high power output is accompanied by increasing distortion in the Cha'am, so much so that 2x60W into both 8 and 4ohm loads (via 8/4ohm taps) can only be maintained for relative short periods at 2% distortion. However under truly dynamic conditions, the Cha'am comes alive, delivering 120W/8ohm and 105W/4ohm for 10msec bursts at <1% distortion. Into lower 2 and 1ohm loads, via the 4ohm tap, it even extends to 205W and 405W [see Graph 1, below] so the Cha'am will certainly sound beefier than its 'soft' continuous specification might suggest.

Into a flat 8ohm load, the amplifier's response shows a very gentle shelf into the bass (-0.7dB/20Hz) allied to a broad presence boost of +0.15dB, but it's the very high 7.5-8.5ohm output impedance that will determine the final 'shape' of the amp/speaker response and therefore the tonal balance with different loudspeaker selections. The 0.6-0.8% distortion (10W continuous, 100Hz-20kHz) will probably exert less subjective impact, although the increase to several percent may influence the resolution of very deep bass [see Graph 2, below]. Volume tracking is not first rate (a 1dB error at 1W/8ohm) and the A-wtd S/N slightly below average at 81dB (re. 0dBW) but otherwise the Cha'am is a solid product. Readers are invited to view a comprehensive QC Suite test report for the Emillé Cha'am integrated amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: To the rear can be found three sets of single-ended RCA input sockets together with a balanced input pair (XLRs); meanwhile, the speaker terminals are gold plated and offer both 4 and 8ohm taps

of Rachmaninoff's 'Symphonic Dances For Orchestra' [remastered at 24-bit/96kHz; Classic Records DVD, DAD 1004] the spatial cues of this famous recording were beautifully resolved and, again, the sound was fast and vibrant. The rasping brass and crashing percussion appeared highly explicit, the Emillé's vivid balance marrying most satisfactorily with the speaker's lines of ribbon tweeters that err towards smooth sweetness rather than crystalline liveliness. The recording is known to be uncompromising with a vibrant tonal balance, yet the Cha'am's liquid midrange quality helped avoid 'glare' while the lucidity of its treble created an exceptional sense of occasion.

FREE OF FATIGUE

In comparison to my Levinson No.383 integrated, which is uncommonly smooth-sounding, the treble again was a bit more lit up. Yet this appeared not to be in the range that's responsible for any fatiguing hardness, but rather higher to make the sound appear fresh and open. Where the midrange and vibrant treble detail spotlighted the Cha'am's virtues, the bass was less explicit, falling off in ultimate weight and dynamics in the context of this set-up when the orchestra's tympani truly let rip with gusto.

Staying with high resolution source material and playing the DVD-Audio reissue of Foreigner's *Foreigner 4* album [Atlantic/Rhino 8122743669] which contains a couple of 'almost unplugged'

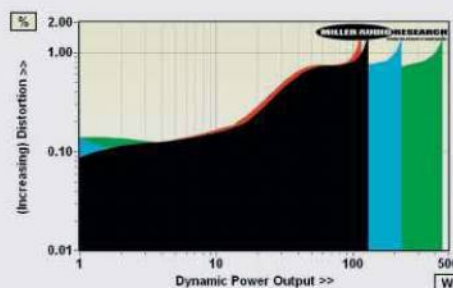
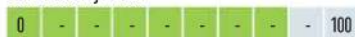
bonus tracks – modern studio recordings that are explosively dynamic – the Emillé once again sounded sparkingly open and fresh. But when asked to deliver chunky blocks of powerful bass it lacked clarity and definition in the very low registers. Yes, it sounded satisfyingly weighty and powerful, but it became a little sluggish and failed to articulate the true character and textural tones of the pumping bass lines in 'Juke Box Hero'. Nor did the bass extend as deeply as it might when listening to this set through Aspara's HL1 horns with their considerable 12in woofers.

When playing within its comfort zone the Cha'am remains poised and articulate. It's informative of recording quality without sounding clinically analytical, while its easy-going nature kept whetting my musical appetite late into the evenings. ☺

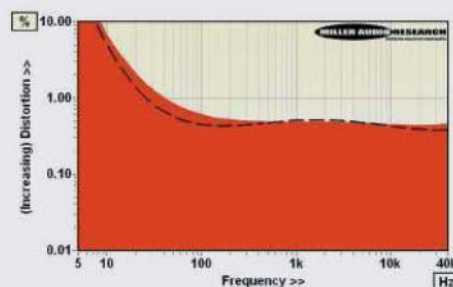
HI-FI NEWS VERDICT

Emillé Labs' Cha'am integrated is undeniably expensive, but construction quality is exquisite and its immaculate fit and finish assures pride of ownership. While it doesn't deliver the bass 'slam' that owners of large speaker systems might desire for listening to rock music, it nevertheless combines fine detail resolution with a delightful easy-on-the-ear quality. Auditioning with your chosen speakers is mandatory.

Sound Quality: 78%



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion vs. frequency from 5Hz to 40kHz (5W/8ohm – left, black dashed; right, red infill)

HI-FI NEWS SPECIFICATIONS

| | |
|-------------------------------------|----------------------------|
| Power output (<2% THD, 8/4ohm) | 60W / 58W |
| Dynamic power (<1% THD, 8/4/2/1ohm) | 120W / 105W / 205W / 405W |
| Output impedance (20Hz-20kHz) | 8.7-7.5ohm (8ohm tap) |
| Frequency response (20Hz-100kHz) | -0.65 to -4.2dB (8ohm tap) |
| Input sensitivity (for 0dBW/70W) | 32mV / 266mV (balanced in) |
| A-wtd S/N ratio (for 0dBW/70W) | 80.7dB / 99.2dB |
| Distortion (20Hz-20kHz, 10W/8ohm) | 2.25-0.61% |
| Power consumption (Idle/Rated o/p) | 240W / 410W |
| Dimensions (WHD) | 545x277x460mm |

DIAMOND 10 SERIES



**MUSIC
CHOICE**

"Wharfedale's Diamond Series continues to outsparkle its rivals."
BBC Music, December 2009

**WHAT HI-FI?
SOUND AND VISION**
★★★★★

"The Diamond 10.1's take Wharfedale back to the forefront of budget speakers. Truly excellent..."
Diamond 10.1 Review – WHF? Sound and Vision, September 2009

**WHAT HI-FI?
SOUND AND VISION**
GROUP TEST WINNER

"The budget speaker arena has been revitalised by the latest incarnation of a model that first saw the light of day in the '80s"
Diamond 10.1 Group Test – WHF? Sound and Vision, October 2009

**BEST BUY
HI-FI CHOICE
magazine**

"Loudspeaker gem really sparkles"
Diamond 10.5 Review – Hi-Fi Choice Awards 2009

**WHAT HI-FI?
SOUND AND VISION**
AWARDS 2009
PRODUCT OF THE YEAR
STEREO SPEAKERS & SUBWOOFERS
WHARFEDALE DIAMOND 10.1

"It's the tenth generation of Wharfedale's budget speaker, and arguably the best yet"
Diamond 10.1 Product of the Year, Stereo Speakers
WHF? Sound and Vision Awards 2009

HI-FI WORLD
★★★★★

"The Diamond 10.3 has an extraordinarily accomplished design that offers superb balance and a great raft of strengths as modern floorstanders go. At the price, it is a svelte bargain."
Diamond 10.3 Review – Hi-Fi World, January 2010

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B&W 805 Diamond (£3750)

Probably the most anticipated loudspeaker in the company's line-up for decades, B&W's 805 Diamond has finally arrived. Yet under the skin much has changed...

Review & Lab: **Keith Howard**

As soon as B&W introduced diamond tweeters to some of its 800 series speakers in 2005, people began asking for a diamond tweeter to be fitted to the smallest model in the range, the 805. To Worthing's annoyance, some even anticipated the development by cannibalising diamond tweeters from other 800 models to fit to the 805S.

Well, the wait is over – the official 805 Diamond is here. Its price has more than doubled over the old 805S, which is no longer being made, but it's inevitable that the least costly model in the range should suffer proportionately more from the fitting of the costly diamond dome. The good news is that this isn't a mere swap job: B&W has taken the opportunity to re-engineer the 805 thoroughly, to the extent that if you thought you might be able somehow to wangle a new bass-mid driver or tweeter to fit to your old 805S, forget it – they won't fit. There are also some new finishes available, including the high gloss black you see here (which replaces the previous black ash on the basis that it looks rather low-rent by comparison), and a mild cosmetic make-over.

RINGING THE CHANGES

At a glance it is the latter which you notice: the new chrome trim rings about each driver and port at the front (where the continuous plastic moulding that formed the flared port mouth and bass-mid driver mounting trim has disappeared) and the chrome-plated input terminals at the rear. Otherwise the 805 Diamond looks much like its predecessor with its trademark woven Kevlar bass-mid unit cone and tweeter perched above the domed top panel in its decoupled, teardrop-shaped housing, with Nautilus tube to absorb the rear radiation from the dome.

But under the skin a lot has changed. The input terminals, for instance, are more than chrome plated, with metal 'nuts' replacing the previous plastic items. In fact the terminals are now made of oxygen-free copper and, yes, B&W did find that a high

degree of copper purity was necessary to maximise sound quality. Moreover, the terminal 'buckets' on the inside are now crimped rather than soldered to the crossover connecting wires.

As before, that crossover is as simple as they come, comprising an air-cored series inductor to the bass-mid unit and new Mundorf silver/gold/oil capacitor in series with the tweeter. While this electrical network gives first-order crossover slopes, the overall acoustic slopes are steeper because of inherent driver roll-offs.

Changes have also been made to the drivers themselves. As well as the new diamond dome, the tweeter gets a revised surround, selected by listening, a new quad-magnet neodymium-iron-boron motor system designed to enhance sensitivity, and a redesigned housing. The bass-mid unit has a new GRP (glassfibre) voice coil former, revised suspension (the spider material and profile have both been changed) and a new surround material. The motor system remains the same but the driver has a new chassis and there has been a small retuning of the bass alignment.

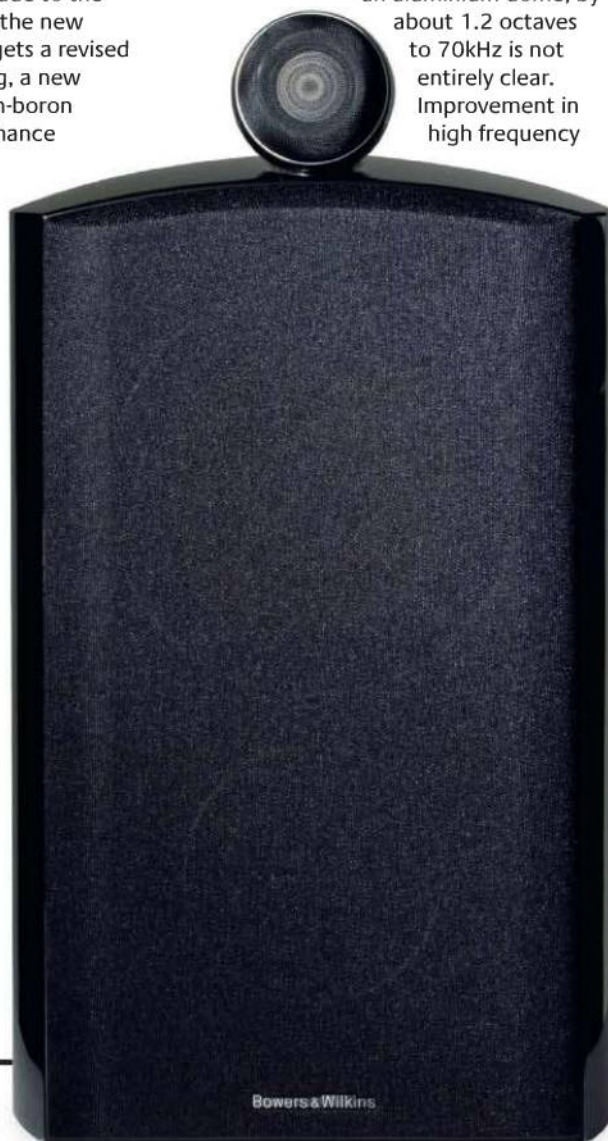
Because of the deletion of the plastic baffle trim, the bass-mid driver also now couples more effectively to the MDF front panel.

By the way, 800 series cabinets are no longer made in Denmark, where B&W originally went to find the expertise in bending

plywood to make the horseshoe-shaped enclosures. They are now manufactured in the UK, in B&W's Worthing factory where the necessary equipment – and know-how – has been imported and installed.

The point of the diamond tweeter, of course, is to move the first breakup resonance of the tweeter dome to well above the audio range. (You can read more about this in the box-out, below right.) But why it should make such an audible difference to raise the resonance frequency, which is already ultrasonic with

an aluminium dome, by about 1.2 octaves to 70kHz is not entirely clear. Improvement in high frequency



RIGHT: At first glance the 805 Diamond looks much like its predecessor except for a few cosmetic differences – but the engineering changes beneath add up to a significant redesign

phase performance has been suggested but that's likely to be overwhelmed by phase effects imposed by the microphones and electronics used in many recordings, and by some replay electronics too.

So the sound quality benefit of the diamond tweeter remains one of audio's intriguing mysteries.

None of which is to say, incidentally, that the 40micron (0.04mm) thick diamond dome provides flat output to 70kHz or so. Because of dome cancellation effects – at frequencies where output from around the tip of the dome is in antiphase to output from areas nearer the surround – there are inevitable dips in even its on-axis output. But the response is maintained out to the stated 70kHz resonance, beyond which the output falls away fast – at least, to the 96kHz limit of my measurements.

SOFTLY, SOFTLY...

The 805S was never a tonally neutral speaker, and the Diamond is no different. That scooped out upper midrange and lower treble response has the pleasant effect of gifting the

805 Diamond great image depth but it does also soften the sound somewhat. If that's how you like your music presented then fine. If you like a little more bite and drama then you will, at the very least, have to choose your ancillaries with care.

My Exposure XVIII Mono amplifiers are hardly backwards in coming forwards, which is a start. I also had the choice of two top-notch CD players as source: the Naim CDX2/DAC/XPS combination I revelled in last month and a Simaudio Moon 750D [see p52]. Of the two, I preferred the Naim with the 805 Diamonds because its dynamic alacrity secured an overall system sound that was better able to retain my attention.

A fine choice for assessing this is the Volodos Schubert piano recording [Sony SICC 70, Japanese import] I've been turning to a lot recently, which via the Naim/Exposure/B&W combination had a little more of the *joie de vivre* that I expect to hear. To achieve the best sound from the diamond tweeters, by the way, it is essential to remove the protective grilles – although you might want to form the habit of replacing them after every listening session to prevent accidents.


Sympathetically partnered in this way, the 805 Diamond does an unusually fine job of delivering beguiling liquidity of sound on, say, male and female vocals without sounding too sugar-coated. For instance, it revelled in

Radaka Toneff and Steve Dogbrogosz's 'The Moon Is A Harsh Mistress' [Odin NJ 4028-2] – a favourite test track some decades back. Toneff's voice was naturally but not overly warm and the difficult sibilants were handled with notable aplomb by the diamond tweeter. The piano sound was naturally percussive but never harsh and the 'noises off' – presumably Toneff moving about in front of the microphone while Dogbrogosz plays the piano break – somehow made more sense than is often

the case. Overall, the speaker's rendition of this track was as convincing as any I've heard.

Male voice fared excellently too, specifically my established favourite of tenor James Griffett singing that

moving English folk song 'The Turtle Dove' [Regis RRC1112]. Setting aside the tape print-through that I've bemoaned before, this is as persuasive an advocate of purist microphone technique – here wielded by Tony Faulkner – as you could wish to hear. The 805 Diamonds were perhaps guilty of adding a touch too much chest tone to Griffett's voice but otherwise were captivating, holding his voice rock steady and weaving around it the fine, spacious acoustic of Boxgrove Priory. If it were played in the dark (and particularly if you sat on a hard wooden seat...) the overall effect would be uncannily realistic.

I'm still trying to decide whether *Insen* – the minimalistic/electronic collaboration between Alva Noto and Ryuichi Sakamoto – is a masterpiece or a vexation to the spirit. It really could be either. On Track 6, 'Iano', Sakamoto provides a simple, atmospheric piano line while the accompanying electronic sounds – variously rustles, 

'The rendition of this test track was as convincing as any I've heard'

DIAMOND DEPOSITS

Diamond has long been a dream diaphragm material for loudspeaker designers not because of its hardness but because of its high longitudinal sound velocity (VL). The textbooks say that diamond has a Young's (tensile) modulus of 1200GPa and density of 3300kg/m³, resulting in a VL of over 19km per second – fully 3.7x that of aluminium, the more normally used tweeter dome material. But B&W says that the relevant figures for its diamond tweeter domes, which are manufactured by 'supermaterials' company Element Six using a chemical vapour deposition (CVD) technique, are about 1000GPa and 3500kg/m³, which translate into a VL of 16.9km/s – about 3.3x that of aluminium. The result is a first dome breakup resonance at around 70kHz, whereas with the 805S's 25mm aluminium dome it occurred at about 30kHz.



LOUDSPEAKER

LAB REPORT

B&W 805 DIAMOND (£3750)

B&W's claim of 85dB sensitivity for the 805 Diamond accords well with our measurements which returned a pink noise figure of 88.1dB averaged for the review pair – better than we saw with its predecessor. A still higher figure could have been achieved by lowering the impedance but, unlike larger 800 series models of the recent past, the 805 Diamond presents a pretty benign load to its partnering amplifier. We measured a minimum modulus of 4.4ohm, a little lower than B&W's claimed 4.7ohm. Phase angles are high, though, so the minimum EPDR (equivalent peak dissipation resistance) is 2.2ohm at 138Hz but this is still a fairly amplifier-friendly figure. The 805 Diamond – like the 805S before it – has a far from flat on-axis frequency response (measured here on the tweeter axis), the overall trend being notably concave through the presence band, which explains the slightly laidback tonal balance and the high-ish frequency response error figures of ± 4.0 dB for each speaker [see Graph 1, below].

Pair matching is excellent at ± 0.7 dB. There is actually a little less output in the final octave than with the aluminium dome of the 805S, and the -6 dB figure of 22.5kHz (re. 10kHz) for one of the review pair may come as a shock. This appears to be due to a dome cancellation, the tweeter output being maintained to above the 70kHz dome resonance, which is marked by only a small peak in the response (not shown here). The low frequency extension of 45Hz for -6 dB (re. 200Hz) – determined using a diffraction-corrected near-field measurement – accords well with B&W's claims. Some breakup of the woven Kevlar bass-mid cone is suggested in the CSD waterfall [see Graph 2, below]. KH



ABOVE: The chromed terminal posts are made of high purity, oxygen-free copper and have crimped rather than solder connections to the internal cables

peeps and ticks – provide all the rhythmic impetus. The result is strangely compelling – love it or loathe it, you can't ignore it – and the 805 Diamonds made it more so by revealing the nature and manipulation of the electronic sounds in great detail. They also did an unexpectedly good job of conveying the very low synthesised bass notes that this piece contains.

WHAT ABOUT ROCK?

So far the dished frequency response hadn't really been a problem but, as I suspected, the 805 Diamond is not a natural partner for rock music, any more than the 805S was. Free's 'I'll Be Creepin' [Island CRNCD 2 518 456-2] was just too stodgy with a little too much, albeit clean, bass and not enough presence band snap to build a worm hole back to four decades ago. Gwyneth Herbert's 'Annie's Yellow Bag' [naimcd 135] told the same story: the opening bass line was clean but the drum break didn't have the impact required to set this track on fire.

The fact that the 805 Diamond isn't lazy in the bass – B&W has long espoused overdamped bass reflex alignments – prevents it being a write-off on such material but I really can't see the core lack of energy in its sound being acceptable to listeners whose diet is mainly this genre of music.

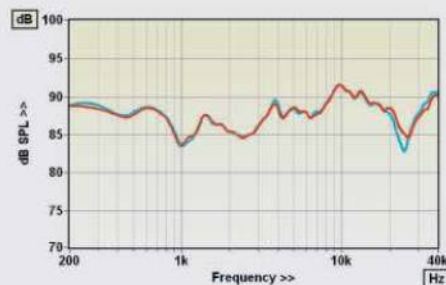
Point it at an atmospheric orchestral piece like Hilary Hahn's reading of Vaughan Williams' 'Lark Ascending' [DG 00289 474 8732] and the B&W is in its element.

Hahn's violin tone was silken and the big, spacious, elegiac orchestral accompaniment soared like the violin. Smaller classical forces fared well too, like Quatuor Ebène's much-lauded disc of French string quartets by Ravel, Debussy and Fauré [Virgin Classics 50999 519045 2 4]. This recording can sound a bit glutinous but the 805 Diamonds did a fine job of cutting through to natural instrumental timbres, revealing the instruments clearly separated in a believable acoustic. ☺

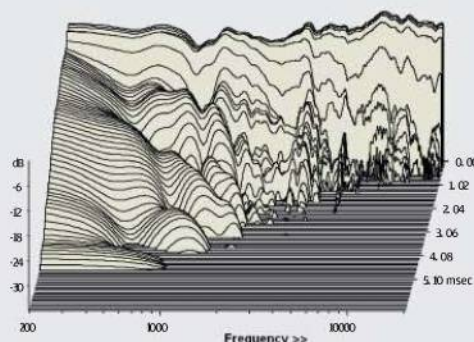
HI-FI NEWS VERDICT

Adding the diamond tweeter has doubled the price of the 805 and put it in an area of the market where there are many fine floorstanders offering greater perceived value and, at their best, a more neutral tonal balance better suited to a broad range of musical styles. But the 805 Diamond has a beguiling sound that, on the right material, is tough to resist. What it does well it does very well indeed.

Sound Quality: 84%



ABOVE: The response of this latest 805 shows a familiar depression through the presence region



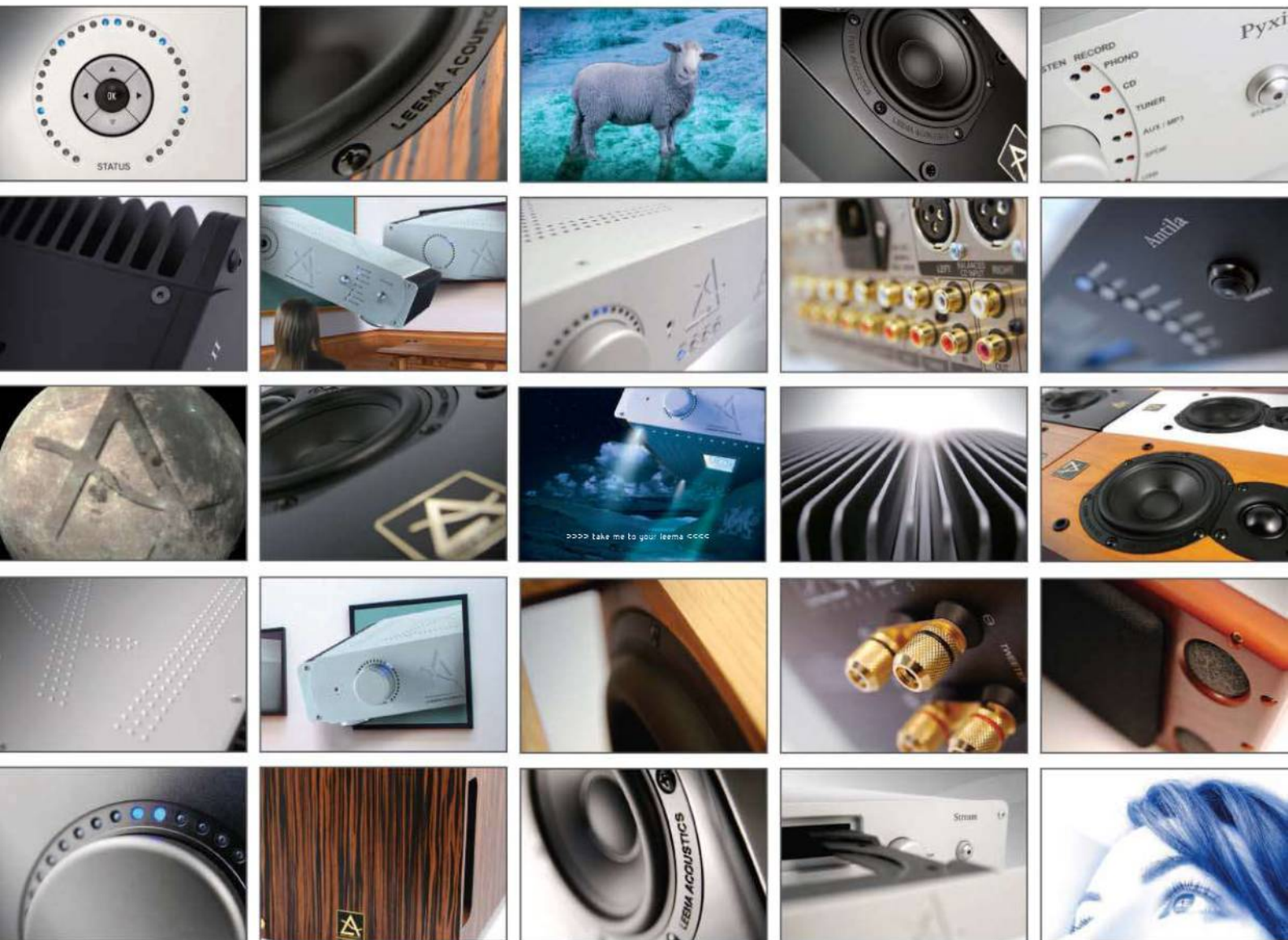
ABOVE: Waterfall shows a clean treble decay but some breakup modes are evident from the Kevlar cone

HI-FI NEWS SPECIFICATIONS

| | |
|--|---|
| Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music) | 89.0dB/88.1dB/87.5dB |
| Impedance modulus min/max (20Hz–20kHz) | 4.4ohms @ 200Hz 49.8ohm @ 33Hz |
| Impedance phase min/max (20Hz–20kHz) | -60° @ 98Hz 63° @ 29Hz |
| Pair matching (200Hz–20kHz) | ± 0.7 dB |
| LF/HF extension (-6 dB ref 200Hz/10kHz) | 45Hz / >40 kHz/ 22.5kHz |
| THD 100Hz/1kHz/10kHz (for 90dB SPL/1m) | 0.8% / 0.4% / $<0.1\%$ |
| Dimensions (HWD) | 418x238x352mm |



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Clearaudio Concept (£1100)

In a world bursting with superlative budget turntables, here comes a stand-out from Germany's Clearaudio – and it even comes with a tonearm and cartridge!

Review: **Ken Kessler** Lab: **Paul Miller**

If someone had told you, even as recently as 2000, that the market would be overrun with genuinely stunning turntables at sensible prices in 2010, you might have snorted with derision. During the LP's limbo period of 1985-2005, as it clawed its way back to its current 'cool' status, the focus seemed to be on extremely expensive high-end players. That limbo period is now over thanks to CD's decline, and the black vinyl record is regaining small but steady market share, including crucially an audience amongst those born after CD arrived.

Clearaudio has always had affordable turntables for newcomers, but the company created something special with the Concept, one of those rare occasions when the object isn't merely greater than the sum of its parts: it merits, straight out of the box, a gold star, an Oscar and a Michelin rating.

KING OF CONVENIENCE

You don't have to be a seasoned turntable user to be struck by the Concept's special qualities; they're immediately apparent. For decades, we've seen turntables that come pre-fitted with arm and cartridge, all adjustments set at the factory, requiring nothing more than plugging into the mains and the phono inputs of the integrated amp or receiver. Budget decks have always been that way. But the Concept applies high-end standards to entry level convenience and price, and done in such a way that you have to be a churlish hound to look for compromises in the design.

Indeed, the only way you can suggest that 'Clearaudio cut corners' is to point out that the chunky, acoustically-dead plinth's corners are rounded. It's a sandwich slab made from an unspecified inert material with a Medite-y feel, trimmed with a brushed aluminium frame, with no suspension. Rather, it rests on three

height-adjustable pointy feet. But I do not consider the lack of a springy suspension to be economising with a deleterious result: to save money, you compensate for this by positioning it away from physical or airborne vibrations. Tweakers, if anything, will welcome this because it also encourages them to play with aftermarket feet.

Once it's freed of the packaging, you see the arm held in place with sticky tape, Styrofoam inserts protecting everything else. It was no more complicated than removing a CD player from its box. I had it making music in *four minutes*, even with checking the settings post-transit. The external power supply was plugged into the mains and then the back of the Concept, the phono leads inserted into the Audio Research PH5 phono stage, and, later, the line inputs of the Velvet P2 [see p60] and McIntosh C2200 preamps. I had a hefty table cleared for it – the GM Accessori BCD, stupendously over-engineered and spiked to my listening room's concrete floor – with a couple of LPs primed for play. Off with the stylus guard, and it was instant bliss.

After a few hours running it in, enjoying the sound as it improved, I investigated

further. The spookily-invisible, magnetically-suspended tonearm reminded me of the Well-Tempered, if only because it hangs there, but there's no string holding it in place: two powerful magnets position it in a friction-free manner. Closer study revealed set screws that allow you to play with the arm height and the cueing lever reach, while tracking force is applied with a conventional balance weight. The supplied cartridge operates at 2.4g.

SILENT RUNNING

Overhang and azimuth are also blissfully easy to set, reminiscent of the Syrnix (had it ever been properly manufactured). The only tricky bit, not covered in detail by the instructions, is setting the anti-skating bias, which is accomplished by trimming the leads via a bolt from underneath.

This only affects you should you change cartridges, which I did in order to hear the deck with costlier designs. They included moving coils from Transfiguration, Koetsu and Lyra and MMs from Shure and Ortofon.

A word of caution, emphasised in the owner's manual, is the need to set the tracking force *without* an LP on the platter.

RIGHT: The arm – pre-set at the factory for the supplied MM cartridge – needs careful adjustment if you wish to change cartridges; anti-skate is applied underneath





That made sense because logic dictates that a turntable operates with a record in place, and that the force (and arm height) would therefore be best set *with* an LP on the platter. Thus the thickness of a record is represented by a stylus gauge's platform – including Clearaudio's own.

Blissfully quiet, the Concept is belt-driven by a decoupled DC motor with low noise bearings, powered by the aforementioned external black box; fans of 78s will appreciate that this is a three-speed deck able to accommodate the higher velocity. The composite 30mm black platter slides over the spindle with little resistance, the bearing itself described as 'a polished and tempered steel shaft in a sintered bronze bushing, running on a mirror of Teflon.'

Although it positively begs to be tweaked, I avoided any accessories for the turntable itself. The lack of a suspension and easy arm-height adjustment will encourage those among you with ADD (Accessory Deployment Disorder) to try assorted mats – felt, cork, RingMat, Funk, what-have-you – while the chassis' light weight and flat underside will send you running to the drawer that you've filled with spikes 'n' feet collected over the years. I didn't even try a record clamp or weight – another source of innocent fun this might inspire you to exploit.

CREDIBILITY GUARANTEED

Having been to Clearaudio's factory and seen how it does nearly everything in-house, I am reminded of another field that deals with the question of 'authenticity'. In the luxury watch business, most manufacturers do not produce their own movements as this leads to a loss of credibility. Transfer it to audio, and you find serious manufacturers wondering how so many can 'outsource' to China. Clearaudio patently avoids this: the design is all theirs. It even avoids the usual trick of fitting an arm from an outside source, usually a Rega. And as wonderful as Rega's arms are, there's an added frisson of owner-satisfaction in knowing that your turntable, even at this price point, has a dedicated arm. And not just an in-house arm, but a bloody clever one at that. In other words, this is a bargain purchase for which you need never apologise.

MASS APPEAL

Creedence Clearwater Revival's penultimate studio LP, *Pendulum*, is an absolute treasure featuring gems like 'Molina', 'Hey Tonight' and 'Have You Ever Seen The Rain', a showcase for one of rock's greatest voices – John Fogerty's. It was that voice, as much as the churning guitars and solid bass, that had me choose it for my first taste of the Concept, which returned the compliment by delivering rock-hard punch.

Lord knows why, but I wasn't expecting the deck to reproduce sound with such mass or impact. The sheer power of 'Molina', one of Creedence's more hard-driving numbers, was palpable even through compact speakers, like the Sonus Faber Cremona Auditor Elipsa or Rogers LS3/5A, with fat, tactile, flowing bass. It has been something of a curse for turntables that their own mass is reflected in the sound they deliver, featherweight decks seeming capable of only minimal bass, with behemoths producing lower registers that you actually feel. The Concept, while hardly pretending that it's an SME 30, never betrayed its sylph-like form.

'The Concept almost matched my reference SME 30 for detail'

ABOVE: Utter simplicity and completely intuitive operation, with a single rotary for on/off and speed selection. Styling is reminiscent of far costlier designs, like those from Immedia

Better still was its control of the bass, not just the quantity nor even the quality: on 'Have You Ever Seen The Rain?', the sound is full enough to create a dense and busy sonic field, wide and deep, yet sparse enough to allow the user to hear each member of the band. Homing in on specific instruments proved effortless, a

boon for those moments when you're trying out a new component, or hearing a release for the first time and don't yet feel like wallowing indiscriminately in the wash of sound.

Horror of horrors, it actually reminded me of watching *Avatar* and consciously forcing myself to veer from concentrating on specific 3D details to savouring the bigger picture. So detailed yet coherent is the Concept's delivery – and I am referring to it with its own cartridge – that you suddenly appreciate something else about the deck: in this case, the cost of a truly pedigreed performer, with a heritage going back 32 years, has been lowered by a staggering amount.

It's important to place this in context, for we are discussing a German product – in itself, reason enough to marvel at a low price – composed entirely from proprietary parts, packaged to be foolproof to set up and operate, and yet styled to suggest a much larger ticket. Add this the final gift, of true 'audiophile-acceptable' performance, and you'll realise that we are dealing with something beyond the ordinary.

Which led me to the sorts of discs I only normally wheel out on high days and holidays: sonic spectacles. First was the true stereo version of the Dave Clark Five's 'Glad All Over', which is powerful enough

TURNTABLE PACKAGE

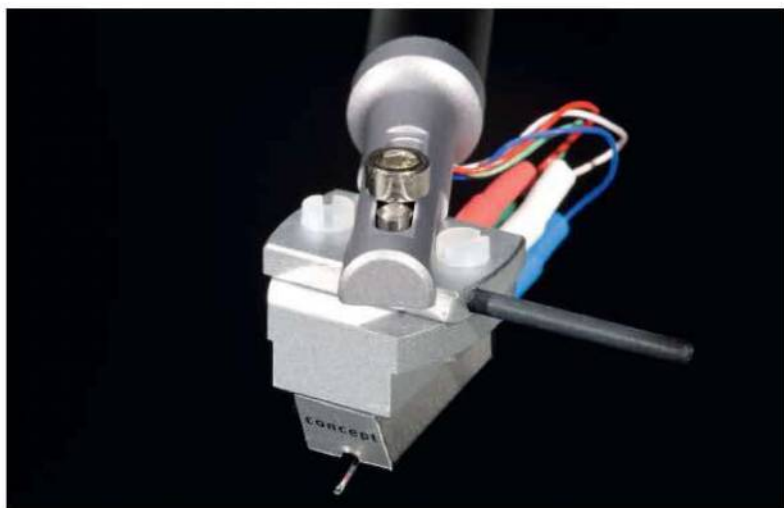
LAB REPORT

CLEARAUDIO CONCEPT (£1100)

Clearaudio's magnetic downforce compensation increases as the arm tube moves above parallel and reduces as it falls below parallel, so if you set the tube in line with the top of a record you must also adjust its downforce at this same level. Our sample was preset at 2.2g, only fractionally below Clearaudio's specification of 2.4g. Otherwise the arm/cartridge geometry was very accurate with good azimuth and only a very slight error in overhang – an excellent result for a plug-and-play solution. The lightweight alloy tube itself offers an appropriately low bending frequency of 120Hz [see Graph 2, below] with a few low-level harmonics thereafter. Any subjective impact will be in the mid-bass rather than midrange.

Turntable bearing rumble is impressively low for a deck at this price point with its DIN B-wtd noise measuring-in at -67dB through the groove and fractionally lower at -68dB via the bearing itself (all via the integral Concept MM pickup cartridge). The absolute speed error (3136Hz at 3150Hz) is acceptably slow at -0.45% (amounting to 33.18rpm) but the speed stability of the belt-drive regime and lightweight plastic sub-platter is not up to the standards of Clearaudio's costlier creations. A pervasive low-rate wow accounts for some 0.1% of the overall 0.12% weighted total [see Graph 1, below] which is significantly in excess of Clearaudio's specified 0.04%. This same result and very similar-looking spectrum was obtained for Roksan's Radius 5.2 [HFN, Mar '10].

Readers are invited to view a full QC Suite report for the Clearaudio Concept turntable package by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: The supplied MM cartridge is terrific, but easy to upgrade: note the absence of a conventional headshell and uncomplicated fore/aft/azimuth adjustment

just for its bass and rhythm section, but which soars above the mean for its sax element. It begs to be played loudly, at stomping levels that presage Slade. The Concept kept it all together, almost matching my reference system, the SME 30 with Series V, for detail, if not for absolute extension and transparency.

What it clearly avoided was the 'record player effect', and I mean that in the derogatory system-in-a-suitcase sense of cheap Pye Black Box-type portables, which present a wash of sound, stripped of details.

DIGGING IN THE DIRT

But there's a place for everything, and I'm sure some modern converts to vinyl would be just as happy with a refurbished SoundBurger. Which would be a great loss on their part, because the Concept – while not an 'introductory' turntable – excels at conveying just *why* vinyl remains the choice of the cognoscenti.

To prove to myself, if not to the world of Gallagher/Cobain wannabees, that such a refined beast as the Concept *could*, if pushed, be as grungy or raucous or sneering as modern tastes demand, yet remain utterly free of digital artifice, I turned to the recent high-quality vinyl pressings of Nirvana's *oeuvre*.

Contradictory as it may seem – audiophile treatment for music deliberately fashioned to antagonise, annoy and possibly even enervate – the Concept found the hidden musical depths buried beneath the cacophonous *sturm*

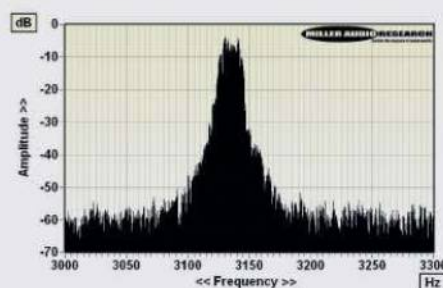
und drang. It reveals to inquisitive listeners the layers of sound that constitute what may be considered the evil twin to Phil Spector's 'Wall of Sound'. (Note the irony, given that Spector's the one inside for murder.) Instead of pile-driving excess, the sound acquired the majesty its devotees attribute to it for political and philosophical, rather than sonic reasons.

This is not to be confused with the far more precisely defined sound of the Ramones, which possesses as much majesty as Nirvana ever did, but without angst-riddled pretence. 'Rockaway Beach', easy to write off as a mere ditty when compared to the Wagnerian turbidity of, say, 'Tourette's', sounded almost anthemic, which probably would find the now-departed members of the grouped keeled over with laughter in the afterlife. ☺

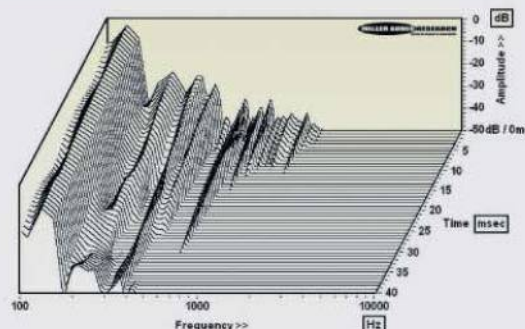
HI-FI NEWS VERDICT

Those new (or returning) to LP have never been so spoiled for choice for entry-to-mid-price 'turn-key' turntables. Clearaudio's rivals – Thorens, Pro-ject, Funk and the 'blue-chip' default, Rega – all make sublime alternatives. But this deck offers styling and finish worthy of a £2000 package, and an arm ideal for a cartridge upgrade. The Concept is the most covetable bargain since NAD's C315BEE integrated.

Sound Quality: 85%



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ± 150 Hz, 5Hz per minor division). Slight speed decrease causes an insignificant loss in pitch



ABOVE: Cumulative resonant decay spectrogram showing main arm bending mode at 120Hz

HI-FI NEWS SPECIFICATIONS

| | |
|--------------------------------------|-------------------|
| Turntable speed error at 33.33rpm | 33.18rpm (-0.45%) |
| Time to audible stabilisation | 3sec |
| Peak Wow/Flutter | 0.10% / 0.02% |
| Rumble (silent groove, DIN B wtd) | -67.0dB |
| Rumble (through bearing, DIN B wtd) | -68.4dB |
| Hum & Noise (unwtd, rel. to 5cm/sec) | -61.0dB |
| Power Consumption | 1W |
| Dimensions (WHD) | 420x140x350mm |

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Bryston 7B SST² (£9400)

Grain-free sound, spectacular grip and grunt to spare, but does Bryston's big-money monoblock have what it takes to give long-term listening satisfaction?

Review: **Keith Howard** Lab: **Paul Miller**

The late Paul Benson, my boss at *Hi-Fi Answers* for about a year in total three decades back, used to define professional audio gear as 'something you can pick up by the mains lead.' It wasn't just a reference to the equipment's likely treatment at the hands of roadies; it was also intended to make the point that just because a piece of equipment is labelled 'professional' it doesn't mean it is necessarily better than 'domestic' alternatives, merely that it is rugged enough withstand a certain amount of abuse. Ask anyone who depends on their audio equipment to earn a living whether they prefer something that sounds great but is flaky or something that sounds less exceptional but works every time and they'll usually choose the latter.

Not that the Bryston 7BSST² is a professional product in the sense that it is intended principally for pro users, although the company has a fine reputation in pro circles. The attributes that appeal to them – battleship build, conservative specification, a 20-year guarantee with all that implies for reliability and resale value – are no less attractive to you and me. (With justification, Bryston describes its warranty as 'unlimited, unprecedented, unequalled'.) So just like the company that distributes it in the UK – loudspeaker manufacturer PMC – Bryston straddles the divide. In any case, the 7B can't be picked up by its mains lead: it has an IEC socket. What's a roadie to do?

In the hierarchy of Bryston's SST² range, the 7B is fourth in numerical seniority out of eight but in fact, as a monoblock, is second in power output only to the mighty range-topping 28B. It's specified to deliver 600W per channel into 8ohms, 900W into 4ohms, and as the lab report shows it is capable of prodigious short-term current delivery and dynamic power.

Other specifications are no less remarkable, the 7B boasting wide power

bandwidth (<1Hz to >100kHz), very low distortion (<0.005% at 600W into 8ohms) and high slew rate (>60V per microsecond). Bryston's pro heritage is revealed in the fact that the spec sheet also includes comprehensive power consumption and heat load figures: vital information for the design of mains supply and air conditioning systems in studios.

BURN BABY, BURN...

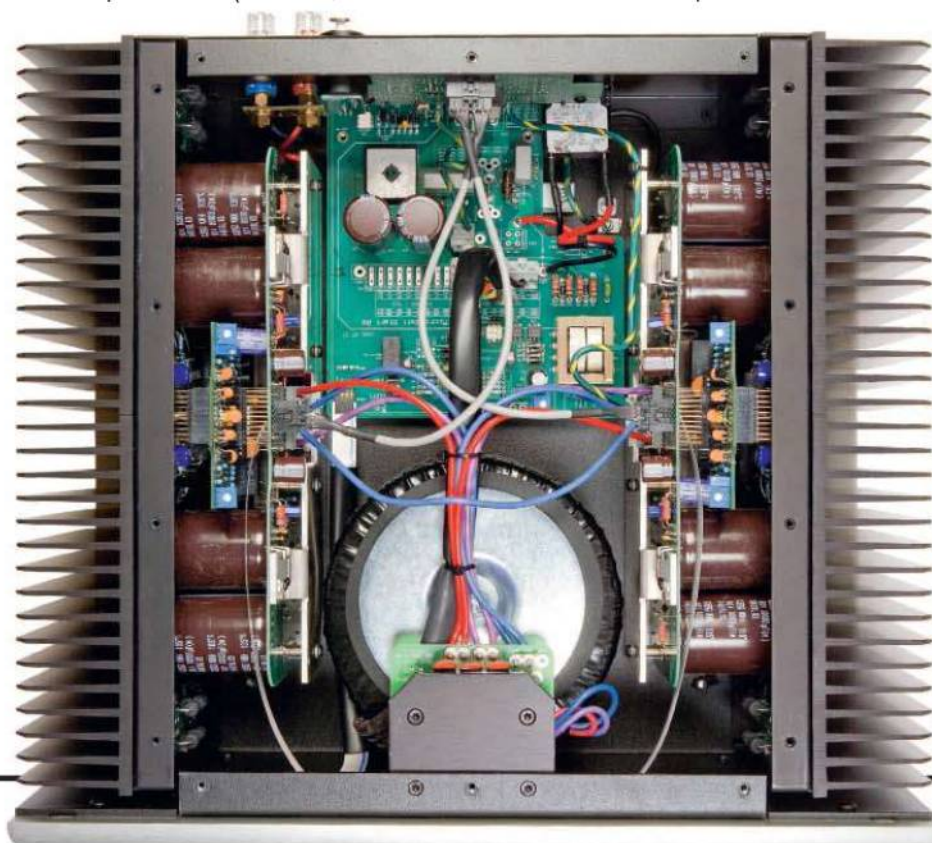
Useful features familiar from other Bryston amps include switchable balanced and unbalanced inputs, on XLR and phono sockets respectively, and switchable sensitivity of 1V or 2V – something that users of passive preamps in particular will welcome. New in the SST² incarnation are (mildly) breathed on cosmetics, a revised front panel power switch (replacing the touch-sensitive item of old, hooray), new output transistors, improved heatsinking and increased reservoir capacitance of 0.03F per channel (that's 30,000

microfarads if you're not good with decimal places). The chunky, sculpted anodised aluminium fascia, by the way, is available in black as well as the silver finish you see on the review sample here.

Bryston's tortuous burn-in procedure remains the same. It's normal for manufacturers to 'soak test' products by running them for a day or so to see if any faults emerge. Bryston subjects its amplifiers to 100 hours of burn-in – using a cycle of one hour on, one hour off, which increases the thermal stress – while reproducing a high frequency square wave into a challenging capacitive load. Small wonder that when an amp passes this test Bryston is confident it will give long, reliable service in owners' hands.

An important point to note is that the 7B, like the 28B, is what Bryston calls a 'balanced-output design'. In other words, it's bridged. Instead of the blue output terminal being connected to ground, it is connected to an amplifier that works in

RIGHT: A large toroidal mains transformer and 30,000uF of reservoir capacitance dominate the interior. As this is a bridged design there are twin amplifier boards, one for each heatsink





anti-phase to that connected to the red output terminal. In many systems this has no practical relevance at all but it can cause difficulties if you have a powered subwoofer and would like to drive it via the speaker-level inputs. Consult your Bryston dealer if this is the case. (It also adds to the challenge of measuring this type of amplifier – but the Ed has this covered.)

Always a concern with power amplifiers boasting massive mains transformers – all the more so if they're designed and manufactured in 110/120V, 60Hz countries like Bryston's native Canada – is that they will generate significant mechanical hum. That isn't a problem with the 7B, or wasn't in my rural idyll in any case – not that the mains supply here is as blameless as the paucity of local industry might suggest. Disconcertingly, the 7B does buzz immediately you power it up but the noise subsides to an utterly insignificant level as soon as the output relay clicks in. Hum and noise via the loudspeakers was also gratifyingly low even though I used unbalanced interconnection.

SONIC SECURITY

In a hi-fi world where a vocal faction delights in high-sensitivity loudspeakers coupled to low power, typically valve, power amplifiers, I find myself out of step. Don't misunderstand me: I applaud the

general trend towards increased speaker sensitivity but there's only so far you can go along this road – about 91dB – before you begin to pay an unacceptable price in respect of curtailed bass extension or control, or increased coloration. Couple that with an occasional need to reproduce transient peaks of, say, 115dB SPL if you want to reproduce high dynamic range material at close to 'realistic' levels and a powerful amplifier of some hundreds of watts output capability becomes mandatory. This, I'm sure, is why so many reviews of powerful amplifiers refer, in diverse ways, to the sense of sonic security they confer.

But plenty of amplifier designers will tell you that a really good-sounding Charles Atlas of an amplifier is a lot harder to design than (continuing the analogy) a good-sounding seven-stone weakling. The former may kick sand in your face but is it too muscle-bound to do something delicate like threading a needle? To put it a less fancifully: at what point does the inherent ease of sound of a powerful amplifier become a sensation that something's missing? It's a question I found myself pondering time and again as

'Unquestionably the sound here is both refined and well-upholstered'

ABOVE: Though the aesthetics have been refined a little, the dreadnought build quality remains as before. The old touch-sensitive mains switch has been replaced by a push button

I listened to the 7Bs on a wide variety of musical genres, beginning with a piece of exquisitely crafted jazz: 'I Had The Craziest Dream' from Jimmy Cobb's *In The Key Of Blue* – a 24/96 Chesky download from HDtracks. This is an exemplar of laidback swing but that does not mean it should be soporific. On the contrary, it should sparkle – but like light reflecting from a still lake, not a mirror ball in a disco.

Via the 7Bs (fed from a Mac mini running Windows XP and Foobar via the S/PDIF output of a Fireface 800 audio interface into a Naim DAC/XPS and thence to a passive preamp incorporating a DACT stepped attenuator and precious metal hookup wire) this track oozed smoothness

and spaciousness in the way the best hi-res recordings always do. Nothing shouted or grated; there was, just as Bryston promises, none of the graininess that valve lovers so often accuse solid state amplifiers of, even when Roy Hargrove let rip on trumpet.

By comparison, the sound of a less powerful valve or even more colourful solid-state amp might appear somewhat sparse and undernourished, even a touch crude. And yet I did wonder if the swing might have swung a little more, if the life force of the recording might have had a *souçon* extra light and shade, some valuable additional insight into how the piece was being played.

Beginning the tedious but overdue task of cataloguing my CD collection the other day using Music Collector (www.collectorz.com) I stumbled across *Led Zeppelin II*, an album I haven't played for years. When I was a yoof I listened to this on a succession

FIRST TO LAST WATT

US audio journalist and designer Dick Olsher is often credited with coining the phrase – and thereby emphasising the importance of – 'the first watt', in recognition of the fact that, at the replay levels most of us use, a power amplifier will be cruising at 1W output or less for much of the time. It's a phrase and concept often used to justify Class A amplifiers and to diss Class B alternatives, on the anecdotal basis that, because of crossover distortion, Class B amplifiers perform poorly at low output levels. In fact, as has been shown in these pages before ('The First Watt', *HFN* December 2005), with competent design – which demands, in particular, accurate thermal tracking of the output stage biasing – this need not be the case at all. Bryston's 'first to last watt' design philosophy embodies this approach.

POWER AMPLIFIER



ABOVE: As usual with Bryston amplifiers, input connection is either balanced via XLR or unbalanced via phono and input sensitivity is switchable by 6dB. The terminal block connector by the mains socket provides for remote switch on/off

of cheap and mostly cheerless systems but you always have a vision of how it might one day sound, don't you? A vision that, with old rock material, can easily be scuppered by execrable recording quality (*Deep Purple In Rock* take a bow) but we live in hope.

I selected track 2 – 'What Is And What Should Never Be' – and began by listening through a more modest amp. A few seconds later I knew I wasn't going to be adding this to my list of unexpected period gems (which includes some Black Sabbath, for instance) but I had the impression that I was hearing about all there was to in the way of dynamic range and insight into the recording process. The lack of openness and general grunge must be locked in the master tape.

HIDDEN STRENGTHS

Switching back to the 7Bs did nothing to alleviate that impression but did hint at a strength the Brystons later confirmed on other tracks – their enviable bass power and control. This quality, which I noted when reviewing the 4BSST some years back, is nothing to do with any excess, it is simply a testament to the grip and heft these Brystons bring to bear at low frequencies. Particularly if you're a rock music fan and have speakers to do them full justice, the 7Bs will delight with their bass performance.

A hi-res orchestral recording with wide dynamic range was next on the menu. I'd intended it to be the opening movement of Gershwin's *Rhapsody In Blue* played by Jon Nakamatsu with the Rochester Philharmonic Orchestra conducted by Jeff Tyzik, another 24/96 HDtracks download, this time from Harmonia

Mundi. But by mistake I dragged and dropped the opening Allegro of Gershwin's *Piano Concerto in F* into the FooBar playlist. No problem, the opening tympani beats and cymbal clashes, followed immediately by the jazz-flavoured brass and, a little later, the calming entry of the piano, did very nicely instead.

And again I found myself both admiring and questioning the 7Bs' portrayal. Its sound was unquestionably refined and well-upholstered: the soundstage was wide and deep and the absence of glare and the generally well-mannered nature of the delivery were notable attributes.

But the feeling that something had been smoothed over in the process of achieving this civilised sound persisted, particularly in the phrasing of the piano entry which somehow seemed less distinctive, less surprising than I know to be possible. Whether a less cultured or more animated performer might ultimately prove more engaging is a question I'll leave hanging. ☺

HI-FI NEWS VERDICT

The mighty Bryston 7BSST² is in many respects an owner's delight with its ample power, solid construction and immensely reassuring warranty. But like any audio product it will only give long-term listening satisfaction if it makes music as you like to hear it. In the 7B's case this means a sophisticated, grain-free sound from a package undaunted by any speaker. High colour, however, is most certainly not its thing.

Sound Quality: 78%



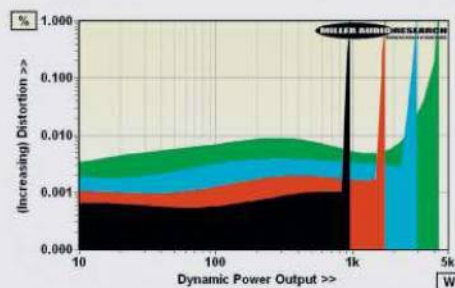
LAB REPORT

BRYSTON 7B SST² (£9400)

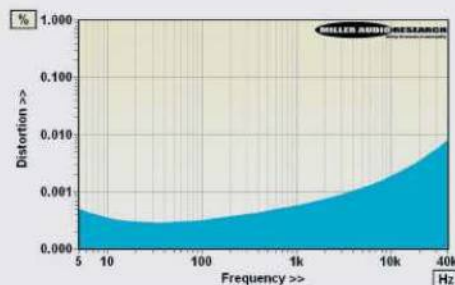
Measured through its balanced input with the +23dB gain option, Bryston's 7B SST² is the most powerful amplifier we've tested in years, bar the £20k Titan from Musical Fidelity [HFN, May '10]. Rated at 600W/8ohm and 900W/4ohm, this beefy monoblock delivers closer to 675W/1000W, respectively, increasing to 960W, 1.74kW, 2.95kW and a whopping 4.25kW into 8, 4, 2 and 1ohm under dynamic conditions [see Graph 1, below]. With its low 0.015ohm output impedance and massive 65.2A maximum current capability (<1% THD), the latest 7B amplifiers will drive the most ludicrously esoteric speaker loads without raising a transistorised eyebrow.

True to its 'First to Last Watt' philosophy [see boxout, p35], the 7B offers a very consistent distortion versus power trend, hovering around 0.0005–0.0006% from 1W to 100W before increasing very slightly to 0.001% from 100W to 600W/8ohm. There's a very slight warm-up as distortion 'increases' from 0.0004% cold to 0.0005% over 30 minutes at 10W/8ohm! Intermodulation distortion is a mere 0.00015% while, versus frequency, harmonic distortion stays below 0.001% from 20Hz–5kHz. At higher frequencies still, distortion increases to a mere 0.003% at 20kHz and 0.008% at 40kHz – about half Bryston's very conservative specification.

This is also a wide-bandwidth amplifier, flat to below 5Hz and just –1.7dB down at 100kHz. It's quiet too, offering a 94dB A-wtd S/N ratio (re. 1W/8ohm) that expands to a mighty 121dB at its rated 600W output. The 7B was made for 24-bit digital audio! Readers are invited to view a comprehensive QC Suite test report for Bryston's 7B SST² amp by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads.



ABOVE: Distortion vs. frequency from 5Hz to 40kHz (10W/8ohm). Distortion is very low indeed

HI-FI NEWS SPECIFICATIONS

| | |
|-------------------------------------|------------------------------|
| Power output (<1% THD, 8/4ohm) | 675W / 1000W |
| Dynamic power (<1% THD, 8/4/2/1ohm) | 960W / 1.7kW / 3.0kW / 4.2kW |
| Output impedance (20Hz–20kHz) | 0.015–0.065ohm |
| Frequency response (20Hz–100kHz) | +0.0dB to –1.7dB |
| Input sensitivity (for 0dBW/600W) | 200mV / 4800mV (balanced) |
| A-wtd S/N ratio (re. 0dBW/600W) | 93.5dB / 121.3dB |
| Distortion (20Hz–20kHz, 10W/8ohm) | 0.00035–0.0041% |
| Power consumption (Idle/Rated o/p) | 60W/1050W (per channel) |
| Dimensions (WHD) | 431x157x405mm |



AUDIO REFERENCE

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1. INNOVATION: Hi-Fi News: Highly Commended (Sept 2009)

"On 'Sultans of Swing' you could come perhaps almost as close as it's possible to get to unravelling the rhythm guitars, which filled out a wide and solid stereo image with vocal and lead guitar firmly centered. Every detail of Knopfler's voice was laid bare, his voice truly characterful and not merely gruff, and his guitar wizardry soaring and effortless."

2. CONCEPT: What Hi-Fi? Sound & Vision: ★★★★★ (Sept 2009) What Hi-Fi? Sound & Vision: Product of the Year (Turntables) 2009

"The Concept has a well-engineered feel that most rivals lack. And it turns out an excellent performance: it's fast, agile and detailed in the manner of most Clearaudio decks..."

3. EMOTION SE: What Hi-Fi? Sound & Vision: ★★★★★ (Nov 2009)

"As clean and revealing a turntable as you'll find for the money; impressive engineering and build."



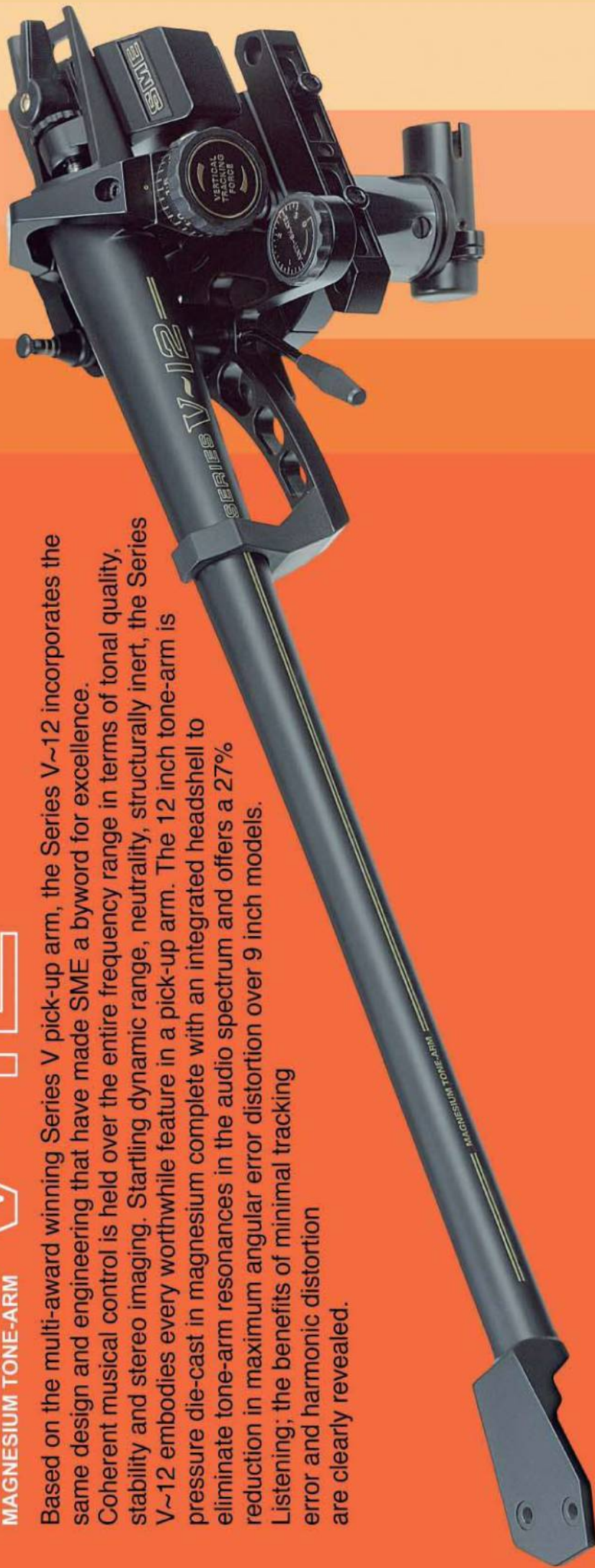
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hi-fineWS GROUP TEST

Spending £1000+ on a superior phono stage is not a decision to be taken lightly – especially if it's your first foray into the world of valves. So we've put six of the best to the test...

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TESTED THIS MONTH

| | |
|--------------------------------|-------|
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| EASTERN ELECTRIC MINIMAX PHONO | £1495 |
| ICON AUDIO PS3 | £1699 |
| LECTOR PHONO AMP SYSTEM | £1550 |
| QUAD QC-24P | £1200 |
| UNISON RESEARCH PHONO ONE | £1825 |



Cutting-edge gear, cherry-picked by the Hi-Fi News editor



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• CD PLAYERS • TURNTABLES • CARTRIDGES • PHONO PREAMPS • AMPLIFIERS • HEADPHONES • SPEAKERS •

You might be thinking of a new phono stage as a first step into the world of valve audio. Or, if you've already got amplifiers that glow, you might be hoping to cross that final frontier into total thermionic Nirvana.

Most people who take analogue hi-fi seriously end up using a low-output moving-coil (MC) cartridge, which produces signals measured in fractions of a millivolt. But it has never been easy to design affordable valve amplification to handle these tiny voltages with a decent signal-to-noise ratio. The time-honoured solution to this is to use a step-up transformer, in front of the active moving-magnet (MM) amplification stage, as do all but two of the six models tested here.

CHOICE SELECTION

We started by assuming that most buyers will be seeking a worthwhile upgrade from what they already have, but few will be ready to spend £3000 or more on a phono stage. So we assembled the top contenders in the £1000 to £2000 category, and a varied and interesting group they turned out to be.

Four out of our six are built in the Far East, but only one is designed and marketed by a company based in mainland China. This is the Consonance Reference 40, from Opera Audio of Beijing. There is no connection, by the way, with the Italian speaker brand Opera.

Next on the list is the Eastern Electric MiniMax Phono, cunningly styled as a scaled-down version of some classic golden-age valve amp.

More robust-looking is the PS3 from Leicester-based Icon Audio. This is aimed at the thoroughgoing valve enthusiast, as its power supply section alone contains more tubes than any of the other units.

Next comes the Lector Phono Amp System, hand built in Italy and presented in rather mysterious black-fronted casework, again with a massive outboard power supply.

More familiar to UK eyes is the Quad QC-24P, designed around four years ago by Tim de Paravicini of EAR for Quad's Classic Series.

Finally, Italian tube specialist Unison Research contributed its Phono One, a slim and elegant unit complete with Unison's trademark sculpted wood decoration.

For comparison purposes I focused on two specific MC cartridges. These were the Ortofon Cadenza Blue, which continues to prove itself a reference in its price class, and the ever-popular Koetsu Black. Finally, I set out to assess the MM performance, using the excellent Roksan Corus Silver.

MUSIC USED

Albums used for the listening included: the Harry James big band, *The King James Version* [Sheffield Lab LAB3]; Eric Clapton, *461 Ocean Boulevard* [RSO 2479 118]; Rickie Lee Jones [Warner Bros K56628]; Sir John Barbirolli *Conducts English String Music* with the Sinfonia of London [EMI ASD 521]; and Dire Straits [Vertigo 9102 021].

By this time, you might be wondering just what to expect from any of these tube phono stages, how such devices compare with solid-state units, and just how far any of these products will take you towards valve Valhalla. You'll find the answers in the following pages. ➞

REVIEWS BY STEVE HARRIS
LAB TESTS BY PAUL MILLER

• CD PLAYERS • TURNTABLES • CARTRIDGES • PHONO PREAMPS • AMPLIFIERS • HEADPHONES • SPEAKERS •

Consonance Reference 40 (£1199)

Add a Consonance Reference 40 to your system and you're likely to have friends asking 'What's the new amplifier?' It's arguably bigger than it needs to be to house the circuit board inside, which carries two 12AX7 (ECC83) double-triode tubes for the MM amplification stage, plus a step-up transformer to provide the extra gain for moving-coils. There is also a third and larger tube, a rectifier for the power supply, but the mains transformer itself is in a separate small box, connected to the main unit via a 1m cable.

The two rotary controls are just simple switches, one to bring the MC input transformer into circuit, the other selecting its 50ohm or 40ohm input impedance options.

GENTLE APPEAL

With the Ortofon Cadenza Blue playing *The King James Version* big-band direct-cut, the Consonance gave a sound that was gently appealing, but almost hazy with a seemingly dulled treble, rather than punchy and dynamic. Bass was soft and even floppy.

Switching to Eric Clapton and 'Motherless Children' from *461 Ocean Boulevard*, the Consonance again produced a pleasant but rather smoothed-off effect. Rhythm guitars and organ tended to blend into a too-amorphous backdrop and the solo slide guitar playing didn't quite catch fire. With that soft bottom-end sound, the bass line came through as steadily pushing rather than as a driving bounce, while the drums could have benefited from more detail.



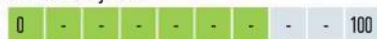
With Rickie Lee Jones' 'Easy Money' the iconic singer sounded sweet rather than satirical, the voice a little too small and recessed. Although the double-bass intro sounded convincing, once the song got started, the lowest notes the bassist played tended to descend into a too-heavy fog.

On *Sir John Barbirolli Conducts English String Music* with the Sinfonia of London, I felt the Consonance gave a more pleasing result. It gave you a laidback, widely-spread and distanced sound to the orchestra, though its perspectives were vague rather than depth-defining.

Replacing the Ortofon with a Koetsu Black, the Consonance still showed the same basic warm and softened character. The Koetsu's dynamic midrange quality came through, but again, though the soundstage could be impressively wide it wasn't remarkable for depth. With *Dire Straits*, the bass again needed to be firmer.

Turning to the MM input and the Roksan Corus Silver, the Consonance gave a reasonable feeling of dynamics, for example on the horns in the Harry James record, though the bass was rather mumbly.

Sound Quality: 65%

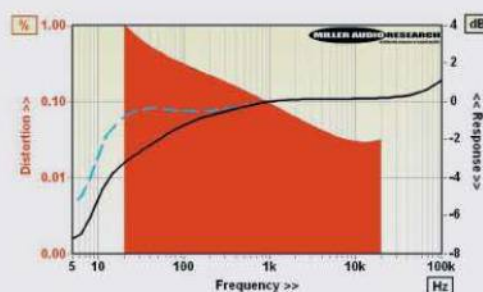


ABOVE: Big enough to be mistaken for a main amp, this unit has a gently curved top, formed by sculpted wood-composite slats added to the steel case, presumably damping vibration

HI-FI NEWS LAB REPORT

I have a genuine admiration for Opera Audio and its Consonance products – almost every sample we test gets criticised for poor valve/channel matching and yet the company continues to re-submit new products to *Hi-Fi News*. Good on them! The story with this new Reference 40 is the same, for while the phono stage offers the quietest performance of any in this group (85dB A-wtd S/N via MM) it also suffers a huge 2.7dB channel imbalance at low frequencies. This means that while the left channel rolls off below 1kHz to -1.2dB/100Hz and -3.2dB/20Hz [black trace, below], the right is broadly flat to within ±0.4dB down to 20Hz [dashed blue trace].

Furthermore its output impedance climbs below 10kHz (where the figure is 250ohm) to reach 2.3kohm at 1kHz and a mighty 17.5kohm at 20Hz – another factor that may influence bass performance with lower input impedance (solid-state) amplifiers. Distortion, too, follows this trend from 0.09% at 1kHz to 1.1% at 20Hz [red infill, below]. Input overload margins and the 10V output are all generous, incidentally. **PM**



ABOVE: RIAA-corrected response from 5Hz-100kHz (black/blue) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|------------------------------------|----------------------------|
| Input loading (MM/MC) | 47kohm/100pF / 5 & 40ohm |
| Input sensitivity (MM/MC re. 0dBV) | 10.7mV / 2.24mV |
| Input overload (MM/MC) | 113mV / 22mV |
| Maximum output (re. 1% THD) | 8.5V |
| A-wtd S/N ratio (re. 5mV/500µV in) | 85.8dB / 71.3dB |
| Frequency response (20Hz-20kHz) | -3.2dB (-0.8dB) to +0.20dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 1.1-0.029% |
| Power consumption | 17W |
| Dimensions (WHD) | 440x100x260mm |



ABOVE: Rear panel carries a single pair of inputs switchable for MM or MC, a pair of outputs and a multi-pin connector for the outboard power supply

Eastern Electric MiniMax (£1495)

If you are a susceptible enthusiast with a soft spot for vintage valve gear, beware. With its well-chosen shades of grey enamel, and its coyly-displayed tubes and transformers, the little Eastern Electric MiniMax will seduce you before you know it. On show are three amplification tubes plus one rectifier, while the light-coloured boxes behind the tubes house step-up transformers for MC input. The small rotary is a switch giving 'mute' or standby, while the main power switch is on the left.

On the back is another toggle switch to select between MM and MC mode. The MC input transformers have tapings which give nominal load impedance options of 100ohms and 47ohms, available on two separate pairs of phono sockets labelled 'high' and 'low' (so 'low' actually has slightly higher gain). A third pair of phono sockets provides the MM input.

CRACKLING EDGE

With the Ortofon Cadenza Blue and *The King James Version*, the Eastern Electric gave a bright and zippy sound, quite impressive on the percussion, toms and cymbals, with a sense of speed and attack. On the leader's trumpet solo in the opening 'Corner Pocket', it did begin to convey something like the crackling edge of a live trumpet sound.

Clapton's 'Motherless Children' sounded brash and bold, with the swooping, whooping slide guitar coming to the fore. It seemed that the upper harmonics of Carl Radle's bass were better conveyed than the

fundamentals, which tended to suffer a one-note quality.

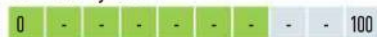
Turning to female vocal with Rickie Lee's 'Easy Money', the rather forward mid character of the Eastern Electric gave the singer's voice a slightly harder-edged quality than usual, while the backing instruments sparkled and tinkled effectively. Yet I felt the Eastern electric did better on the next track, 'Last Chance Texaco', perhaps because here, at a stately tempo with slow chord changes, the bass character was not such an issue.

With Barbirolli and Elgar, the MiniMax did not seem very strong on space, giving rather a clumped forward kind of sound.

Changing to the Koetsu Black produced a lively sound in the mid and treble, but the effect was marred for me by the too-emphatic bass, which seemed heavy while lacking extension and clarity. On a number like 'Sultans Of Swing', the bottom end had an unpleasantly unremitting quality.

On the MM input, the Eastern Electric gave a warm and very lively sound, unashamedly 'valvey', uninhibited and quite appealing. But it could become just too upfront for relaxed listening and I still wasn't really happy with the bass.

Sound Quality: 65%

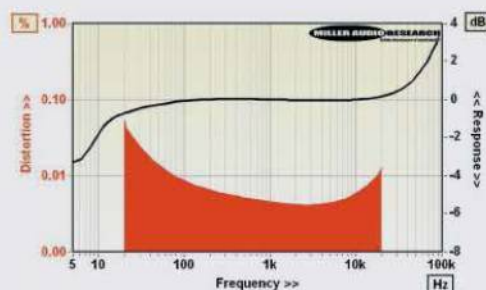


ABOVE: Carrying the smallest signals, the first-stage tube is the most sensitive to disturbance and so is shielded

HI-FI NEWS LAB REPORT

In almost every respect the MiniMax Phono is an exemplary performer, albeit with one very unusual foible. First the textbook stuff: it offers a lower-than-normal +42dB gain via MM (as does the Consonance, p40), increasing to an equally low +59.2dB/+61.2dB via the MC 'High' and 'Low' inputs, respectively. (In this instance, Low and High refer to the output of the MC pickup and not to the gain offered by the preamp setting.) Nevertheless, the A-wtd S/N ratios are wider than average at 82dB/76dB (MM/MC) and the input overload margins very high indeed at 185mV/26mV (MM/MC), so you'll not over-drive the MiniMax Phono. Indeed with a maximum 21V output, it's the partnering amp that needs to look out!

Finally, the equalised response is both flat and wide [albeit with an ultrasonic boost – see black trace, below] and distortion very low at <0.01% over the bulk of the audio range [red infill, below]. The oddity? Its output impedance: a resonance causing a massive peak to 11kohm at 30Hz while it falls away to an extremely low 0.20ohm up to 20kHz. PM



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|------------------------------------|----------------------------|
| Input loading (MM/MC) | 47kohm/100pF / 47 & 100ohm |
| Input sensitivity (MM/MC re. 0dBV) | 7.94mV / 0.87-1.09mV |
| Input overload (MM/MC) | 185mV / 26mV |
| Maximum output (re. 1% THD) | 21.0V |
| A-wtd S/N ratio (re. 5mV/500µV in) | 82.3dB / 75.8dB |
| Frequency response (20Hz-20kHz) | -0.70dB to +0.20dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 0.053-0.0042% |
| Power consumption | 16W |
| Dimensions (WHD) | 270x120x160mm |



ABOVE: Despite its small size, the MiniMax has its power supply built in and connects direct to the mains. Power transformers are seen on the right

Icon Audio PS3 (£1699)

Icon Audio's PS3 phono stage includes no fewer than seven tubes, while the separate power supply unit has another six, used for voltage regulation as rectification. Underneath, the components are all wired point-to-point, avoiding the use of printed circuit boards.

On the front panel of the PS3 itself, one rotary control is for volume and the other switches from MM to MC. You can buy the PS3 as an MM-only unit at £1199, but ours came fitted with the transformers which provide MC sensitivity and add £200 to the price. Our sample also came with one of Icon's special upgrade options, namely a set of Jensen capacitors, adding another £200 to bring the price to £1699.

Features include a mono/stereo switch and a 'ground lift' switch, used to avoid hum if the turntable wiring creates an 'earth loop'.

SPACE AND LIFE

Starting with the Ortofon cartridge and the Harry James band, the Icon gave a sound with space and life in it, the positioning of instruments heard clearly. James' solo trumpet sound had a convincing bite to it, but it had body too.

Clapton's 'Motherless Children' seemed to benefit from the Icon's qualities of detail resolution

and balance. You felt encouraged to listen into the mix, and at the bottom end, the bass guitar had weight and body so that Radle's playing sounded deliberate without becoming sluggish.

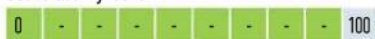
On to Rickie Lee Jones and 'Easy Money', the Icon presented the vocal with a real focus, revealing the subtle nuances of the singer's delivery and breathing.

Barbirolli and the English string music had a smooth and flowing quality, with a pleasing overall balance and a naturalness to the string sounds. Less forward and punchy than the Lector or Unison, the Icon provided a relaxing and unstrained picture of the music.

With the Koetsu Black in place of the Ortofon, the Icon still displayed a smooth unruffled character, with attractive instrumental timbres. Bass was weighty but not unduly heavy or uncontrolled in nature.

On MM, the Icon gave a really well-balanced, inviting and musical sound, with fine midrange clarity and satisfying weight to the bass. Delicious with 'Sultans Of Swing'.

Sound Quality: 85%

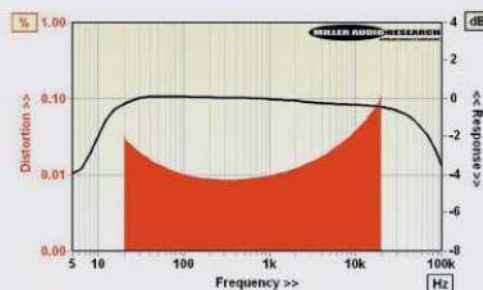


ABOVE: Icon's 'portholes' give views of glowing valves

HI-FI NEWS LAB REPORT

This is an impressive phono stage, although I suspect our sample also played host to Icon's custom wound MC transformers in addition to bespoke capacitors... Either way, the MM/MC gain is split 50.5dB/70.0dB, the latter offering an extra x10 or 20dB with an input impedance set at 100ohm. Input overload margins are generous at 115mV for the MM and 13mV for the MC stages, both offering in excess of a 16V output from single-ended RCAs offering a high-ish 725ohm source impedance. The increase in output impedance to 6.6kohm at 20Hz is not uncommon with tube preamps, but the bass performance may suffer if they're used with conventional 47kohm (solid-state) amplifier inputs.

Otherwise, distortion is impressively low at ~0.009% through the midrange, increasing to just 0.1% at 20kHz [see red infill, graph below]. The passive equalisation offers good bass extension with a very gentle shelving of treble, reaching -0.4dB/20kHz [black trace, below] but the 6SN7 double-triode-based preamp offers a fixed 73.2dB A-wtd S/N ratio – good for MC but a little weaker than average for MM. PM



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|------------------------------------|-----------------------|
| Input loading (MM/MC) | 47kohm/100pF / 100ohm |
| Input sensitivity (MM/MC re. 0dBV) | 2.96mV / 0.32mV |
| Input overload (MM/MC) | 115mV / 13mV |
| Maximum output (re. 1% THD) | 17.0V |
| A-wtd S/N ratio (re. 5mV/500µV in) | 73.2dB / 73.2dB |
| Frequency response (20Hz-20kHz) | -0.26dB to -0.42dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 0.0085-0.11% |
| Power consumption | 37W |
| Dimensions (WHD) | 148x165x342mm (each) |



ABOVE: Left is the power supply unit which carries the on/off switch. It connects to the phono stage itself by a cable and locking multi-pin connector

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TITAN

Lector Phono Amp System (£1550)



Taking up more shelf space than other models, the Lector is heavily built with a steel case and wood end cheeks. Its black acrylic front panel carries a 'standby' switch, while the real power switch is on the separate power supply unit, which feeds the main unit via a 1.5m lead and locking connector.

Stars of small vents in the top plate reveal the positions of the five tubes mounted vertically on the circuit board below. There are two ECC81 (12AT7) double triodes for the MM input gain stage and a third for a cathode follower output. Two ECC88 (6922) double triodes provide extra gain for the MC input.

On the back panel is an MM/MC mode switch with separate pairs of phono sockets for these inputs. A further pair of sockets accept colour-coded resistor plugs to set the MC input impedance at 30, 100, 470ohm or 1kohm.

DEEP 'N' WIDE

With the Ortofon cartridge and *The King James Version*, the Lector gave a spectacularly wide stereo stage that also had depth. It presented the brass and sax sections quite vividly, with a sense of air around every instrument or section. I held my breath waiting for Les DeMerle's 'Cherokee' drum solo solo and I wasn't disappointed, as I could almost see the whirling sticks in his show piece.

With the Lector, lowering the stylus at the start of *461 Ocean Boulevard* seemed just like turning on a tap, as the power and energy of 'Motherless Children' came rushing out of the speakers. Carl Radle's bass



had a well described upper harmonic structure and clear attack, and plenty of power below.

Turning to acoustic bass, with 'Easy Money', the bottom-end sound was convincing if not entirely even, a little heavy and even slightly ponderous. But there was a really firm and arresting presentation of Rickie Lee's vocal, upfront and taking charge of the proceedings, yet with real ease and naturalness.

Moving on to Barbirolli's English string music, the Lector gave this recording an relatively incisive and lively character, a little mid-forward, but with a telling evocation of the recording venue and its ambience. Elgar's fugue in the *Allegro*, with its interaction between groups of strings, came over with real vigour.

Switching to the Koetsu Black, the Lector had Knopfler's 'Sultans Of Swing' vocal sounding incredibly relaxed, and the guitar sound imbued with richness and character.

With the Roksan Corus Silver moving-magnet, the Lector was punchier than the Icon or Unison, more forceful in the midrange and more explicit in the bass. On 'Sultans', in fact, the bass seemed too insistent, although the midrange lucidity was hugely impressive.

Sound Quality: 85%

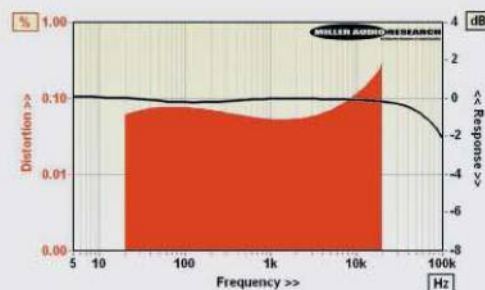


ABOVE: Cherry-wood end cheeks come as standard on the main unit, but you can have them on the power supply box too, as an optional extra. Or you can specify chunky acrylic side pieces instead, for one or both units, again at extra cost

HI-FI NEWS LAB REPORT

There have probably been some slight 'tweaks' made to this model since the manual was printed for not only has the back panel layout changed slightly but so has the specified gain – the quoted 47dB/66dB MM/MC values are 41.6dB/64.6dB respectively in practice. There's some slight asymmetry suggested by the 72dB (left) and 76dB (right) A-wtd S/N ratios for its MM input and both PSU/capacitive coupling indicated in the poorer 36dB/20Hz and 43dB/20kHz channel separation figures, nevertheless the Lector is otherwise very 'clean'.

The equalised response is utterly flat to 5Hz [beware warps – see black trace, below] and extends to -2.1dB/100kHz while the 11V maximum output is delivered through a usefully low 210ohm source impedance. This is one phono preamp that should at least behave consistently with different partnering amplifiers. Input overload margins (89mV vs. 6.3mV) reflect the 23dB difference in MM/MC gain while distortion is very low at ~0.06% through bass and mid, increasing to ~0.3% at the treble extremes [see red infill, below]. PM



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|------------------------------------|---------------------------|
| Input loading (MM/MC) | 47kohm / 30/100/470/1kohm |
| Input sensitivity (MM/MC re. 0dBV) | 8.3mV / 0.59mV |
| Input overload (MM/MC) | 89mV / 6.3mV |
| Maximum output (re. 1% THD) | 10.5V |
| A-wtd S/N ratio (re. 5mV/500µV in) | 75.8dB / 67.9dB |
| Frequency response (20Hz-20kHz) | +0.0dB to -0.15dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 0.053-0.29% |
| Power consumption | 34W |
| Dimensions (WHD – Pre/PSU) | 440x85x308/200x85x308mm |



ABOVE: The extra pair of phono sockets is for plug-in resistors which adjust MC load impedance. When none are fitted, as here, the load is 47k ohms

Quad QC-24P (£1200)

Nothing could look more unashamedly retro than the Quad QC-24P, which like the current TwentyFour preamp is a visual echo of the original 1950s Quad 22. On this phono stage, the large front panel knob actually is a volume control, which comes into play if you choose the 'variable' output phonos on the back, offered as an alternative to the fixed output pair also provided.

Also on the rear are separate MM and MC input sockets and an MM/MC selector button, along with the more unusual feature of a three-position sensitivity switch, effective in both modes. As with all but two of the units in this group test, the extra gain for the MC setting is provided by a transformer at the input.

REAL ATTACK

On the Harry James record the Quad gave a quite coherent view of the brass and sax sections, and was not lacking in punch although it somehow lacked the vivacity of the Lector or Icon. Both the brass and percussion had some real attack, but the effect seemed controlled rather than uninhibited.

Moving to Clapton's 'Motherless' bottleneck extravaganza, the Quad gave you a pretty good feel of the pent-up energy that's unleashed at the start of the track, and then conveyed the driving rhythm with a bass that was tight and controlled.

Yet it didn't seem particularly revealing of inner detail in the complex and noisy accompaniment, and I felt that the slide guitar should have had more sheen and sizzle.

'Easy Money' from Rickie Lee Jones had the Quad again sounding clean and coherent, the bass firm and accurate on the intro, and well under control. The vocal was solidly presented, while the accompanying instruments were quite well characterised, even though they seemed to inhabit a relatively constricted space.

With the Barbirolli record, the Quad showed its pedigree with a seemingly neutral balance, though it had more muscle than sparkle. Its presentation of the soundstage never seemed quite open enough to give a real feeling of place or occasion. The strings could actually sound quite strident, with little feeling of air around them.

Changing to the Koetsu Black, the Quad didn't stand in the way of the cartridge's gutsy delivery, but still sounded smooth and controlled, with a powerful but not unruly bass.

With the Roksan MM, the Quad delivered a powerful and driving bass sound, which was both accurate and well extended, with a midrange that was clear and detailed – if somehow not particularly expressive. Its virtues were heard on the Harry James disc, where it resolved the peaky horn section passages without degenerating into a blare.

Sound Quality: 75%

0 - - - - - 100

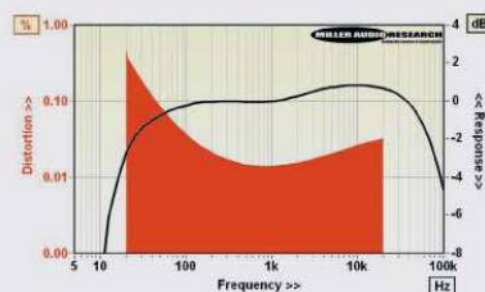


ABOVE: Quad's 'Classic' fascia bears the name TwentyFour P, but this model is usually known more succinctly as QC-24P

HI-FI NEWS LAB REPORT

Offering both fixed and variable output options delivering up to 16V at 1% THD (from a modest 500ohm source impedance, increasing to 7kohm at 20Hz) the QC-24P also provides six input sensitivity settings, largely thanks to its complement of four 6111 double triodes. With both low/medium/high sensitivity options (increasing in 6dB steps) across both MM and MC inputs, the 24P offers a gain range from +45.5dB (MM, low) to +77.3dB (MC, high) with healthy input overload margins of 90mV/9mV (MM/MC, low). This makes the QC-24P the most accommodating of tube phono stages in our group test.

The equalised response [black trace, below] shows a broad treble lift centred at +0.8dB/10kHz, which may add some 'brilliance', together with a -2.6dB/20Hz bass roll-off. By 5Hz the response is 20dB down – a sensible attenuation if LP warps are not to become troublesome. In practice it's probably the high 7kohm/20Hz output impedance and increase in THD from 0.015% (midrange) to 0.45% (bass) that will most obviously impact on its subjective LF performance. PM



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|------------------------------------|----------------------------|
| Input loading (MM/MC) | 47kohm/100pF / 10ohm |
| Input sensitivity (MM/MC re. 0dBV) | 1.33–5.31mV / 0.136–0.55mV |
| Input overload (MM/MC) | 90mV / 9mV |
| Maximum output (re. 1% THD) | 16.0V |
| A-wtd S/N ratio (re. 5mV/500µV in) | 77.5dB / 71.4dB |
| Frequency response (20Hz-20kHz) | -2.6dB to -0.70dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 0.046–0.013% |
| Power consumption | 14W |
| Dimensions (WHD) | 220x90x300mm |



ABOVE: Here a small push button selects standard MM or MC gain, while the knob near the centre gives high, low, or medium gain options in either mode

Unison Research One (£1825)



With that luxurious solid wood trim, the Unison Research Phono One is obviously designed to match the company's stylish main amplifiers. These usually have valves prominently on display, but here the array of five tubes can be just glimpsed through the ventilation slots. There are no controls to interrupt the sweep of the wood fascia, but an on/off switch on the right-hand side conveniently activates the remote power supply unit, so that this can safely be tucked away out of sight.

To the rear are just four sockets, because, unlike all the other units in this test, the Unison doesn't have switchable gain for MM and MC cartridges. It has a specified gain of 54dB and so is intended to be sensitive enough for MC cartridges but still usable with MM.

SNAP AND SNARL

Kicking off with the Ortofon and Harry James, the Unison Research immediately showed a quick and lively quality that was quite invigorating. It was really good at portraying the snap and snarl of the brass instruments and the zing of a cymbal. The upper harmonics of the bass were well conveyed, making the bass lines sound comfortable and easy to follow.

Sliding into *461 Ocean Boulevard*, the Unison Research put over 'Motherless Children' with energy, if not quite matching the Lector in this respect, and gave an analytical view of Clapton's processed vocal. It delivered the slide guitar well, although it couldn't quite untangle the absurdly frenetic rhythm guitars towards the end.



Revealing the string noise detail on the 'Easy Money' bass intro, the Unison Research went on to give a clear, quite bright and upfront view of Rickie Lee's vocal, perhaps just a little too hard-edged. But the bass seemed a little too loose and weighty, making the overall effect of the accompaniment a little untidy. With 'Last Chance Texaco', the vocal passion really came over, though.

With Barbirolli and Elgar, the Unison gave a warm and coherent picture, the strings sounding smooth and unruffled and the acoustic well portrayed. With the Koetsu, the Unison Research delivered a strong, attractive performance, allowing the cartridge's punchy midrange quality to come through well, while keeping the bass under control.

On moving-magnet, with the Roksan cartridge, the Unison gave a bright though pleasingly bustling sound. With Harry James, the brass sounded full-blooded but with a bit too much of an 'edge', and setting a higher capacitance loading did not really change this.

Sounding lively and upfront on 'Sultans Of Swing', the Unison was effective, much like the Lector here, but although it conveyed excitement it did not quite manage the relaxed rocking effect of the Icon.

Sound Quality: 80%

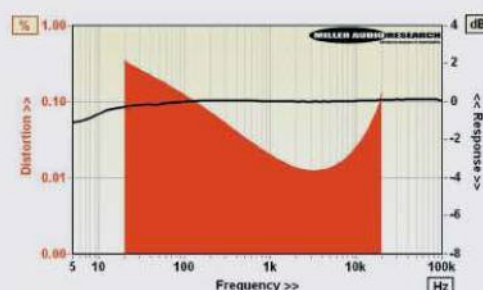


ABOVE: Our Phono One came with the separate power supply unit, which accounts for £350 of the total cost. But this item won't be needed if you already own a Unison Research main amplifier, which can provide power for the phono stage

HI-FI NEWS LAB REPORT

While the Phono One offers 10ohm to 47kohm MC/MM input loading, it only offers a single gain option of +53.8dB, an intermediate figure between the +45dB or so required of a MM and the +65dB more normally associated with MC stages. As a result the 2mV input sensitivity is best suited to lower-output MMs and/or high output MCs, particularly as the 31mV input overload margin is not especially generous. Neither are the paralleled ECC83 double triodes especially quiet, yielding an A-wtd S/N ratio of 73.5dB (re. MM input level of 5mV) – relative to the MC reference level of 500uV, this would be ~53.5dB.

Nevertheless these same triodes deliver a full 16V output from a high-ish but reasonably constant 590ohm source impedance while distortion slowly drops from a high of 0.35% at 20Hz down to 0.012% through the upper midrange – more than low enough for modern pickups [see red infill, below]. Unison has also engineered a very flat and extended response, arguably too extended with its limited attenuation of just -1.1dB at a subsonic 5Hz. Beware warped records and reflex-loaded speakers. **PM**



ABOVE: RIAA-corrected response from 5Hz-100kHz (black) plus distortion versus frequency (red) from 20Hz-20kHz

| | |
|---|-------------------|
| Input loading (MM & MC) | 10ohm to 47kohm |
| Input sensitivity (MM & MC re. 0dBV) | 2.04mV |
| Input overload (MM & MC) | 31mV |
| Maximum output (re. 1% THD) | 16.0V |
| A-wtd S/N ratio (re. 5mV in) | 73.9dB |
| Frequency response (20Hz-20kHz) | -0.3dB to +0.05dB |
| Distortion (20Hz-20kHz, re. 0dBV) | 0.35-0.013% |
| Power consumption | 20W |
| Dimensions (WHD) | 371x56x245mm |



ABOVE: Input sensitivity is fixed but DIP switches give load impedance settings of 20, 50, 100ohm or 47kohm, or add capacitance loading of up to 470pF

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None of these tube phono stages is likely to defeat the best competing solid-state models in terms of detail and neutrality, or even in stereo image depth layering. But the top models in this group do offer extra degrees of naturalness, immediacy and involvement that you'd be hard put to find in a solid-state product.

The Consonance Reference 40 was certainly easy on the ear and pleasant-sounding. Yet its treble was not particularly detailed, and its imagery was ultimately a little vague and without a great feeling of depth. Finally, the bottom end seemed soft and imprecise, so I couldn't really recommend this model.

WELL ESTABLISHED

Eastern Electric's MiniMax Phono is a long-established model which appeals thanks to its dinky retro styling. In contrast to the Consonance, it had a punchy sound with guts, attack and a fair impression of stereo depth, yet sometimes with a sense of strain. Its bass was always forceful, but could take on a one-note dominance. It's likely that this effect will vary with different speaker and amplifier setups, but it marred my enjoyment.

Also well established in the market, with specific retro appeal, is the Quad QC-24P, sounding precise and neutral with a firm and convincing bass. The QC-24P got a warm review from me back in 2007 and though still worthy, now seems workmanlike rather than inspired. Nonetheless, it remains unusually versatile, with all-embracing sensitivity options.

Made in Italy, the Unison Research Phono One is an updated version of a long-popular model. In contrast with the Quad, it's possibly the least versatile

model here, as its fixed gain of around 54dB is enough for most MCs but more than you'd ideally want for any MM. With MC pick-ups it immediately sounded attractively lively, full-bodied and rhythmically convincing, able to give some feeling of air around the musicians.

So the Phono One is an attractive product and intended as the ideal partner for Unison Research main amplifiers, in which application there should be no matching issues, and you can dispense with the £350 outboard power supply.

TWO OF A KIND

Unison's phono stage is one of two in this group which caters for MC cartridges without using step-up transformers. The other, also Italian, is the Lector Phono Amp System. Before I became aware of this, I'd already decided that sonically, the two had an indefinable something in common. But still, it was the

Lector that stood out, often bringing a refreshing and almost tangible realism to familiar recordings. It just has to be given an enthusiastic recommendation.

'This, in a word, is a truly excellent all-rounder'

ALL-ROUND WINNER

Which leaves us with the admirable Icon Audio PS3. While the Lector could awaken and amaze on some recordings, and perhaps not be quite so successful on others, the Icon was consistent, always very good, always musical, always inviting. It is, in a word, a truly excellent all-rounder. If you are feeling adventurous, do consider the Lector. But at the same time, if you choose the Icon PS3, you won't regret it. ☺



ABOVE: Outstanding, the Lector (top) and Highly Commended Unison Phono One



ABOVE: Outstanding, Icon Audio PS3

• CD PLAYERS • TURNTABLES • CARTRIDGES • PHONO PREAMPS • AMPLIFIERS • HEADPHONES • SPEAKERS •

Sumiko Palo Santos Presentation (£1995)

Sumiko has nearly 40 years' experience with MC cartridges. Its flagship model is the beneficiary...

Review: **Ken Kessler** Lab: **Paul Miller**

Moving-coil cartridges have been around for more than a half-century, but they didn't displace the moving magnet as 'the audiophile's choice' until the 1970s. Before that, MMs ruled for two simple reasons: higher output and better tracking ability. For decades, Shure, Goldring, ADC and other moving magnetics were default purchases. They put few demands on phono stages, allowing the industry to standardise 47kohm inputs, and MMs (allegedly) took better care of LPs.

But then moving-coils struck. Sumiko's Palo Santos Presentation is the top-of-the-line cartridge from the company that many credit with introducing moving-coils to the West [see box-out below]. As such it has real pedigree. Although the 'recipe' for a good moving-coil is hardly a mystery – the world is awash with superb examples – there is an artistry that must surely have been mastered by a company with Sumiko's enviable know-how.

Taking its name from a type of Brazilian Rosewood, the Palo Santos Presentation features a new 'generator anchoring system' to improve rigidity and reduce

resonance. Its body is shorter than its Pearwood sibling, which accounts for better clearance over the record surface to allow you to see the long grain boron cantilever during set-up. Also part of the design is a new line contact stylus said to be the most expensive money can buy: a specially ground, Vital PH diamond.

INSIDE THE BOX...

From the instant you open the box, you're assailed with a sense of 'attention to detail' that bodes well. While I could have done with a stylus cover, the packaging encourages safe handling: you simply

hold the cartridge in its 'well' while undoing the bolts that keep it in place. But, as one wag once told me, 'anyone who spends this kind of money on a cartridge deserves what he gets if he's

too clumsy to handle it.' Having seen my share of broken cantilevers – I watched as a friend circumcised a brand-new \$6000 MC when it was caught by his baggy T-shirt as he reached over his turntable – I think that may be a bit harsh. To ensure that it doesn't happen, the Sumiko arrives with what may be the most detailed user's manual I have ever seen, bar none. Read it

'The Sumiko is like a Koetsu after a week on an all-protein diet'

WHO IS SUMIKO?

Most distributors are just that: importers of equipment. Sumiko, though, started out as much a manufacturer as it did an importer, its roots appropriately being in cartridges and tonearms. In the 1970s, the MC revival had yet to spread from Japan to the West. Legendary designer and Sumiko co-founder Dave Fletcher is credited with bringing Grace tonearms and Supex cartridges to the USA. He, in turn, is said to have introduced one Ivor Tiefenbrun to the pairing, who used them successfully on his then-new Linn LP12 turntable, until introducing Linn's own arm and cartridge. Along the way, Sumiko gave us The Arm and many other cartridges, before evolving into one of the USA's top suppliers of high-end hardware, including SME, Pro-ject and Sonus faber. Fortunately for us, it hasn't allowed its success in distribution to put an end to cartridge manufacture.



ABOVE: The cartridge arrives in a beautiful wooden box. But be careful: no stylus guard is supplied

cover to cover *before* you take out the Palo Santos, and you'll be safe enough.

What you find is a cartridge designed for ideal set-up. It has parallel sides and a flat front with enough clearance to allow you to see the stylus/cantilever. Unlike some cartridges I could name, its widely-spaced pins are colour-coded. The top plate is flat metal, so you can tighten it to your heart's content.

It was a breeze to fit to SME's Series V-12 on the 30/12 and the arm on Clearaudio's Concept. The 0.5mV output fed ample signal to the Audio Research PH5 phono stage at 100ohms, as well as NAD's PP-2, which happens to be fixed at 100ohms. The rest of the system consisted of the Audio Research Ref 5 preamp, Quad II-Eighty power amps and Sonus faber Cremona Auditor Elipsa, with Yter, Atlas and Kimber wires.

CLEAR SAILING

It starts with remarkable overall poise, much of it due to the Palo Santos' superb tracking skills. The Sumiko maintains composure regardless of genre. I played two LPs so opposed in attitude that they could have been different formats: recent 180g pressings of Humble Pie's *Smokin'!* and Peggy Lee's *I Like Men!*. The cartridge sailed from raucous boogie, with a screeching lead vocals, to silky lounge music embracing one of the huskier, sexier female vocalists of the past century.

Such disparity, though, cannot reveal the signature sound of the cartridge because the two are so dissimilar. Humble Pie's recording is all about impact and



LAB REPORT

SUMIKO PALO SANTOS PRESENTATION (£1995)

Described as an 'ultra low mass' diamond, the 75µm x 5µm profile of the stylus is an extended line contact type of exquisite quality, beautifully mounted onto a boron cantilever to offer a 25 degree VTA at a nominal 2g tracking force (arm parallel to the record surface). This is a relatively low compliance moving coil at 8/10cu (vertical/lateral) and yet it boasts the tracking prowess of a lightweight moving-magnet. Few MCs surpass the 80µm groove test but the Palo Santos traverses it with room to spare. Via the stepped 300Hz test tracks, the Palo Santos suffers just 0.3% distortion at +6dB (re. 5cm/sec), increasing to just 1% at the maximum +18dB modulation. Once again, few 10cu MCs will get past the +15dB grooves, let alone the top +18dB track.

Tracking assured, the 0.6mV cartridge output (into 100ohm) is achieved with a wide 30dB+ channel separation through the midrange and an acceptable channel imbalance of 0.45dB. The low/mid frequency response (20Hz-1kHz) is flat to within ±0.4dB leaving the output to peak at +2.5dB/+4.6dB L/R from 14-16kHz [see Graph 1, below]. Frankly, this is unlikely to add much audible brightness or coarseness, particularly as the MC's high frequency distortion is also so well managed [see Graph 2, below].

Readers are invited to view a QC Suite test report for the Sumiko Palo Santos Presentation moving coil pick-up by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



ABOVE: Classically styled in the post-Koetsu manner – a slab-sided wooden body for easy set-up – the Sumiko has its innards exposed. Colour-coded pins make life easier

mass and attack; Lee's is about atmosphere and air and texture. But I learned that neither extreme fazes the Palo Santos. In both cases, images were rock solid, ideally positioned, realistically scaled. Treble speed and precision were vivid with Humble Pie, inducing involuntary bouts of air guitar. Conversely, the freedom of artifice via Ms Lee's session ensured that the perfection of Capitol's 1950s recording techniques maintained their elegance. This cartridge is an open window into what many regard as one of the finest-sounding recordings of all time.

WHOLE TRUTH

In-between, I had ample opportunity to try LPs where the source recordings, rather than the pressings, were less than ideal. However much I love Motown, the sound always seemed to be mastered for maximum impact over AM radio. The Four Tops' *Reach Out from Speakers' Corner* provided me with the most powerful experience yet of 'Bernadette', with full-on Motown session men heard in all their virtuosity. What the Sumiko provided, thanks to exceptional overall coherence, was an opportunity to absorb it as a whole while at the same time ignoring a coarseness I usually hear on Motown material of that era.

The Palo Santos reminded me repeatedly of the original Koetsu Rosewood, in every area except for two. While warmer than recent modern cartridges, especially with vocals as evinced by Ms Lee, Rickie

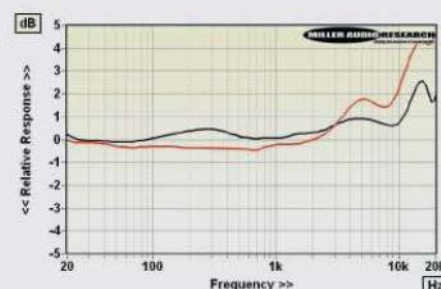
Lee Jones and even Nirvana, this MC is 'one click toward "warm",' according to Sumiko's John Hunter, who developed it. By this colloquial measure, a Rosewood is two or three 'clicks' warmer than the median. As I was listening to valves, I didn't notice a sudden chill, but the difference is audible on voices and acoustic instruments. Side by side, then, the Sumiko is like a Koetsu after a week on an all-protein diet.

Scale defines the second variance. Early Koetsu always delivered a perfectly cavernous, wide and deep soundstage, like a Denon 103D. The Sumiko favours width over depth, and I can only illustrate this with a home cinema analogy. If the Koetsu is widescreen of 1.85:1, but deeper; the Sumiko is 2.35:1. Those points aside, the Palo Santos is a true thoroughbred, and a blissful mid-point between the modern and the classic. ☺

HI-FI NEWS VERDICT

While the issue of price – £2k for a cartridge! – will antagonise many, especially when an anticipated 1200 hour stylus life means that it costs around 80p to listen to an LP, that pales into insignificance when you hear the magic this MC can conjure. With tracking ability equal to pedigree MMs, the Sumiko sails through tough passages, delivering sweet treble and solid images. *This is why we love vinyl.*

Sound Quality: 88%



ABOVE: Left (black trace) and right (red trace) frequency responses, lateral groove modulation at -8dB re. 5cm/sec



ABOVE: Tracing and generator distortion (2nd-4th harmonics) versus frequency from 50Hz-20kHz (-8dB re. 5cm/sec). This is fine result

HI-FI NEWS SPECIFICATIONS

| | |
|-----------------------------------|---------------------------------|
| Generator type/weight | Moving coil / 8.3g |
| Recommended tracking force | 1.8-2.2mN (2.0mN) |
| Sensitivity/balance (re. 5cm/sec) | 595µV / 0.45dB |
| Compliance (vertical/lateral) | 8cu / 10cu |
| Vertical tracking angle | 25 degrees |
| L/R Tracking ability | 80µm / 80µm |
| L/R Distortion (-8dB, 20Hz-20kHz) | 0.8-17% / 0.4-6.1% |
| L/R Frequency resp. (20Hz-20kHz) | -0.5 to +2.3dB / -0.8 to +4.6dB |
| Stereo separation (1kHz / 20kHz) | 32dB / 20dB |

Simaudio Moon 750D (£7950)

From Canada comes an ambitious CD transport/DAC said to offer 32-bit processing of virtually any digital signal you care to feed it. Can it live up to the hype?

Review: **Keith Howard** Lab: **Paul Miller**

The man with 16-bit ears, Barry Fox, is going to love this one: 'the first true 32-bit fully asynchronous digital audio playback system', otherwise known as the Simaudio Moon 750D. More of this anon. For now it's enough to appreciate this flagship product encompasses both CD player and DAC, replete with digital outputs and inputs to service existing digital separates.

When you free the 750D from its packaging the first thing you notice is its reassuringly solid construction. In the established tradition of US high-end products it's built like the proverbial brick outhouse, using custom aluminium extrusions. It's unusual for a CD player/DAC to have heatsinks along either side but one of Simaudio's stated design objectives was to keep internal temperatures low in order to maximise reliability and longevity.

The extrusions look almost like aerofoil sections, framing a central portion of the front panel (available in either silver or black) that houses the thin plastic disc tray, red dot-matrix display beneath and, to either side, two arrays of push-buttons.

The six to the right control disc open/close and play and program functions, although these will more normally be accessed via the chunky, sculpted metal-bodied remote control – which, disappointingly, lacks a track number keypad. The seven to the left include a standby control at the top beneath which are other disc and display functions, plus a button that cycles through the 750D's four digital inputs when it is used as a DAC.

INS AND OUTS

Input D1 is AES/EBU via XLR, D2 is S/PDIF via phono, D3 is S/PDIF via Toslink and D4 is USB, for connection to a computer. Note that the last is not suitable for use with memory sticks. Two digital outputs are also provided: AES/EBU via XLR and S/PDIF

via phono. Fixed-level analogue output is either balanced via XLRs or unbalanced via phonos and the back panel also houses an RS232 socket for installed system use, alongside remote control ins and outs.

While the 750D is compatible with bit depths and sampling rates up to 24-bit and 192kHz, Simaudio – and it's not alone in this – is lax in specifying the sampling rate and resolution capabilities of each digital input. I was able to test the coax S/PDIF and USB inputs only. According to the 750D's display, which shows input sampling rate, the former supports single-wire 192kHz, and Simaudio has confirmed that the AES/EBU and Toslink inputs do too.

The USB input is limited to 48kHz although it will replay 96kHz and 192kHz source files; Simaudio has confirmed that it is only 16-bit capable, on the basis that: 'Anyone using the USB input will be

connecting to a computer and these days virtually every decent sound card has S/PDIF and/or Toslink connectivity; furthermore, most of the newer computer motherboards that have an onboard soundcard will have S/PDIF and/or Toslink.' If you want to play hi-res files, then the USB input is no-go.

Using a Mac mini running Windows XP and the Foobar audio player, I found that the 750D would also not support kernel streaming via USB so – for users who are concerned about this – the Windows kernel mixer cannot be bypassed. Furthermore, via USB the display sometimes proved reluctant to acknowledge the change to a 44.1kHz file when the display was already reading 48kHz.

GRIPPING THE BITS

Let's unpick just what the 32-bit tag means here. There are two elements to



RIGHT: Uncluttered internal layout and the substantial casework help keep operating temperatures low to the benefit of reliability. An optional outboard power supply is on its way



it, both wrapped up in Moon's M-AIC32 circuit topology – a new incarnation of the Asynchronous Jitter Control circuit from the CD3.3 CD player. First, this incorporates – as the name suggests – an asynchronous sample rate converter to decouple the 750D from jitter in the incoming data. This outputs 32-bit data whether the audio input stream is 16-bit or 24-bit.

Part two is a 32-bit differential DAC stage, comprising eight DACs per channel, which is clocked using Moon's proprietary Alpha Clocking System. This is claimed to have very low inherent jitter of less than 10picoseconds RMS – although that shouldn't be taken to mean that such a low figure is necessarily achieved in the analogue output since DAC jitter mechanisms can potentially add to this.

The DAC chips themselves are ESS Technology ES9018s, one per channel, each containing eight DAC stages in a configuration ESS calls 32-bit Hyperstream. Two groups of four DACs operate differentially thereby providing averaging and cancellation of individual DAC errors to improve performance, which is claimed to be 'up to' 135dB dynamic range and THD+N (total harmonic distortion plus noise) of –120dB, equivalent to 0.0001% [see Lab Report, p54]. Also within the ES9018 is an oversampling filter offering either fast or slow roll-offs – Simaudio implements the fast option – and a jitter reduction circuit that ESS calls the Time Domain Jitter Eliminator.

32-BIT CONVERSION

A true 32-bit DAC – one capable of 32-bit performance in its analogue output – is way beyond today's technology to deliver. A 16-bit system encompasses 65,536 (2^{16}) amplitude levels and, as a result, delivers a theoretical signal-to-noise ratio (for a full-scale sine wave input) of 98dB. A 24-bit system has sufficient binary code for 16,777,216 (2^{24}) amplitude levels, giving a theoretical signal-to-noise ratio of 146dB. Thermal noise within circuit components makes this impossible to achieve at everyday temperatures, the best 24-bit DAC chips typically returning about 118dB. So 32-bit performance (theoretical S/N ratio of 194dB) is even more unobtainable. Not that this is anything to worry about since the real-world performance of modern 24-bit DACs is already good enough to keep noise below audibility in normal usage.

Note that while the ES9018 is a 32-bit DAC, it doesn't offer 32-bit analogue performance because that's utterly unobtainable. [See the box-out below for more detail.] Nor, of course, are 32-bit audio sources generally available, or the 750D fitted with interfaces that can stream 32-bit signals. So does this make the 32-bit tag a bit of marketing hyperbole? Yes and no. The technology is 32-bit but the performance is not – a criticism you can just as well make of 24-bit digital audio. (And which Barry did indeed direct at Deutsche Grammophon's 4D recording technology many years ago.)

What really matters, I'd suggest, is how the 750D acquits itself on the bench and the listening room – and on the first count the lab report shows it to be state of the art.



CD FIRST...

I began by listening to the 750D as a CD player, using its own disc mechanism, with the marginally costlier Naim CDX2/DAC/XPS combination (£8380) to hand as a point of reference. Any notion that these two excellent performers on the test bench might sound indistinguishable was scotched immediately I played the first track on both, one after the other and then back again: The Beatles' 'Come Together', from the remixed *Love* album [Parlophone 0946 3 80789 2 0] produced

ABOVE: Push-buttons either side of the disc drawer and large-character display operate the usual standby, disc and programming controls, and select between inputs in DAC mode

by George Martin for Cirque Soleil. Via the 750D the sound was a little smoother, a little less rough-edged (appropriately or otherwise) and there seemed to be greater bass extension. Against which the Naim assembly may have sounded less suave but had the advantage in sheer musical drive, the pulse of this track appearing to beat a little faster and harder.

Searching for something of a very different genre that also places a premium on rhythmic ability my eye fell on *British Classics VI* [Decca 440 321-2], a collection

of Benjamin Britten pieces conducted by the composer. The headline work on the disc is *The Young Person's Guide To The Orchestra* but what I wanted was the magnificent *Variations On A Theme of Frank*

Bridge, which positively bristles with youthful invention and bravado. Recorded in 1967 this isn't the least glare-free classical recording you'll ever hear but I've yet to encounter an alternative which so brilliantly evokes the variety and vitality of these nuggets of creative energy.

The track I selected was the third, 'March', which is propelled forward by the frenetic bowing of the double basses before the violins catch the mood. It's insistent, spiky and restless.

At least, it was via the Naim line-up which reproduced this difficult but magical recording with more rhythmical conviction than I've ever heard before. Beside this the 750D sounded smoother and a little more spatially expansive but the overall result was a little too refined.

Sensing that the 750D does its best work in other areas, I turned next to Kari Bremnes' 'Byssan Lull' from *Svarta Bjørn* [Kirkelig Kulturverksted FXCD 200]. Bremnes is Norwegian and this is a

'The Moon was smooth as silk with Bremnes' voice on CD'

CD PLAYER/DAC

LAB REPORT

SIMAUDIO MOON 750D (£7950)

In almost every respect (bar one oddity that I'll come to later), the 750D resides in state-of-the-art dCS territory when it comes to measured performance. Distortion is an order of magnitude lower than Moon thinks it is – not 0.0003% at 1kHz/0dBfs but an incredible 0.00005% at its 2V (balanced) output. Even at 20kHz, distortion is just 0.0005% [see Graph 1, below], rising to a mere 0.0009% at 40kHz with 24-bit/96kHz and 192kHz digital inputs. The brickwall digital filtering is very steep indeed, offering at rejection of alias images >126dB at 22kHz with CD and 86dB at 24kHz with 48kHz digital inputs. The frequency response is flat to -0.16dB/20kHz with CD and with 48kHz digital inputs, reaching out to -0.8dB/45kHz with 96kHz and -4.4dB/90kHz with 192kHz digital inputs.

Jitter, as promised by Moon, is squeezed down to the limits of measurement [see Graph 2, below], reaching the 120psec data pattern limit with 16-bit CD and settling at just 5psec/15psec with 48kHz/96kHz 24-bit digital inputs. The novel DAC architecture also delivers extremely low levels of ultrasonic noise which bodes well for compatibility with different amps. And the 'oddity' I spoke of? Distortion – not through mid or treble – but through low bass where it climbs to 0.001%/100Hz and 0.003%/20Hz. This is still very low but sufficiently different from its mid/treble performance for it to flag my attention and, perhaps, Keith's during his auditioning.

Readers are invited to view comprehensive QC Suite test reports for the Simaudio Moon 750D CD player and integral DAC by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Four digital inputs are provided via three different interfaces: balanced AES/EBU on XLR, S/PDIF coax on phono, S/PDIF optical on Toslink, and USB. All but the last support up to 24-bit/192kHz

well-known Swedish children's song written by Evert Tauber. I have only a vague idea of what the lyrics mean (probably a good thing as there's a religious theme) but I don't want to hear it in English because I far prefer Bremnes' hauntingly lyrical voice singing in Scandinavian. The track opens with repeated bass taps – signifying knocking on a door, perhaps, or a heartbeat? – which the 750D didn't pitch as confidently as the Naim but it was smooth as silk on Bremnes' voice and projected a large, airy soundstage.

DAC MAGIC?

Time to try the 750D as an outboard DAC, which I did by feeding it S/PDIF signals on coax from the Mac mini via an RME Fireface 800 FireWire interface, and via USB directly.

It's often the case that USB DAC interfaces disappoint, even within their sampling rate and bit-depth limitations – the one notable exception I've experienced being dCS's asynchronous mode link in the Scarlatti Upsampler. Comparing the 750D's USB link to coax S/PDIF using an EAC rip of the Volodos Schubert I've been raving about recently [Sony SICC 70, Japanese import], I preferred the S/PDIF sound but only marginally once a ~3dB difference in analogue output level had been corrected. The USB sound had weightier bass but the S/PDIF won out for having more pizzazz.

Next I compared the rip, played via S/PDIF, to the disc played in the 750D. Again there was a level disparity to correct, after which I preferred the sound of the rip. The differences were not large but, as is often the case, the sound from CD was a little less well resolved, a little rougher at the edges than the sound from hard disk.

And so to hi-res material from hard disk and more comparisons

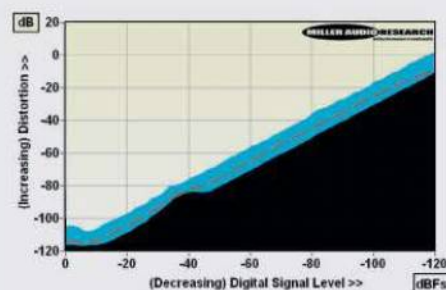
with the Naim DAC/XPS, beginning with 'I Had the Craziest Dream' from Jimmy Cobb's *In The Key Of Blue* [Chesky Records, HDtracks 24/96 download]. This piece of meticulous crafted, easy-going, immaculately recorded jazz is like a comfortable sofa – something to sink gratefully into after a hard day. The 750D did well on this: it captured the music's infectious swing and the airy acoustic in which it was recorded, but there was a mild clouding of detail compared to the Naim which, for instance, rasped out the trumpet with more conviction.

The movement 'Rasch' from Anton Webern's *Five Pieces for Violin And Piano* [2L Records, 24/96 download] could hardly strike a more vivid contrast musically, its Second Viennese School angst not being something you're intended to relax to at all. But the 750D remained true to character, sounding mildly softened compared to the Naim. With such challenging music that's something you might welcome but it was the Naim, just, that better conveyed the urgency of the piece and Webern's intention to shock bourgeois ears. ☺

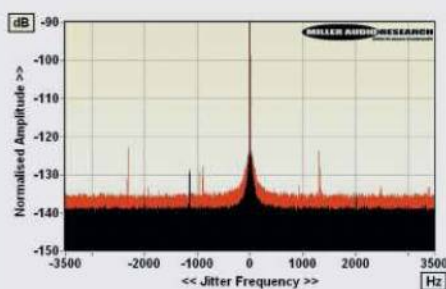
HI-FI NEWS VERDICT

This is a well built and engineered product that shines on the test bench and has been well reviewed elsewhere. That said, its music making won't quite satisfy all. It will appeal most to those who prefer a slightly distanced view of musical performance, where sweetness of sound is embraced at the cost of some insight. Only if you crave being hard-wired to the music, may it seem just a tad reticent.

Sound Quality: 80%



ABOVE: Distortion vs. digital signal level over a 120dB dynamic range using 24-bit data at 1kHz (black) and 20kHz (blue); CD/1kHz data (red dash)



ABOVE: High resolution jitter plot, 48kHz/24-bit data (black spectrum) and 96kHz/24-bit data (red)

HI-FI NEWS SPECIFICATIONS

| | |
|---------------------------------------|--------------------|
| Maximum Output Level (Balanced) | 1.98Vrms / 97ohm |
| A-wtd S/N Ratio | 109.0dB |
| Distortion (1kHz, 0dBfs/-30dBfs) | 0.00005% / 0.0014% |
| Distortion & Noise (20kHz, 0dBfs) | 0.0005% |
| Frequency resp. (20Hz-20kHz) | +0.0dB to -0.16dB |
| Digital jitter (CD/24-bit digital in) | 120psec / <5psec |
| Resolution @ -100dB | ±0.1dB |
| Power consumption | 25W |
| Dimensions (WHD) | 476x102x427mm |

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ATC EL 150 SLA (£43,400)

ATC's flagship domestic loudspeaker, the passive EL 150 SLP, costs £29,125. But hold on to your hats: now there's an actively-driven version too...

Review: **John Bamford** Lab: **Keith Howard**

Do you fancy listening to a recording of a live concert in your living room? If you live in a detached house, or at least are able to wind the wick up without disturbing neighbours, then how about *really* creating a feeling of 'being there'?

Wait. Let's pause for a moment. I've sat in the front row at a few rock concerts during my lifetime. And when the drummer kicks his foot pedal, or the bassist twangs an open E-string, the shock of the initial sound pressure impacting your body takes the wind out of you. Rapidly you discover you require extra effort to breathe. These '150s, won't *quite* recreate such a forceful sonic impact. But if you think your present system will go pretty loud, chances are you've heard nothing quite like these ATCs.

Loudspeaker Technology Ltd, the manufacturer of the well-known ATC brand of speakers and electronics for some 40 years, is renowned for its studio monitors used the world over. Last year [*HFN* Dec '09] we visited its Gloucestershire workshops, where around 20 craftspeople make everything by hand.

Naturally the EL 150 employs the basic DNA and key components used in all ATC's monitors, such as its proprietary soft dome midrange unit and bomb-proof bass drivers: a fearsome 375mm woofer in this instance. The folks at ATC

are the first to admit that their studio monitors are designed to do a job, plain and simple, with form following functioning. While a passionate audio enthusiast with a 'sound den' might be satisfied with an agricultural looking behemoth of a speaker enclosure, most people who can afford something truly fabulous wouldn't dream of ruining their interior-designed living room's aesthetics with coffin-sized black boxes resembling cabinets from a rock concert!

Hence the development of this 'domestic' flagship model, intended for the living rooms of the well-heeled. The ellipsoidal cabinet, produced by a local furniture maker to ATC's specifications, remains precisely 150 litres in volume, the same as the SCM 150 studio model. While they might suit a room resplendent in Rococo or perhaps Art Deco furnishings, our review pair looked rather garish in their burr magnolia veneer, but of course any wood or piano lacquer finish can be requested when commissioning such a costly model.

Apart from its gargantuan 200 and 300 litre cabinet speakers, intended for large studios preferring to have amplifiers in a room remote from control monitoring, ATC's active models usually have the powered crossovers and power amps built in. Again, if you can afford something rather special, chances are you'd rather show it off, so it was a conscious decision by



RIGHT: The EL 150 features ATC's famous 75mm SM-150S soft dome midrange unit, a massive 375mm bass driver and 25mm tweeter

A HIGH-END SHOPPING SPREE

'We've had to take on extra staff recently,' ATC's operations director, Bob Polley told me when I phoned to quiz him about the background to these EL 150s, which are quite unlike other speakers in the company's range. 'We're experiencing unprecedented sales growth at the moment, especially sales of our expensive models. The

EL 150 has been a great success for us since we introduced the passive version at the Hong Kong audio fair in November 2007. Sales are good in the UK and we're overwhelmed by the volume of sales coming from the high-end hi-fi market in territories such as Russia and China.' Aren't we supposed to be in a financial recession? Bob's

never shy of telling it like it is, so this couldn't be PR puff. Anyway, it tallies with what other hi-fi manufacturers have been saying during recent months. Consumers wealthy enough to afford the best things in life are buying them now, since keeping money in the bank is presently of little benefit due to uncommonly low interest rates.

ATC to design the active version of this EL 150 as a 'remote active' model.

MATCHING ELLIPTICAL AMP

Enter the huge P6 multichannel amplifier with its chassis formed from a billet of aircraft grade aluminium, shaped in an ellipse to complement the speakers. It contains 3-way active crossovers with phase equalisation and six discrete mono power amps (one for each speaker's three drive units), delivering a claimed 350W per stereo channel. Resembling nautical hawsers, substantial multicore cables link up the P6 to each speaker using fabulous – and fabulously expensive! – Swiss-made Lemo multipin connectors with gold-plated pins.

As ATC's senior design engineer Ben Lilly explains when extolling the benefits of active drive, 'We pride ourselves on the consistency of our drive units and endeavour to work within tolerances of plus or minus 0.5dB when pair-matching drivers for our passive models. But of course for our active systems we can trim the gain of each power amp module to even finer tolerances, matching each amplifier to its individual drive unit.' (Consequently I was given strict instructions to observe the 'L' and 'R' labelling on the rear panels during setup.)

For the loan period ATC also supplied one of its purposeful SCA-2 preamplifiers, currently its top line model (£4860) with a suite of balanced and single-ended inputs and a balanced output pair of XLRs for marrying up with the P6's balanced inputs.

EXPLOSIVE DYNAMICS

When playing the audiophile demonstration track 'Gone Buttlefishin'' from the album *James Newton Howard & Friends* [Sheffield Lab CD-23] I thought these ATC '150s must come as close to being classed a military

weapon as any loudspeaker ever to have graced my basement listening room. Originally a 1984 direct-to-disc LP recording, this Sheffield Lab album is filed in the 'sonic fireworks' section of most audio enthusiasts' collections.

Indeed, 'fireworks' comes pretty close to describing the intimidating force of sound pressure these monitors will produce when they're turned up a notch, the ricocheting crack of the drums seeming like gunfire interspersing the earth-shaking bass synth riff in the recording. The kick drum delivered knockout punches with startling realism.

Have I used the adjective 'frightening' yet? Because I can tell you, as numerous visitors passed through the listening room during the few weeks that the

EL 150As were in residence, I managed to frighten most of them in the course of some insane moments of showing off. 'Nice of you to share the music with neighbours in the

'Nice of you to share the music with neighbours in the next street'

next street,' commented one friend as I demonstrated that these monitors were capable of causing permanent hearing damage for the reckless. And I kid you not, this could be achieved by turning the gain up on the preamp's volume dial barely half way...

Playing natural-sounding recordings of live concerts is made a thrilling experience when you've a pair of these EL 150As sitting at the far end of your listening room. With the DTS Entertainment label's 2003 DVD-Audio release of Frank Zappa's *Halloween* [DTS-1101], an analogue recording of a 1978 performance, transferred to 24-bit/96kHz packed PCM, the tremendous power and headroom of this active ATC system afforded a sensational feeling of 'being there', halfway back in the stalls of the auditorium. That familiar gut-wrenching 'thwak' of the kick drum through the band's PA system was ever present, the



LOUDSPEAKER



ABOVE: The accompanying P6 'drive engine' weighs a hefty 50kg. With just one pair of balanced inputs on XLRs, it houses active crossovers and six power amplifiers


speakers effortlessly delivering the fierce bass alongside searing guitar and crashing percussion without appearing to even break into a mild sweat. As I was measuring peaks in excess of 110dB, holding an SPL meter in my lap, my listening seat nearly 20ft from the speakers, I thought 'With a pair of these you could fill a very, very large room with music – but you wouldn't want to be sitting too close'.

Despite showing signs of its age, my vinyl pressing of Led Zeppelin's live soundtrack to the concert film *The Song Remains the Same* [Swan Song SSK 89402] – played at high level purely for investigative purposes, you understand – similarly sent shivers down the spine as John Paul Jones' bass pedals produced prodigious waves that were sent reverberating down the length of the listening room. Jimmy Page's guttural, urgent assault of his Les Paul during the solo in 'No Quarter' verged on manic as it cut through the wall of sound, only the sound engineer's pointless riding of a 'phase effect' slide control shattering the realism of the musical event.

SIMPLY EFFORTLESS

There was absolutely no evidence of strain, regardless of what I threw at them. The EL 150As sounded relaxed and effortless, with a delicate touch when

playing piano and acoustic instruments that had been recorded in a natural perspective. They certainly possess an ability to bring such music to life, especially simply-miked recordings where the air and space around the instruments and voices permits the sound to breathe.

These imposing ATCs deliver up-front detail, a tight and punchy bass, with seemingly endless headroom that allows you to listen-in to recordings as if analysing them under a magnifying glass. While ruthlessly revealing of inadequacies in poor recordings (the presentation soon becoming hard, forward and aggressive), with high quality source material they will have you riveted to your seat, captivated. 

HI-FI NEWS VERDICT

ATC's EL 150As are uncompromising, ruthlessly revealing of poor quality recordings. But what else would you expect from such a powerful and revealing monitor? They can fill a huge acoustic space with high quality sound at high SPLs, moreover they come with a lifetime warranty. For those able to afford them, they should definitely be high on the list of speakers to be auditioned.

Sound Quality: 80%

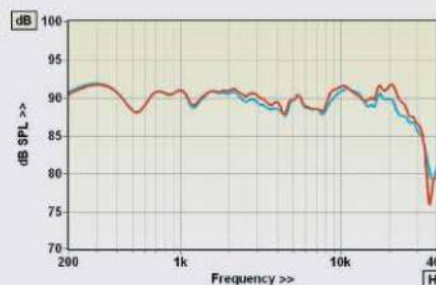


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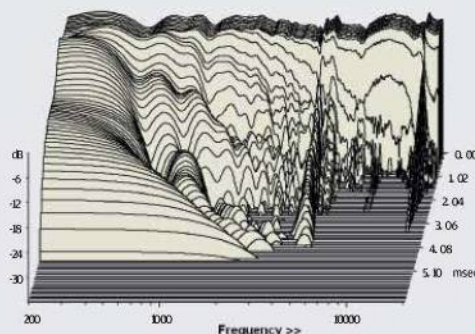
ATC EL 150 SLA (£43,400)

Because the EL 150 SLA is an active speaker, no conventional sensitivity measurement could be performed. But as ATC takes the unusual step of specifying the EL 150's 'underlying sensitivity' as 91dB, the on-axis frequency response traces [see Graph 1, below] have been normalised with the left channel at 91dB/1kHz. As always with ATC designs, the frequency response trend is essentially flat, and ripples in the response are mild, giving rise to unusually low response errors of just ± 1.9 dB and ± 2.1 dB respectively for the two speakers. Pair matching is also good at ± 1.0 dB, although not in the very highest echelon, the largest disparities occurring between 2kHz and 4kHz and above 8kHz. Note that the lower frequency limit for both these measurements is 300Hz rather than the usual 200Hz, since the heavy EL 150s could not be raised up off the floor to increase the measurement time window.

Bass extension (-6 dB ref 200Hz) is excellent at 27Hz, although near-field measurement shows the response beginning a gentle decline at around 50Hz. The large woofer's THD is low at 0.3% at 100Hz for 90dB SPL, and its reflex loading will help suppress distortion at lower bass frequencies. A little disconcertingly, the two speakers of the review pair did not generate closely matched cumulative spectral decay waterfalls. The worst of the two [see Graph 2, below] shows a distinct resonant ridge associated with the frequency response 'wobble' at around 5kHz, which in the other speaker is much better suppressed. It is also unusual these days to see a distinct tweeter resonance at about 17kHz, even if this is probably entirely inaudible. KH



ABOVE: A well-engineered and essentially flat forward response with L/R pair matching better than ± 1 dB



ABOVE: One cabinet showed a 5kHz ridge that marries up with a 'wobble' on the response (the other was better suppressed) and a tweeter resonance at 17kHz

HI-FI NEWS SPECIFICATIONS

| | |
|--|-----------------------------|
| Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music) | N/A (Active speaker) |
| Frequency response error (300Hz–20kHz) | ± 1.9 dB / ± 2.1 dB |
| Pair matching (300Hz–20kHz) | ± 1.0 dB |
| LF extension (-6 dB ref 200Hz) | 27Hz |
| HF extension (-6 dB ref 10kHz) | 31.4kHz / 31.6kHz |
| THD 100Hz/1kHz/10kHz (for 90dB SPL/1m) | 0.3% / 0.2% / 0.2% |
| Dimensions (HWD) | 1315x650x290mm |



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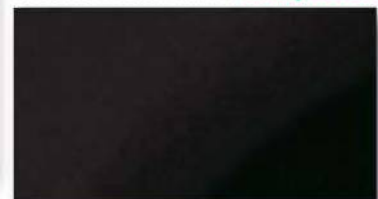
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Valvet P2c/A3.5 (£3790/£3750)

Valvet's P2c preamplifier and A3.5 monoblock power amplifier combination, one valve and one transistor – do the Germans have a word for schizophrenia?

Review: **Ken Kessler** Lab: **Paul Miller**

Decades ago, when the valve revival started, a book with the delicious title of *Tu-be or Not Tu-be?* appeared. It raised a question that has plagued audiophiles since the days of the first transistor, which is embodied in the Valvet duo under scrutiny. Is it wise to have a foot in both the valve and solid-state camps, or is it better to stick to one technology?

Valvet of Germany is in good company. In recent years, we've had examples of both from Audio Research, McIntosh, Nagra and Quad, to name but four, while every brand born in the valve era which survived into the solid-state era produced both, with overlap. The divergent paths for Valvet's top-of-the-line P2c MM/MC/line preamp (all-valve) and A3.5 monoblocks (solid-state) simply reflect the founder's desire to use what he feels is best for a given task.

NO-NONSENSE

My eyes lit up when I saw the P2c, which immediately reminded me of Croft: low profile, minimalist, all-valve, hard-wired – no nonsense. The cabinet height comes courtesy of the power supply being housed in a small, external box which also sports the on/off rocker switch. A robust cable connects it to the preamp. Additionally, Valvet needed little real-estate on the P2c's front to contain the controls because the panel hosts only a pair of rotaries for input selection and volume, plus a blue power-on LED.

At the back, with equal clarity, there is a single row of gold RCA phono sockets for four line sources, and both MM and MC cartridges. The two phono inputs are selected by a toggle switch sited between them; users can connect two turntables to the unit. The MM input is standard 47kohm, while the MC input is 100ohm. Outputs include two sets

of mains, as well as 'record out', so the overall minimalism does not hamper the P2c's flexibility.

You will marvel at the quietness of the phono section, especially with moving-coils, as Valvet opted for MU-metal encapsulated toroidal transformers, wound with pure silver wire, to provide the added gain. I used it as well with moving-magnets – the cartridge in the Clearaudio Concept, as well as a Shure V15-V – but MC purists will enjoy the freedom from hum and grunge. Valvet will also supply the P2c with the MC stage set for 10 or 25ohm input impedance, though I had no problem with the standard 100ohm version using a couple of MCs that I usually set at 50ohm and 1kohm.

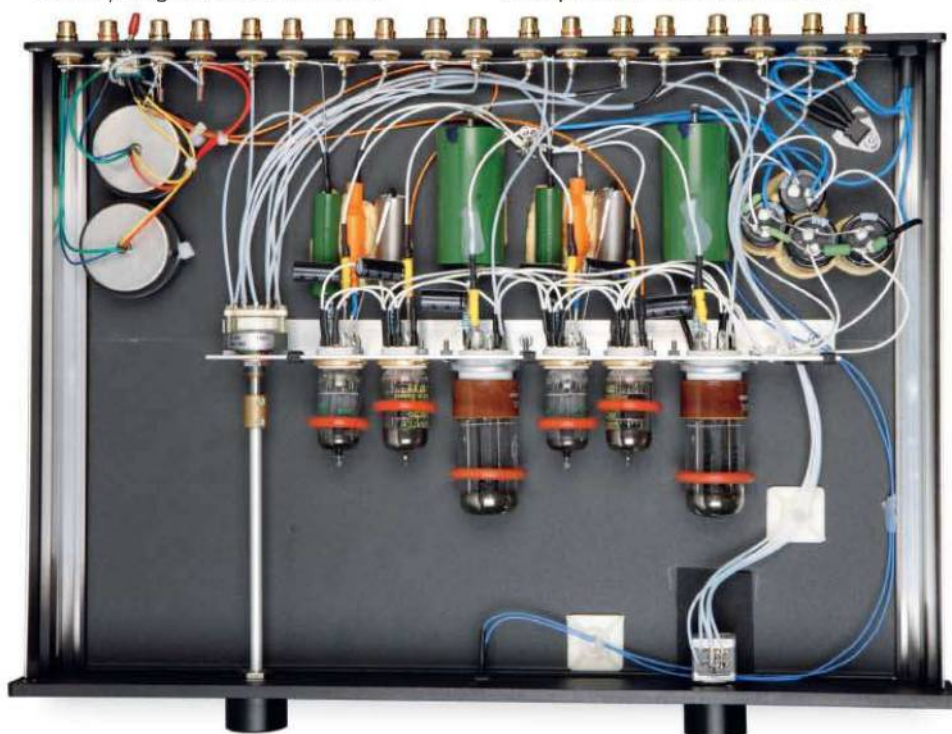
This is a valve-rich product, the MM-section containing four triodes in the low-level section, easily-replaced ECC83s and ECC81s, with passive RIAA equalisation. According to Valvet's founder/designer, Knut Cornils, 'the

passive RIAA is faster, more precise and life-like, compared to designs with active RIAA in the feedback loop. There is no global feedback at all in my preamps.'

SILVER LINING

Other components were selected within tolerances of <1%. The phono section feeds a high level stage which employs a pair of 6SN7s, and there's a 5U4 in the power supply. Although Valvet doesn't make a big deal out of it – it hasn't named this the 'Silver Series' or similar – the step-up transformer contains a goodly amount of the material, while the signal wiring is also pure silver with PTFE insulation. The valve power supply also uses PTFE insulated pure silver wiring in its PCB-free, hard-wired circuit.

Although the uncluttered interior seems like an invitation to tweekers to meddle with the components, there's little need. Standard fittings include ceramic valve sockets and paper-in-oil capacitors; Valvet even fits tube



RIGHT: Shades of Croft! All-valve, all-hard-wired internals and no sign of a PCB, attesting to designer Knut Cornils' preference for short signal paths. Tweekers could have a field day



dampers. Options at extra cost include WBT NextGen connectors, and front panels in 10mm-thick black acrylic glass or chromed brass.

Straight out of the box, though, the black powder-coated, steel-and-aluminium P2c is handsome and compact. Equally dinky are the A3.5 monoblocks, also in black aluminium cases, with a deep 'V' cut through the front panel. It lights up in blue when the amps are on. I was told they were Class A and so prepared enough breathing space, but they ran warm rather than hot. Regular access to the rear panels is needed for the on/off switches, and the amps accept both balanced signals via XLRs, or single-ended via phono. Oddly, the P2c does not provide balanced outputs. Meanwhile, speakers are connected via multi-way posts.

In addition to the Clearaudio Concept turntable [see p30], I also used the Marantz CD12/DA12 CD player, and Wilson Sophia 2 and Sonus faber Cremona Auditor Elipsa speakers. Wiring was Yter between preamp and power amps, and on to the speakers, while the CD player was connected with Kimber.

As the Valvets come fitted with handsome hardwood cone feet, I didn't bother with aftermarket alternatives, nor did I use Flux Dumpers, Shaktis or any other accessories. Though in some ways, I wish I had.

TUBES VS TRANNIES

For Valvet's founder, electronics engineer Knut Cornils, there's a desire for both solid-state and valve solutions. 'For the preamplifier, it's possible to design a circuit with very few components if you use valves, and I like uncomplicated circuits. There is just one valve per channel in the line stage and only two per channel in the phono stage. That contributes to the sound, which is very fast.

'For power amps, if you use valves, you need an output transformer. Power valves have a limited life, maybe just a year, which is not the case for the preamp valves. So it becomes a more expensive product, both to buy initially and to replace valves every year. Some people produce good, expensive valve amps but that's not for me. It's a matter of personal taste of course, but I like how the combination sounds and a lot of other people say they like it, too.'



CURIOUS COMBINATION

What follows may read like William Hope Hodgson, but I'm trying to go easy on the purple prose: this was the weirdest combination I've heard in a decade. As is common practice when reviewing a pre/power pair, I tried the units with other preamps and power amps, but the results were consistent. Against all the near-Pavlovian conditioning we audiophiles have experienced our entire lives, the two pieces most emphatically did *not* sound like they came from the same manufacturer. Nor did they sound as if they were designed to counter each other, as when a designer 'voices' a product to compensate for the other.

This is not a condemnation of the Valvets, nor of the practice: it's how we put systems together. Speakers a tad bright? Buy a smooth amp. Amp too fat down below? Match it to speakers with dry, controlled lower octaves. And it's exactly the way you match pre-to-power, unless you're fortunate enough to own models so neutral and uncoloured that they work well with everything.

First, the P2c: I loved it. Why? Because it is classic 'tube' all the way. No, it isn't fat nor overly warm, but it is euphonic,

'First, the P2c: I loved it. Why? It's classic 'tube' all the way'

ABOVE: Totally minimalist: a source selector with detents and a nicely-weighted volume control. Amps' 'V's light up blue; red would have been a free tie-in with the relaunched TV series!

sweet, unaggressive. It made me think of a Dynaco PAS3, with the detail of a Croft. With Creedence Clearwater Revival on vinyl, the texture of Fogerty's voice enjoyed authenticity such that – through the Wilsons – he could have been standing two meters in front of me.

Guitars, especially acoustic, possessed the overtones that allow the sound to ring through the air, while transients

remained crisp and precise, to almost (ironic, here) solid-state levels.

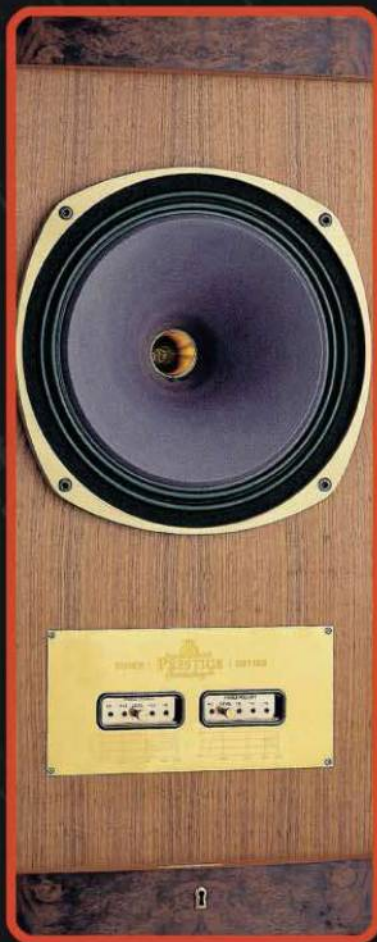
Openness, too, was part of the valve-ness of the P2c. The soundstage spread across the

room, reaching so far into the corners that I was able to enjoy the highly-coveted occurrence of 'the walls seeming to disappear.' The epic presentation of live Louis Armstrong at Newport in 1960 was as evident as volcanic ash over Iceland. Having once enjoyed that event, albeit seven years later, a delicious chill of the familiar accompanied the session. For 60 minutes, I was 15 again, relocated to Rhode Island, mid-summer.

For sheer fluidity, I turned to Mike Nesmith's lush, liquid 'Rio', the title track on the Edsel label's two-disc *Best Of...* collection. Loping bass, massed backing vocals, Latinate percussion – smiles all 'round. The P2c caressed what is the most gently laidback performance of his career. The way it handled the twin guitar break two minutes in, in front of clinking glasses and party noises, was a textbook example of respecting the layers of sound in a recording. You are transported as the lyrics suggest: with 'a sense of well-being.' I played the track four times in a row. ☺



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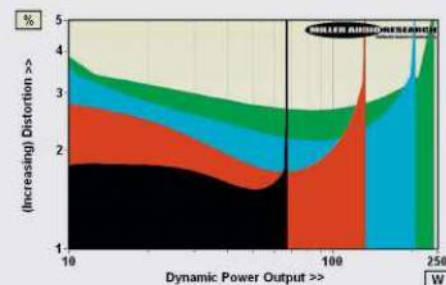
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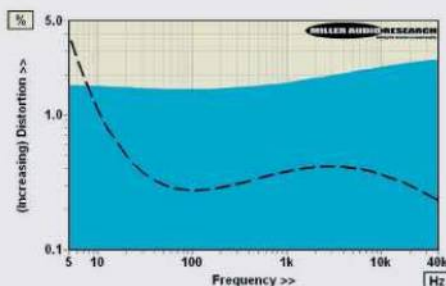
VALVET P2c/A3.5 (£3790/£3750)

'Classe-A' boasts the literature, but this A3.5 power amp which runs at 32°C (not the 60°C specified) and draws 41W idle and 93W at 50W/8ohm does not conform to a strict 'Class A' specification. Interestingly, distortion is low enough at 1-3W (0.028-0.05%) but increases swiftly thereafter (0.5%/4W, 0.95%/5W, 1.25%/6W, 1.45%/7W...1.75%/10W). Above 10W, both samples incur 1-3% distortion from 20Hz-20kHz [see blue infill, Graph 1 below] up to final clipping at 60W/8ohm. Within these constraints, the A3.5 exceeds its 50W/80W 8/4ohm power specification, offering up to 130W/4ohm and 205W/2ohm under dynamic conditions, provided you can accept THD that would make a valve amp blush [3-4% - see Graph 2, below]. Finally, the high 1.2ohm output impedance will cause variations in the overall amp/speaker response while the exceedingly high 150-200mV DC offset will bias the bass cone of some loudspeakers.

Ironically, the ECC82 tube-based P2c preamplifier is slightly less coloured, offering a wide 99dB A-wtd S/N ratio and distortion <0.5% from 20Hz-20kHz [dotted trace, Graph 2 below]. The response has a similar, gentle treble roll-off just as the output impedance is still rather high at 1.8kohm but the preamp will deliver just over 10V full output at 1% THD. The input overload margin is slightly less generous - a 100mV input yields 0.05% out but this increases to 0.6% at 1V in and 1.1% at 2V (CD level) in. Readers are invited to view comprehensive QC Suite test reports for the P2c preamp and A3.5 power amp(s) by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion versus extended frequency for preamp (dashed trace, 1V/60kohm) and power amp (blue infill, 10W/8ohm)

HI-FI NEWS SPECIFICATIONS

| | |
|-------------------------------------|-------------------------------|
| Power output (<2% THD, 8/4ohm) | 60W / 96W |
| Dynamic power (<3% THD, 8/4/2/1ohm) | 75W / 128W / 185W / 180W |
| Output impedance (20Hz-20kHz) | 1.09-1.16ohm (P2c); 1.8kohm |
| Frequency response (20Hz-100kHz) | -2.1 to -7.5dB/+0.1 to -3.3dB |
| Input sensitivity (for 0dBW/50W) | 212mV / 1610mV |
| A-wtd S/N ratio (pre/power) | 99.1dB (0dBW) / 88.3dB (0dBW) |
| Distortion (20Hz-20kHz, pre/power) | 0.27-0.50%/1.45-2.81% |
| Power consumption (Idle/Rated a/p) | 41W/93W (P2c, 51W) |
| Dimensions (WHD, pre/power) | 445x45x230/230x80x310mm |



ABOVE: Rear view of Valvet's flagship system shows clear layout and superb access to all socketry but also emphasises an anomaly: why do the power amps accept balanced inputs, but the preamp is single-ended only? Note hardwood coned feet

Regardless of the source, when tried with other valve and transistor amps, the P2c earned the supper it sang for, with honours. No, it does not have the precision of the Audio Research Ref 5, nor the impact of the McIntosh C2200, but it certainly sounded as coherent and detailed and musical as I would demand at just under £4k.

THE MONOBLOCKS...

Then we get to the A3.5. Having spent most of a decade with huge Krell monoblocks, back in the early days, when Class A meant no need to switch on the central heating in January, I foolishly prepared myself for a replica of, at the very least, the KSA-50 experience. It was the biggest disappointment since, well, my first taste of steak tartare. Non-plussed? I re-read the manufacturer's puff, changed cables, checked my pulse to ensure I hadn't succumbed to the finality of old age. I swapped preamps four times. No way could I escape a sound that seemed the precise opposite of the P2c's, and not in a complementary manner, as is balancing a system through considered voicing.

I dug out every easy test CD I could, the sort that make all systems sound great: Chesky's Cuban extravaganza, the Toshiba-EMI CD of *Abbey Road*, the aforementioned Nesmith track.

It was as if Dr Atkins had decided to try his hand in audio. A host of adjectives crawled up my gullet: anaemic, anorexic, skeletal. It was never an issue of power, nor even bass extension. It was a feeling that the sound had been stripped of its nutrients. So I called

the Ed, even though we never discuss our respective findings before forming opinions. Without spoiling the game, he told me that my ears were working just fine.

Nothing I tried changed the overall character. Then it occurred to me that, whether by accident or design, Valvet had created both valve and solid-state components that exemplified their most excessive, stereotypical traits. The difference is that these traits are euphonic in valves, and excruciating in transistors.

No, it was not a total loss: the A3.5s are fast, punchy, and able to deliver whatever levels you require. The soundstage matched the expanse of the P2c's. But their behaviour is neither real nor 'natural'. Keb' Mo's vocals, known for a deep richness that would raise a smile from James Earl Jones, were closer to Michael Jackson circa 1973 than the voice of Darth Vader. The bass in 'Rio' lost its loping gait. 'Odd' is the final adjective I chose. ☹

HI-FI NEWS VERDICT

Over the years, I've tried countless single-make tranny/tube pairings. The manufacturers seemed to voice the units either to sound alike, or to complement each other. This is the first time I've heard two pieces so at odds with each other. The shame is that the P2c is a perfectly enjoyable valve preamp in the old-school sense, a joy to use and an ideal solution for a minimalist/purist. But the amps? *Oy gevalt*.

Sound Quality: 70%



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BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

From post punk to Persian pop, plus The Doors, White Stripes and The Stones... **Chris Heard** brings you his pick of what's new in the world of brand new vinyl re-issues

The Doors' six studio albums, making up one of the best loved catalogues in all of rock music, first emerged on re-mastered high-grade vinyl a couple of years ago courtesy of Rhino, the specialist US collectables arm of Warner Bros. It tends to do these 'legacy' issues better than most – this limited-edition box set came with a mono mix of the first LP and its own Jim Morrison-referencing faux snakeskin box in tribute to ol' leather trousers himself. However, retailing at over £100, it proved prohibitive to all but the most dedicated of the Lizard King's admirers.

The good news is that, in a burst of common sense and an entirely uncynical coincidence after the box set sold out, the individual titles are now being made available separately by Rhino, pressed with due care at California's Record Technology plant (RTI) for the best audio quality.

As you would expect, the re-mastered 180g versions are taken from the original analogue masters somewhere deep and dark (but hopefully not damp) in Elektra's studio vaults. Four of the albums – *The Doors*, *Strange Days*, *Morrison Hotel* and *LA Woman* – are already out and selling fast, and the remaining two – *Waiting For The Sun* and *The Soft Parade* – are imminent, according to Warners.

This feast of material charts the band's short but prolific career path, from the faintly menacing feel of the self-titled 1967 debut to 1971's bluesy *LA Woman*, a bruised and weary take on the end of the



➔ Finders Keepers offers this double 180g vinyl release of idiosyncratic Persian pop gems from the '60s and '70s

hippy dream in which roadhouses, beards and paranoia replace the sun-kissed West Coast textures of earlier albums. It all culminated in Morrison's sad demise in a Paris bathtub, bloated and possibly drug-addled, at the age of 27.

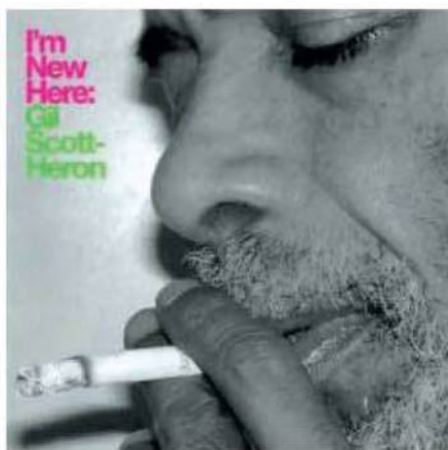
Listening to these records again chronologically there is plenty to enjoy in the way they capture the essence of Californian psych: peerless acid-poetry on 'The End', 'Break On Through' and 'The Unknown Soldier'; the cult of Americana anticipated with *Strange Days*' circus-freak imagery; early Chicano flavours on 'Spanish Caravan' and 'L'America'; and not least the sultry and magnificent 'Riders On The Storm'.

For weak points, look perhaps to some of the padding on *The Soft Parade* or *Morrison Hotel*, but as a whole this is a body of work with the majesty of a crystal ship and the guile of a crawling king snake.

GREAT SCOTT

There's an old joke doing the rounds in our part of the world that Gil Scott-Heron albums are like pizza or sexual encounters – even the bad ones are great.

Happily, the New York-based proto-rap poet's first new work in 16 years, *I'm New Here* [XL Records XLLP471], is a delicious Margerita of a record, drawing on his experience of a recent spell in prison on drug offences to express his singularly



➔ Gil Scott-Heron's first new work in 16 years arrives as a beautifully packaged limited-edition double LP

CHRIS HEARD

Chris Heard is co-owner of Classic LPs, one of the UK's biggest in-stock retailers of vinyl re-issues and new releases. With his wife Rachel, he also runs Three Black Feathers Records, the UK's newest audiophile vinyl label. See www.classiclp.co.uk and www.threeblackfeathers.co.uk for more information on the online store and the label.



powerful American narrative for the first time this millennium.

Centred around the stirring 'Me And The Devil', adapted from the Robert Johnson tune, the album veers from spoken word pieces to dubby atmospherics, at the heart of which our hero simmers and rages with defiance and passion, coming on like some been-there, seen-that elder statesman of the streets from *The Wire*. A beautifully-realised limited heavyweight double LP with prints, it's an early contender for Classic LPs' album of 2010.

BRINGING IT ALL BACK HOME

One of our favourite labels is Manchester's Finders Keepers Records, a passionate cabal of unsung musical archaeologists who dedicate their time to unearthing obscure and overlooked psych, prog, folk and jazz curios from the darkest corners of the earth. And Wales. These guys love

vinyl like we love vinyl, but where even the most dedicated of us LP hunter-gatherers knows where to stop and draw the line in our pursuits, these lads just keep on digging, going the extra yard, the extra mile, the

extra Ryanair flight, seeking out that lost Anatolian movie theme or avant-garde gem kept hidden for years inside a crumbling Eastern Bloc state recording studio.

Finders Keepers has been bringing it all back home to our turntables since 2001, premiering forgotten classics such as Lubos Fiser's cult soundtrack to the influential Czech New Wave movie *Valerie And Her Week Of Wonders*; gathering prog-folk from the valleys courtesy of *Welsh Rare Beat* (Vols 1 and 2); and acquainting us with Serge Gainsbourg arranger Jean-Claude Vannier's psych-rock magnum opus *L'Enfant Assassin Des Mouches*.

Among a more recent slew of releases, we are quite taken with the Persian pop compilation *Pomegranates*; 12in EP *Who Killed The Dragon?* featuring Vangelis in an

'Four of The Doors albums are already out and selling fast'



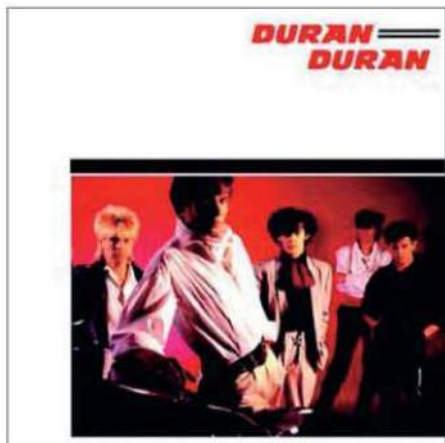
➔ Universal re-releases *Exile On Main Street* on 180g vinyl, some 38 years after it first topped the UK and US charts

early experimental incarnation (as distinct from the Demis Roussos-Jon Anderson stuff); and a Krautrock hybrid of sorts as performed by synth-loving '70s US music academic Sam Spence on the LP *Sam Spence Sounds*.

STONES OUT OF EXILE

The Rolling Stones were unofficially the greatest rock 'n' roll band in the world when they upped sticks to a former Gestapo HQ in the south of France in summer 1971 to add the final flourishes to *Exile On Main Street*, their expansive double album which many fans still rate as the most fully realised work of their extraordinary career. Flushed by the recent success of *Sticky Fingers*, they were in triumphant mood as they set about embellishing a series of outtakes and unfinished songs created over a prolific three-year period. Jagger and Richards' by-then broad musical influences spill out all over the record, from the blues to gospel to country rock, all united by a loose, soulful swagger, with hints everywhere of the easy-living decadence that would define them throughout the first half of the '70s.

On *Exile...*, the band cut some of their most intuitively joyous music and never



➔ Duran Duran's debut is re-issued by EMI on 180g vinyl with a bonus 12in single of previously unreleased material



sounded more like an ensemble. An eagerly-awaited vinyl reissue is due via Universal on May 11, some 38 years after it first topped the UK and US charts.

WHITE STRIPES LIVE

Of the relatively few contemporary guitar bands beloved of vinyl aficionados, The White Stripes are perhaps the most revered. Not surprising when you consider the consistently high standard of their output over a decade. *Under Great Northern Lights* [Third Man Records TMR015], which acts as a soundtrack to Emmet Malloy's documentary of Jack and Meg White's 10th anniversary tour across Canada, offers a taste of an incendiary live band at the height of their powers.

Wandering out to the strained howls of a bagpipe band, the spine-tingling sense of amazement still makes you marvel how two seemingly meek garage rock geeks can explode with such a huge, blistering bombast of blues rock. Jack's screeching, deranged energy and Meg's plodding innocence culminates in the mass sing-along of 'Seven Nation Army', but it's the chilling cover version of Dolly Parton's 'Jolene' that steals the show.

The album is available on 180g vinyl and as part of a super-limited deluxe box set containing two heavyweight LPs, DVDs, a 7in single and hardcover book of photos.

A LITTLE POST PUNK

It's great to see the San Franciscan audiophile imprint Four Men With Beards going down the new wave/post-punk route,

➔ All six of The Doors' studio albums are now available individually on 180g virgin vinyl from US specialist Rhino

having already done sterling work with *Second Edition* (aka *Metal Box*) by Public Image Ltd, and on Iggy Pop's pair of mid-'70s solo masterpieces, *The Idiot* and *Lust For Life*. Next up for the re-mastered 180g treatment is *Inflammable Material* by Belfast's Stiff Little Fingers, a staple of the John Peel generation that produced shock waves on its release in early 1979.

The sound of four articulate, angry young men growing up amid The Troubles, SLF's debut was raw, naive, passionate, political and explosive, containing 'Suspect Device', the touching 'Barbed Wire Love' and a take on Bob Marley's 'Johnny Was' that became a white reggae touchstone.

PREMIUM DURAN

Finally, Duran Duran's vogueish 1981 debut has been re-mastered and re-issued by EMI on 180g vinyl with a free 12in single of unreleased material [EMCD 3372]. The album has stood up disarmingly well, despite the ruffled shirts and burgundy leg warmers, recalling a brief moment in time when the Brummie arrivistes were armed with a manifesto to dance like Chic and rock like the Pistols.

At the height of Thatcher's Britain, their mildly subversive posturing was a fillip to the charts and for these 40-odd minutes ('Careless Memories', 'Anyone Out There', the mighty 'Planet Earth'), they ruled the shiny new pop landscape. ☺

Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

The Byrds: *Mr Tambourine Man*

It was the birth of folk rock... an album whose sound spawned imitators around the globe. **Steve Sutherland** re-examines The Byrds' debut, re-issued on 180g vinyl

Whatever you do, don't mention The Byrds.' Come again? The nice lady from the record company sighs apologetically, places her hand firmly on my shoulder, looks me in the eye and repeats:

'Whatever you do, don't mention The Byrds. He doesn't want to talk about them. Doesn't have anything to say. If you mention The Byrds, there's a very good chance he'll just walk out of the interview.'

Well, that's just great. I've waited 26 long years to meet this man. Twenty six long years since I bought my copy of *Mr Tambourine Man* with the money I made budgie-sitting for a neighbour. Twenty six long years since that golden ambrosia overwhelmed my imagination with visions of guitar gods and blonde goddesses, luring me towards a life beyond parochial Wiltshire, a distant rock Valhalla out there for the tasting. Twenty six long years since, quite literally, his record changed my life. And now, with minutes to go before I finally meet him, I'm being told that my hero doesn't want to know.

DAGGERS AND SHADES

What to do? I undertake a quick mental reshuffle of the questions I'd planned. Normally under such circumstances I'd plump for the ol', 'I hear you don't want to talk about...' routine – y'know, get him talking about not wanting to talk about it as a route to actually talking about it. But this is Roger McGuinn – the man who actually invented a new form of music in folk rock and had a big hand in inventing

another in country rock, the man who soundtracked *Easy Rider* for Christ's sake. There's no way he's gonna fall for that.

This is what I'm thinking when he suddenly strolls into the hotel suite, briskly shakes hands, sits down opposite me and stares daggers at the coffee table. I'm just about to throw caution to the wind and, as my opening gambit, ask where he got those fabulous rectangular shades he used to wear, when he speaks up, his voice a nervous tremble.

'What's this interview for?'

Uh, *Melody Maker*, I tell him

'*Melody Maker*?' He chews the words over for a second. '*Melody Maker*... Oh, one time they yelled at me for wearing a plaid shirt. It was like a fashion review.'

He spits out the word 'fashion' like it's poison on his tongue. 'I thought to myself, "What's that got to do with music?"'

Needless to say, I ditch the shades question sharpish and chart safer waters.

The excuse for me sitting in this expensive hotel room with this nervy man who obviously doesn't want to be here is a pretty good solo album he's just released called *Back To Rio* (this is in Spring '91 by the way). So we fumble around with that for a while, chat about Tom Petty and Elvis Costello and other co-writers of songs on the album. He tries pretty half-heartedly to say the kind of things that might shift a few units and I none-too-skilfully try to plot a cunning conversational path to the motherlode – the aforementioned *Mr Tambourine Man* and those two minutes 29 seconds of pure spiritual alchemy. We're like a couple of naff boxers, very wary of one another, circling and circling when, suddenly, I spot the opening.

I've just asked whether there is an

STEVE SUTHERLAND

Steve edited *NME* from 1992-2000, the Britpop years, launching *NME.com* and reviving the *NME Awards*. Previously he was Assistant Editor on *Melody Maker*. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...



overall underlying theme to *Back To Rio*, (or something pretty lame like that) when amazingly, he falls for it.

'If the album has a statement to make, I think it's musical rather than verbal... the thing that strings it all together is not an idea but a sound... a Rickenbacker.'

Ah, the Rickenbacker 12 string, in this man's hands, the celestial harp of rock 'n' roll. He picked it up, as I recall, after watching George Harrison play one in *A Hard Day's Night* so I go for it and ask if it was as calculated as people say that McGuinn combined the singing style and songs of Dylan with the attitude and fashion sense of The Beatles to create *Mr Tambourine Man* and the template for The Byrds' success?

'Hmm, it wasn't really,' he muses. 'It was more a labour of love. I was working in the Brill building with the job of listening to

the radio and trying to write songs like the ones I heard. The Beatles came along and they just inspired me so much that I didn't wanna write Frank Sinatra songs or Bobby Vee songs or anything like that. I just wanted to do songs like The Beatles.'

'And when I tried to do it, it came out with folk music changes and folk music inflections and folk music ideas. So it was a happy, natural blending of the two things.'

Apart from picking up nickels and dimes creating pastiches at the Brill, McGuinn (who started out Jim and then became Roger after some weird religious conversion) had been knocking around in long-forgotten folk outfits like The Chad Mitchell Trio. And when he sought some buddies to have a crack at forming an American mop-tops, he turned to a couple of other likeminded folkies weirdos – a moody ex-member of The New Christy Minstrels called Gene Clark and an uppity SOB who'd been slumming around the Greenwich Village circuit by the name of David Crosby. They became The Jet Set but, after picking up a country boy called

'The Beatles
desperately wanted
to be The Byrds'



← The Byrds in 1965 – (l-r) David Crosby, Gene Clark, Michael Clarke, Chris Hillman and Roger McGuinn



➔ Priced £16.99, the 180g release of *Mr Tambourine Man* is available mail order from www.classicclips.co.uk

Chris Hillman and a cool looking kid called Michael Clark, they changed their name to The Byrds, misspelt in homage to their idols, and set about becoming a band.

CHIMES ARE A-CHANGIN'

CBS picked them up and put them with producer Terry Melcher, Doris Day's son, and although he kinda liked what he saw, he decided they had a ways to go before they could crack the chart, so he called in The Wrecking Crew, Los Angeles' premier studio outfit, to play on 'Mr Tambourine Man', a song the band's manager, Jim Dickson, had acquired on acetate from Bob Dylan's publisher.

And so, on 20 January 1965, Jim McGuinn rang out those Rickenbacker chimes with sessioners Bill Pittman and Jerry Cole on rhythm guitar, Larry Knechtel on bass, Hal Blaine on drums and Leon Russell on electric piano. David Crosby and Gene Clark lent the harmonies to McGuinn's gorgeous lead vocal and by the summer, The Byrds were Number 1 all round the world.

Melcher relaxed enough, once it was album time, to let the band do their own thing and Gene Clark took the reins, penning and singing lead on a cute rip-off of The Searchers' 'Needles & Pins' called 'I'll Feel A Whole Lot Better' and a swoony ballad called 'I Knew I'd Want You'. The band chose three more Dylan songs to cover too – 'Spanish Harlem Incident', 'All I Really Want To Do' and 'Chimes Of Freedom'; all treated to that modish 'Mr Tambourine Man'-style makeover which rendered secondhand goods resplendently fresh and futuristic.

Even the hackneyed old coal miners' lament 'Bells Of Rhymney' and their sarcastic take on, of all things, the Vera Lynn World War II melodrama 'We'll Meet Again' sounded fantastical; as if a new life and meaning had been bestowed upon



them by not just a different generation but by a shimmeringly fabulous alien race.

The *NME*, not yet equipped with groovy enough language to fully do justice to the emerging hip elite, had this to say about the album at the time:

'They look like a rock group but are really a fine folk outfit. They play their stringed instruments with great skill and invention against the rock-steady drumming. Their voices merge well... As the first group to bridge the gap between beat and folk, they deserve to be winners.'

UNEASY IDOL

And winners they were. Within months of its release, Love, The Lovin' Spoonful, Mamas & The Papas, Sonny & Cher all bashed out their own splendid takes on The Byrds' folk rock sound and the world was forever a better place for it.

But the really weird thing about The Byrds and, specifically, Roger McGuinn is that, somehow, for some strange reason, he seems to have been completely bypassed by history – or, at least the kind of history that makes idols of mere mortals.

Both scribes and fanboys wax lyrical about Love's Arthur Lee and Big Star's Alex Chilton and both are, of course, worthy of such approbation. But surely McGuinn is even more so. Love and Big Star desperately wanted to be The Beatles and so did The Byrds but, and here's the thing, The Beatles also desperately wanted to be The Byrds. So amazing was their sound and what it seemed to stand for that, in their absolute heyday, both McCartney and

Harrison hung off The Byrds' every note, checked every new release for inspiration, sought their company whenever they crossed the Atlantic. Now if that isn't the greatest accolade ever, I'm sure I don't know what is.

McGuinn eyes me suspiciously when I voice something like this opinion:

'I personally don't think that I can afford to buy into that kind of thing,' he says. 'I look at myself more as a working musician and I'm real happy to be allowed to go round and play for people.'

'That's what I like to do and all that idolatry stuff is really not my cup of tea.'

He shuffles uneasily in his seat then briefly grins: 'The Byrds were then but, hey, I'm still here...' ☺

RE-RELEASE VERDICT

While The Byrds' debut is one of those albums that comes with great production 'baked in', this 180g vinyl re-release sees the songs simply explode from the wax. Individual instruments stand free of the speakers while the texture of the bass guitars and intricacies of the vocal harmonies are fully revealed – even in mono. The result is an insight into the recording that puts paid to the arguments of those who maintain the production is 'samey'. A landmark release, here sounding more vital than ever. **HFN**

Sound Quality: 85%





Supertramp *Breakfast...*

Tensions between writing partners Roger Hodgson and Rick Davies were coming to a head when Supertramp went into a Los Angeles studio to record *Breakfast In America*. Indeed, Davis didn't want the title track on the LP. So what changed along the way?

Words: **Johnny Black**

When Supertramp released their sixth album, *Breakfast In America*, on March the 29th, 1979, the two core members of the band, Roger Hodgson and Rick Davies, were not on the best of terms. Between them, the two keyboard players wrote most of the group's output, and they were the only surviving members of the band that had started ten years earlier. In fact, it's no understatement to say that Hodgson and Davies were, to all intents and purposes, Supertramp.

RIFT DEEPENS

Hodgson was a philosophically-minded former public schoolboy from a wealthy middle-class family, while Davies was the down-to-earth son of a Swindon merchant seaman and his hairdresser wife. The rift started as far back as the group's 1974 breakthrough album, *Crime Of The Century*, but grew more pronounced after they relocated to California in 1977.

Hodgson loved the California lifestyle which enabled him to indulge his esoteric interests in yoga, vegetarianism and religion. Davies, however, was unimpressed by the consumer society's obsession with TV and shallow celebrity.

When *Breakfast In America* hit the shops, some fans interpreted it as a concept album about how the band was adapting to life in LA,



'Davis never liked the lyric to Breakfast... it's so trite'

but Hodgson was quick to dismiss this notion. 'It's just a collection of songs,' he insisted. 'We chose the title because... it suited the fun feeling of the album. There are a few comments on America, but it certainly wasn't premeditated.'

Davies, however, seemed rather more jaundiced, insisting that exhaustive touring in the USA had drained him of time and inspiration for songwriting. 'The five songs that

I did on *Breakfast*... are the only things I've done in three years,' he admitted. Davies, it emerged, didn't even like the title track. 'If Rick had his way,' Hodgson explained,

'it wouldn't have been on this album. He never liked the lyric to *Breakfast*.... It's so trite: "Take a look at my girlfriend." He's much more into crafting a song. He would have been happier if I'd changed the lyric to either something funnier or something more relevant.'

What Davies did accept, reluctantly, was that *Breakfast In America* made a good title for an album that was more light-hearted and poppy than anything they'd previously released. 'That title almost allows for pop songs,' he acknowledged, but went on to carp that, 'the actual song, "Breakfast In America", doesn't mean much.'

FIRST DEMOS

Work on largely keyboard and vocal-based demos had started in Rick Davies' home studio in Los Angeles, then moved to Southcombe Studios, a facility in the band's management offices. 'We ended up doing very, very basic eight-track demos for the whole album,'



➔ Dougie Thomson (bass, backing vocals), Roger Hodgson (vocals, guitars, keyboards), John Helliwell (vocals, keyboards, synthesizers), Rick Davies (vocals, keyboards, harmonica), Bob Siebenberg (drums)

➔ 'Roger was very much in control...' – drummer Bob Siebenberg, pictured here in 1986, on the working relationship between feuding Supertramp mainmen Hodgson and Davies

➔ Davies, also pictured in 1986, after Supertramp played an impromptu after-show gig at a local club in Mannheim, billed as Ricky & The Rockets



engineer and co-producer Peter Henderson told *Sound On Sound* magazine in 2005. 'As it turned out, this was a good opportunity to work out the arrangements for most of the backing tracks.'

The bulk of the work was done at the Village Recorder. 'Roger was very much in control,' revealed drummer Bob Siebenberg later, before qualifying the remark with, 'Rick would come in and take control when he thought he needed to.'

WORK STARTS

The first week at Village Recorder was spent placing the drums in various parts of the room, experimenting with mics and trying out three different grand pianos to establish the ideal acoustic setup.

Once things started rolling, however, Henderson recalls, 'it was just five people playing in a room. There were no click tracks and no splicing of the backing tracks.'

The opening track, a Davies composition, 'Gone Hollywood', illustrates the differences between Supertramp's two mainmen. 'It was definitely Rick tuning in to the valleys of Hollywood,' Hodgson reasoned in one interview, 'and seeing the shallowness and the difficulties. It's a pretty neurotic

VINYL ICONS

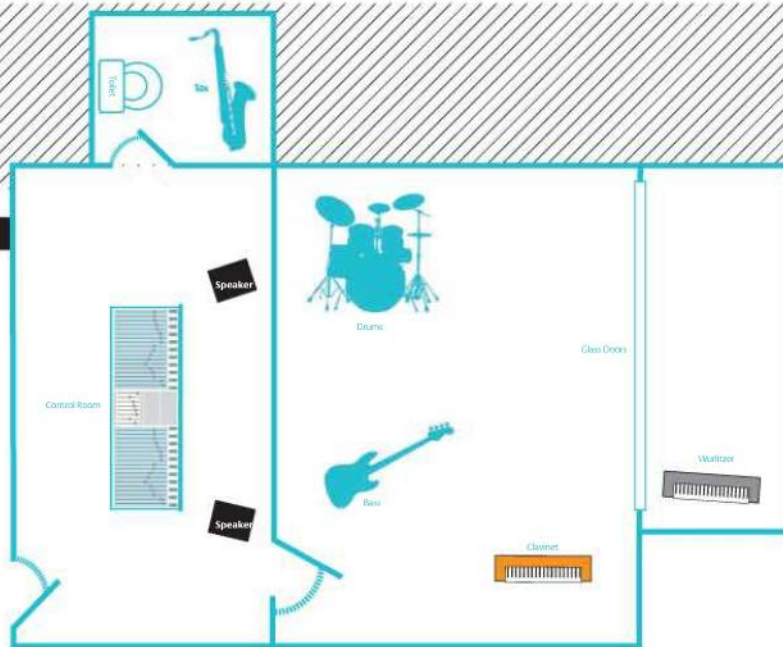
PRODUCTION NOTES

Most of the recording of *Breakfast In America* took place in Studio B at the Village Recorder, housed within a Masonic temple in West Los Angeles. The studio offered a 48-channel Harrison console and two Ampex 1200 24-track recorders. The control room looked onto the wooden-floored live area and there was an adjoining drum booth at the far end, sometimes occupied by Roger Hodgson's Wurlitzer electric piano. John Helliwell's saxophone, however, was usually recorded in another acoustically interesting space – The Village toilet.

Supertramp already enjoyed a reputation for achieving high sound quality on their albums, a status largely earned by Ken Scott who produced their two previous albums. As well as the prominence of Wurlitzer keyboard sounds, *Breakfast In America* is memorable for the sound of Bob Siebenberg's drums. As co-producer Peter Henderson explains, 'the main thing about the drum sound was probably the KM84 on the snare, influenced by Alan Parsons' work on *Dark Side Of The Moon*. It's very soft-sounding, but it's also right in your face, very bright.'

Henderson has also spoken of how poorly his final mix of the completed album was received, first by A&M mastering engineer Bernie Grundman, and then by quality controller Marv Bornstein, both of whom criticised the high levels of bass. 'By the time I left that mastering session I was convinced that the whole thing had been totally f****d up,' he remembers.

Vindication of his faith in his bass-heavy mix came just a few months later when he collected his Grammy for best-engineered album.



The studio at Village Recorder showing where the instruments were positioned for the recording of the album. The classic Supertramp keyboard – a Wurlitzer electric piano model 200A – was recorded in a separate area behind glass doors; John Helliwell played his sax in the 'restroom'

place... I think he was putting himself in an American's shoes.'

Next up is the album's undisputed standout cut, 'The Logical Song', a Hodgson composition which cleverly employs the dynamic range of sounds made by a Wurlitzer keyboard depending on how hard it is played. The lyric, according to Hodgson, originated from his technique of singing random words over his keyboard riffs. 'From singing absolute nonsense, a line will pop up that suddenly makes sense, then another one, and so on. I was doing that when the word "logical", came into my head and I thought, "now that's an interesting word".'

Lyricaly exploring how the innocence and honesty of childhood can be trammelled by the cynical realities of adult life, the song makes ingenious use of samples, including the sound of a Mattel electronic football game, in order to represent the intrusion of the modern world into childhood.

CASUAL CONVERSATIONS

'The Logical Song' also illustrates how, despite their differing perspectives, Hodgson and Davies could collaborate effectively when required. Hodgson was having problems finishing the song until, as Henderson recalls, 'Rick came up with the answering vocal on the second chorus and Roger was really pleased with that.'

Much as the songs on Fleetwood Mac's *Rumours* took the form of conversations between romantically-linked band members, so Hodgson and Davies gradually realised that a similar conversation was running

through *Breakfast In America*. 'A few of the songs really lent themselves to two people talking to each other and at each other,' said Hodgson, explaining how the track 'Goodbye Stranger' inspired one alternative title for the album. 'I could be putting down Rick's way of thinking and he could be challenging my way of seeing life. We were thinking of making that the theme of the album and possibly calling it "Hello Stranger".'

Hodgson felt that another Davies song, 'Casual Conversations', illustrated this idea perfectly. 'I really believe

that was a song that he wrote to me,' says Hodgson. 'We weren't communicating very well through this album and that song tells a lot.'

The band famously refused a \$5m offer from the Greyhound bus company to use Hodgson's 'Take The Long Way Home' in its TV commercials, perhaps because it's too close to Hodgson's heart for him to think of it being too blatantly exploited. "'Take The Long Way Home' has a quality about it that just makes me feel warm inside,' he has said. 'I don't know if it's the harmonies or the melodies, or whatever, but I never get sick of it.'

According to Hodgson, the album's closing track 'Child Of Vision', 'was written with two things in mind. I think it was my equivalent of "Gone Hollywood". Looking at America and seeing how Americans are living and possibly, also a song to Rick a little bit too, because we did live totally different lives.'

Bassist Dougie Thomson had acquired a brand-new Music Man

'The day before deadline the band were still mixing the LP'

It fell into the hands of co-producer Peter Henderson to ensure that *Breakfast...* continued the band's reputation for fine sound quality. Despite misgivings at A&M for the bass-heavy mix, Henderson was rewarded with a Grammy for best-engineered album a few months after its release

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Alternate Format Discography



➔ The rear of the LP sleeve shows each band member reading a copy of his home town's local newspaper

Stingray bass for the sessions, which he played with flat-wound strings, and Henderson feels that 'Child Of Vision', features one of Thomson's most memorable bass lines.

'Dougie would always play the right thing for the song, and because Bob played the bass drum very lightly, we had the bass guitar very, very loud in the mix.'

PANIC SETS IN...

Final mixing sessions took place at Hollywood's Crystal Studios, where Stevie Wonder had recorded *Songs In The Key Of Life*. 'We ran into the problem of who was going to decide when we had the final mix of the LP,' reckons Siebenberg. 'It was a case of too many cooks.'

The album was scheduled to be mastered on February 22, 1979, but the day before deadline, under tremendous pressure from A&M Records, Supertramp were still in Crystal's tiny mixing room, wrestling with a custom 56-channel console with no automation. Panic set in.

'We literally worked through the night remixing four songs and pretty much went straight to the mastering,' recalls Henderson.

Breakfast In America emerged as Supertramp's most fully-rounded, coherent collection of songs, fully deserving the rich rewards it reaped, which included six weeks at No1 on the Billboard US albums chart, top slots in Norway, Canada and Australia, four major hit singles, two 1980 Grammys and worldwide sales to date of 11m copies.

'I always knew *Breakfast In America* was going to be a huge album,' declared Roger Hodgson with the 20-20 vision of hindsight. 'I felt that it had to happen, if only because of the fact that we had to struggle so long for it' ☺



ORIGINAL RELEASE (1979)

Breakfast In America was originally issued on LP [SP-3708], cassette [CS 3708] and 8-track cartridge [8T-3708]. Their previous albums had won Supertramp a reputation as hi-fi hounds but this raised the bar again, securing the Best-Engineered Grammy for engineer/co-producer Peter Henderson.

'The whole idea was to get a really good band performance,' he explained in 2005, 'and I think the backing tracks we got were terrific. Everything was fresh, and that's what I liked about the album – even though it ended up taking about nine months to complete, there's still a really, really vibrant, fresh feel to the tracks.'

Jon Pareles of America's rock bible *Rolling Stone* damned it with what he clearly intended as a back-handed compliment, declaring, 'this is state of the art AOR, a last gasp for studio perfectionism before New Wave makes the idea obsolete.' Jon, we're still waiting for the idea to become obsolete.

Here in the UK, Peter Coyne of *Record Mirror* felt there was 'nothing new or adventurous here, really it's just a straightforward rock/pop album with grand pretensions.' In the long run, *Breakfast In America* has won over many critics. Choosing it among the 1000 Top Albums Of All Time, the 2003 *Zagat Survey Music Guide* reckoned it was, 'chock-full of witty, charming urbane hits that propelled this super fun act to superstar status.'

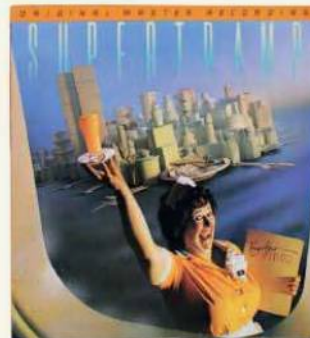
A&M AUDIOPHILE

RE-ISSUE: (1980)

This was the first attempt at an audiophile version of the LP. Released in the Netherlands by A&M [HAM 1] it was a half-speed mastered, extended range recording in its 'Mastersound Audiophile' series and included an inner sheet with lyrics.

MFSL AUDIOPHILE RE-ISSUE (1982)

If ever an album was a dead cert for the Mobile Fidelity Sound Lab treatment [MFSL 1-045], that album was the sonically breathtaking *Breakfast In America*. A straight uncompressed transfer from the original tape it was, of course, like its A&M predecessor, half-speed mastered but pressed by JVC Japan. This edition virtually ruled the roost during the first half of the '80s.



CD (1984)

The first CD version of the album [CD-3708] popped up on A&M and sounded bright and clean, but not significantly better than the original 1979 vinyl release. 'If you want to impress your friends and neighbours with the wonders of your CD stereo rig,' enthused Bill Shapiro in his 1991 book *Rock & Roll Review: A Guide to Good Rock On CD*, 'the pure sound quality of this release is up to the task.'

NIMBUS SUPERCUT (1985)

For many, this is the holy grail of BIA pressings. This strictly limited mail-order only edition (around 1000 copies) was one of several classic album re-issues commissioned by *Practical Hi-Fi* magazine [see Investigation, p14]. Some enthusiasts have rated this the finest release of all, singling out the richness of the bass, notably on 'Take The Long Way Home'.

MFSL GOLD CD (1990)

Inevitably MFSL followed through with this re-mastered Ultradisc 24K Gold CD edition [UDCD 534] in its 'Original Master Recording' collection. Like the company's 1982 vinyl edition it benefited from being an uncompressed transfer from the original tape.

RE-MASTERED CD (2002)

Another re-mastered CD version

[493 349-2] on A&M, this time sourced from the original master tapes at Sterling Sound in New York City. Compression is still an issue here, but it's a significant step forward from their original 1984 CD. Also, it looks nice, with full original album art restored plus the label art from side one of the 1979 vinyl recreated on the CD.

180g VINYL (2008)

The latest high definition premium virgin vinyl edition [750 21 3708-1] is part of Universal's Back To Black 60th Vinyl Anniversary series, and has been well-received. It's worth noting at this point that one huge advantage of getting this album on vinyl is that the large format allows for better appreciation of the superb cover art by Mike Doud of Album Graphics Inc.

For those who've never scrutinized it, Doud's cover seems to be a simple shot of the New York City skyline seen through an aeroplane window, except that the Statue Of Liberty has been replaced by a crazed middle-aged waitress holding aloft a glass of orange juice where Liberty's torch should be. Yet the skyline is a *trompe-l'oeil* masterpiece constructed from items you'd normally find in a diner – egg boxes, ketchup and mustard bottles – with a laden breakfast plate representing Battery Park.



SHM MINI CD (2008)

This Japanese limited edition Super High Material CD [UICY-93612] in the nostalgically appealing mini-LP format, boasts of how polycarbonate plastic is used for enhanced audio quality. However, the masters from which this was made (in common with most re-masters from the last 10-15 years) are overly compressed and clipped. The popular term for this sort of sonic vandalism is 'brickwalled', because the top and bottom of the waveform resembles a brick wall.

Somehow Coventry didn't seem such a bad place after all



The image features a woman with curly brown hair and green eyes, wearing a red ribbed sweater over a white t-shirt. She is resting her chin on her hand and looking directly at the camera with a thoughtful expression. In the background, a man is blurred. In the foreground, a black and white Project Audio Systems turntable is visible. The turntable has a white dust cover and a black tonearm.

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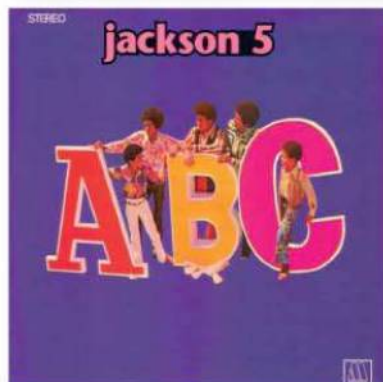
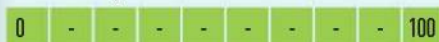
HOWARD TATE

Howard Tate Direct-To-Disc

APO Records AAPO 009 D2D LP (180 gram vinyl)

Like the title says, this is part of APO's astonishing direct-to-disc series, but for me, it's also the culmination of a decade-long plea for this label to record the R&B legend. It's here I must declare personal involvement: I wrote the liner notes, explaining how it came about. Chad Kassem's efforts have resulted in a delicious live session which justifies my nagging. Tate reaches down to the soles of his shoes to deliver exquisite takes of two trademark songs from his classic Verve LP, 'Look At Granny Run Run' and 'Ain't Nobody Home', plus four others. The backing band is note-perfect for the session, the sound bordering on the cavernous. Best of all, over 40 years after his debut, the voice is intact. **KK**

Sound Quality: 95%



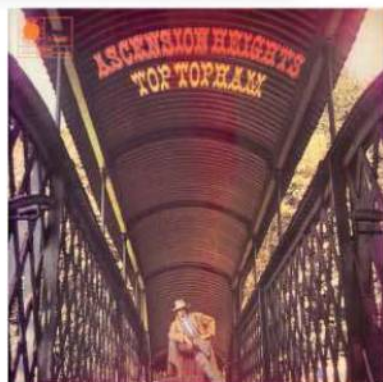
JACKSON 5

ABC

Speaker's Corner Motown MS-709 (180g vinyl)

Less than year since Michael Jackson's passing, armed as we are with 40 years' worth of 20/20 hindsight, it's hard to be objective about this, their second LP. For those – like me – who couldn't stand their teeth-jarring precocity, beaten only in the saccharine stakes by their contemporaries, the too-clean-to-be-real Osmonds, it was simply Motown For Kids. But on reflection, this is so polished, irresistible and, it must be admitted, funky, that one must subjugate any preference for the Temps and admit that it's as catchy as a dose of the clap in Magaluf. Most eerily, the tracks beyond the title hit sound – sophistication-wise – like they're sung by a 35-year-old. **KK**

Sound Quality: 83%



TOP TOPHAM

Ascension Heights

Pure Pleasure Blue Horizon 7-63857 (180g vinyl)

This LP's rarity value alone commands attention: Topham was the Yardbirds' founder guitarist, who had to leave the band because he was only 15. By 1969, at the age of 22, he delivered this solo LP, a long-forgotten take on the blues, far removed from the Yardbirds. Despite its Blue Horizon pedigree, it's not of the Brit Blues school *per se* and is a stylistic mish-mash, more akin to Andrew Loog Oldham's covers of the Stones' canon, but its worth to Yardbirds hard-core is unparalleled. If you could find a mint original, you'd have to part with £100+. After Topham's parents made him leave, he was replaced by one Eric Clapton. The rest, as they say... **KK**

Sound Quality: 70%



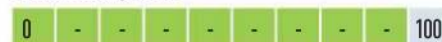
VARIOUS ARTISTS

A Christmas Gift For You

Sundazed LP5323 (180g vinyl)

Christmas in July! Here, in glorious mono – but of course – is what many regard as the greatest rock 'n' roll Christmas LP of all time: Phil Spector's deliriously joyful showcase for his Philles Records stable of pop maestri, from 1963. You get the Ronettes, the Crystals, Darlene Love and Bob B Soxx and the Blue Jeans, backed by one of the finest assemblies of session players ever to enter a studio: the amazing Wrecking Crew, with Leon Russell, Jack Nitzsche and Sonny Bono in its ranks. The package offers 13 Christmas pop standards, and it's unlikely you'll ever hear a more uplifting take of 'White Christmas'. The Wall of Sound rules, beyond prison walls. **KK**

Sound Quality: 90%





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BLU-RAY



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JIMI HENDRIX Are You Experienced

Legacy 88697 62162 2 (CD+DVD)

Interesting re-packaging of the US version of Hendrix's debut, but not absolutely necessary if you bought this 17-track expanded release in 1997. This adds only cooler packaging and a 17-minute DVD of engineer Eddie Kramer and three now-departed figures – Hendrix's one-time manager, Chas Chandler, and the members of the Experience, Mitch Mitchell and Noel Redding – talking about the recording sessions. But if you *don't* own any Hendrix, this is the best place to start: it's an utterly incendiary album bursting with invention, the blueprint for psychedelia, jazz-rock and so much more. An ear-opener then, a touchstone now for every guitarist since. **KK**

Sound Quality: 90%

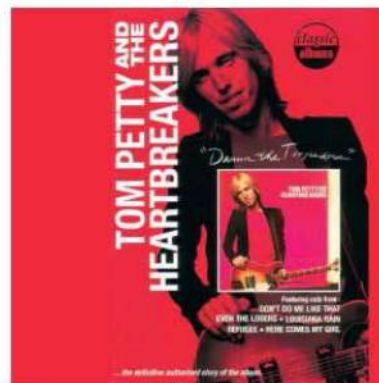


JIMMY PAGE, THE EDGE, JACK WHITE It Might Get Loud

Indivision (DVD Dolby Digital)

Like the epic blues LP, *Fathers & Sons*, which combined young and old, here we find three generations of rock guitarists – Jimmy Page, U2's The Edge and Jack White – swapping tales, gigging and generally celebrating the electric guitar. Too many moments make this a must-see if you're a fan of any or all of the performers: historical footage of Page in the early 1960s, The Edge recounting how he and his brother made an electric guitar from scratch, even winding the coils. And to see Page declining to harmonise in a rendition of 'The Weight' on the grounds that he 'can't sing' (!) – this is one of the most captivating rock docs in years. **KK**

Sound Quality: 90%



TOM PETTY & THE HEARTBREAKERS Damn The Torpedoes – Classic Albums

Eagle Rock EREDV773 (DVD Dolby Digital Stereo)

Although you may have seen this 'making of' documentary on TV, as with all the DVDs from the *Classic Albums* series, this features substantial amounts of added material (a TV promo, detailed studies of the instruments' sounds, and more). When the subject is one of rock's most intelligent practitioners, a second viewing with extras is worth every second. This chronicles the band's third release, from 1979, which cleared any lingering mislabelling from the punk era, 'Refugee' and 'Here Comes My Girl' being enough to establish Petty's rep. This was their first release after Shelter Records folded, with Petty in recovery mode from the aggravation. **KK**

Sound Quality: 83%



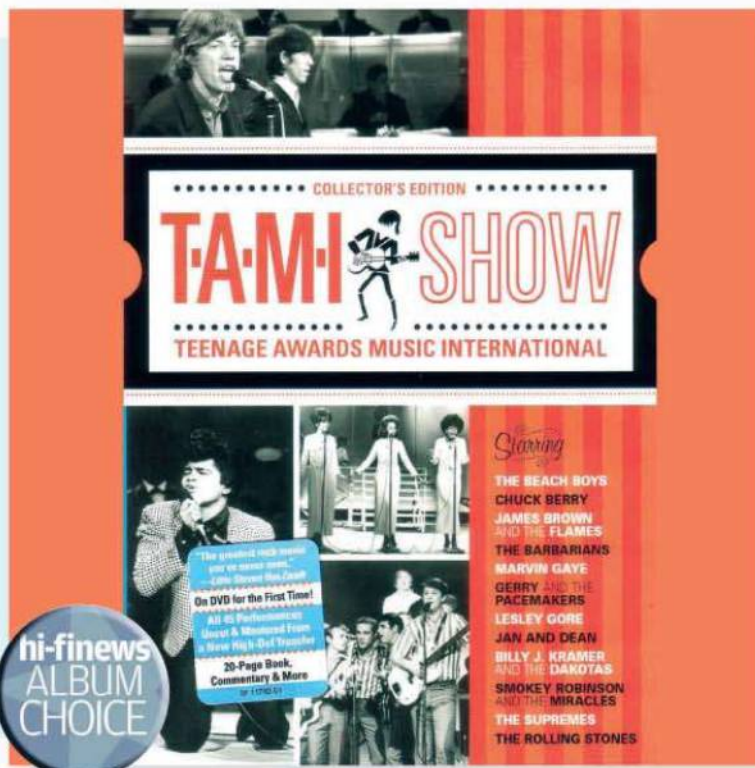
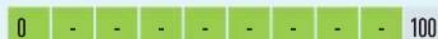
VARIOUS ARTISTS

The TAMI Show

Shout Factory SF11742 (DVD)

Of all the 'lost' rock films, this should never have landed in the vaults. A multi-artist concert from '64, it may be the most important 'rockumentary' of the era, in the Top 5 of any rock-flick list. Viewed only in fragments for 46 years, it's now available in clean 16:9 black & white, with a mono soundtrack. What you get are magical performances from (deep breath) the Barbarians, the Beach Boys, Chuck Berry, James Brown & the Famous Flames, Marvin Gaye, Gerry & The Pacemakers, Lesley Gore, Jan and Dean, Billy J. Kramer & the Dakotas, Smokey Robinson & the Miracles, the Rolling Stones and the Supremes. It was filmed in Electronovision, an early high-def video camera delivering 1000-1100 lines at 25fps. **KK**

Sound Quality: 90%



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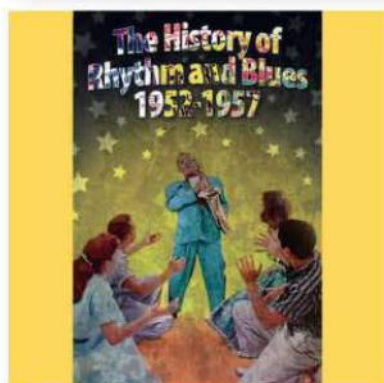
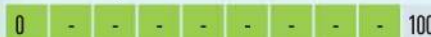
MGMT

Congratulations

Columbia 88697673392

Highly-touted New York City duo MGMT return with a second helping of goodies, tending more towards retro-psych-pop than their singles-oriented debut. This one switches eclectically from the Van Dyke Parks-like delirium of the opening track, 'It's Working', to the nuggetsy garage-pop assault of 'Song For Dan Treacy', to the more expansive mind-blown dream-pop approach of the epic 'Siberian Breaks' and the bizarre faux-baroque horrorscape of the instrumental 'Lady Dada's Nightmare'. Twee and wimpy, yes; but it's also loads of fun. The band has said no singles will be released from this album but it attracted so much attention when it 'leaked' onto the net in advance of release that maybe it doesn't need them. *JBk*

Sound Quality: 89%



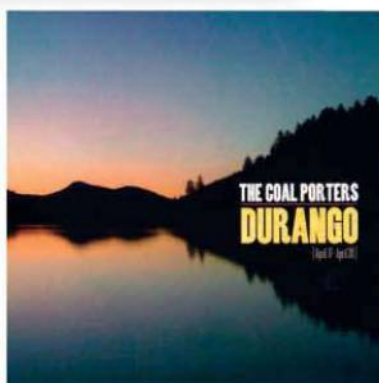
VARIOUS ARTISTS

The History Of Rhythm And Blues 1952-1957

Rhythm And Blues Records RANDBO11 (four discs)

I'm usually reticent about covering re-issue material in these pages, but blues collector and archivist Nick Duckett has released his latest mind-bogglingly superb 4CD set on the history of r'n'b and it's too good to ignore. With 109 impeccably remastered tracks and an informative memorabilia-filled 68-page booklet this is simply the definitive statement on the era. It's worth owning just to have Ann Cole's original version of 'Got My Mojo Working', later misappropriated by Muddy Waters but, from the obvious must-haves – BB King, Bo Diddley, Elvis Presley – to the more esoteric delights of The Peacheroos, Marigolds and Diablos, every cut is 100% juicy. *JBk*

Sound Quality: 88%



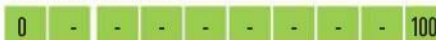
THE COAL PORTERS

Durango

Prima Records SID 023 (Enhanced CD)

The Coal Porters are but one facet of the abundant creativity of renaissance man Sid Griffin, who also helms a band called Western Electric, runs his own record label and writes excellent books on musical themes. The Porters, however, are the incarnation of Sid that you're most likely to encounter in your favourite live music establishment, and their fourth album, *Durango*, is as splendid an alt-bluegrass excursion as you'll hear all this year. A sprightly bunch of fiddle, mandolin and banjo-driven songs are fleshed out with choice covers, including a yearning version of Neil Young's 'Like A Hurricane'. Plus a video documentary on the band. *JBk*

Sound Quality: 94%



MOUNTAIN MAN

Made The Harbor

Bella Union BELLACD246

I haven't heard an album quite this beguiling since Whalebone Polly's *Recording With The Window Open* back in 2005, so it's a particular delight to discover that there are still females around who can do this sort of thing. Mountain Man are three women, two of them still in school in Vermont, the other a nanny, who use nothing but their close-harmonising voices and acoustic guitars to create the most haunting, spine-shivering songs imaginable. Recorded live in an abandoned factory, there's a purity and immediacy to the sound of this album that puts most others into the shade: you feel you're right there and they're singing just for you. Bliss. *JBk*

Sound Quality: 90%



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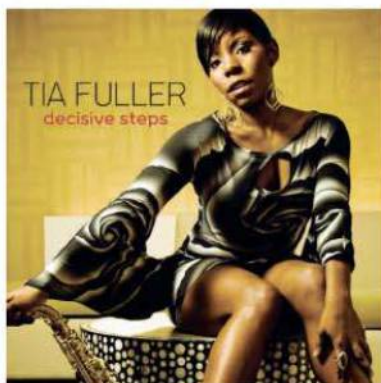
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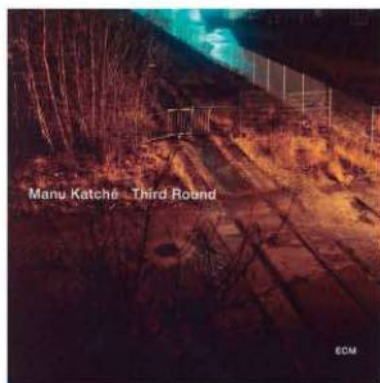


TIA FULLER Decisive Steps

Mac Avenue MAC1043

Tia Fuller has toured and played to huge audiences as a sax soloist in Beyoncé's all-female band, but she's her own boss here for her second Mack Avenue album. This time she's joined by sister Shamie Royston on piano, but as on 2007's *Healing Space* it's Miriam Sullivan on bass and Beyoncé bandmate Kim Thompson on drums, with Sean Jones guesting on trumpet. The only non-original is her Cannonball-influenced 'Can't Get Started', a ballad feature also for her other guests, vibraphonist Warren Wolf and bassist Christian McBride, who injects incomparable swing into two other numbers. A feast, here, of great and often joyous playing. *SH*

Sound Quality: 85%

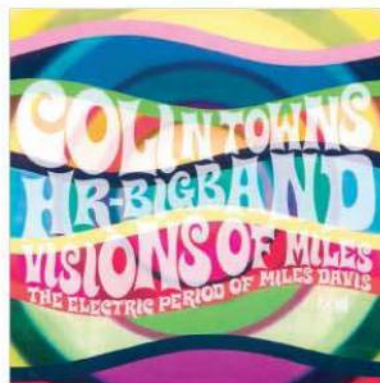


MANU KATCHÉ Third Round

ECM 273 2131

For his third ECM project as leader, the celebrated drummer put together a new group, but it's a group of old friends. Bassist Pino Palladino is a collaborator of many years, while pianist Jason Rebello played with Katché in Sting's band. Norwegian saxophonist Tore Brunberg, often sounding like a soft-focus Garbarek, is a long-term ECM labelmate. Guests are guitarist Jacob Young and trumpeter Kami Lyle, who adds lyrics to 'Stay With You' with her impossibly warbly yet captivating vocal. And you can't help being arrested by the sonics, which make so many jazz records seem dry by comparison. On this most accessible ECM album the sound just glistens. *SH*

Sound Quality: 90%



COLIN TOWNS – HR BIG BAND Visions Of Miles

In+Out Records IOR CD 77101-2

Even given the prodigious talents and open-minded approach of the Hessischer Rundfunk orchestra, you'd think it would be impossible to arrange whole tracks from Miles Davis' 1970s/80s electric music for big band. But that's really not what heavy-metal guru turned film composer Colin Towns set out to do. Instead, he pulled out suitable themes and fragments and developed them for the band to work with, though you do hear more complete interpretations of 'In A Silent Way' and 'Tutu'. And, against the expected backdrops of heavy rock beat, funky bass and period wah-wah guitar, he really gives the stellar HR soloists something to run with. *SH*

Sound Quality: 85%

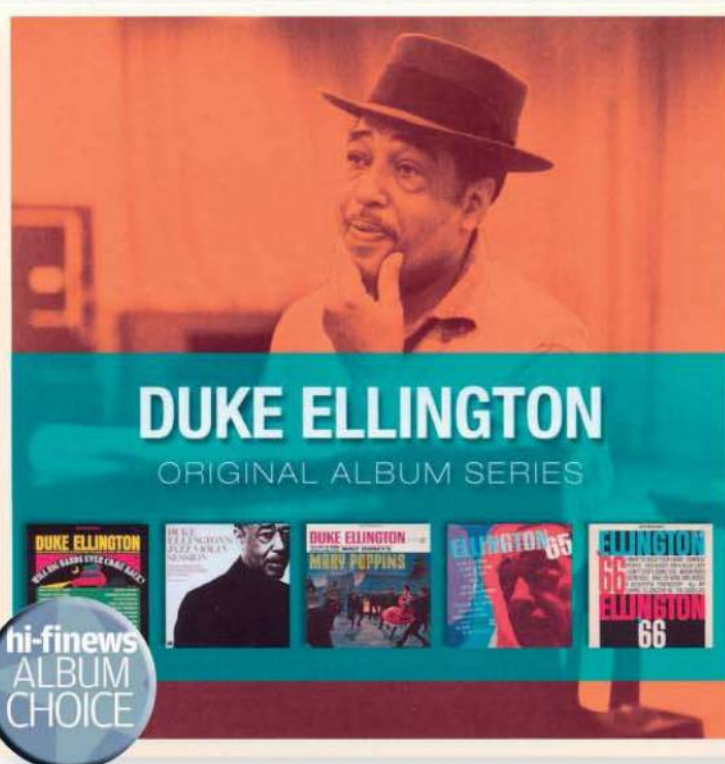
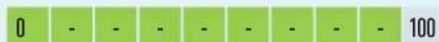


DUKE ELLINGTON Original Album Series

Reprise 8122 79834 5 (five discs)

Few would claim that Duke's 1960s Reprise albums contained his finest work, but four of them add up to lot of music. His great soloists wallow in the catchy melodies of *Mary Poppins* while *Ellington '65* and '66 cover the hits of the day, sounding fresher now than the new takes of other leaders' swing classics that make up *Will The Big Bands Ever Come Back?*. The fifth disc has Ellington's tunes but not his whole band, on a 1963 small-group album for Atlantic with violinists Stephane Grappelly, Ray Nance and Svend Asmussen. Travelling the world and recording his own music on RCA, Ellington did so much in the 1960s that these recordings seem little more than a sidelight on his genius, but they're still wonderful. *SH*

Sound Quality: 90%



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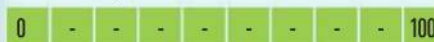
20 Nocturnes

Nelson Freire

Decca 478 2182 (two discs)

Playing a Steinway, Nelson Freire completed these mid-Dec '09 recordings in the as yet unfamiliar acoustic of The Friary, Liverpool. He made his debut in the Chopin Preludes, aged 28 (CBS, 1972). 'A hurricane of pianistic power' then suggested the *Saturday Review*. The words that spring to mind now are 'pianistic wisdom' – Freire unflinchingly negotiates the often tortuous, enigmatically conceived paths of the Nocturnes, balancing their elements and attuned to the contrasts between them. The spirit of the dance is rarely far away, even when the mood is melancholic. The CD mastering is no less sensitive in spacing these works. Could the bicentenary year yield anything finer? *CB*

Sound Quality: 95%



BEEHOVEN

Piano Concertos 4 and 5

Till Fellner, Montréal SO/Kent Nagano

ECM 476 3315

These concert recordings supplement rather than displace Curzon, Gilels, Kempff, Serkin, *et al*, yet the opening bars of the Fourth Concerto immediately reveal Fellner's very beautiful piano sound – which we already know from his Bach on ECM – and subsequently that he completely understands the imperatives of Beethoven's expressive writing: in dynamic gradations, the function of trills and turns, *etc*. Furthermore he is very sympathetically accompanied by Nagano – the unfolding of the dramatic dialogue in 4(ii) has rarely sounded so interesting. Alas the 'Emperor' falls well below its companion here. *CB*

Sound Quality: 65%



MOZART

Symphonies 29, 31, 32, 35, 36

Scottish CO/Sir Charles Mackerras

Linn CKD 350 (two SACDs; also high-res download)

These bracing readings differ only slightly from Sir Charles's late-1980s Prague/Telarc set (same producer: James Mallinson), which had even more brio in some places: *eg*, the 'Linz' finale. And one irritating feature is repeated: the juxtaposing of both slow movements for the 'Paris', when by coupling 32 with 'Haffner' and 'Linz' (CD2), timings would have allowed complete alternate three-movement versions to avoid fiddling with programme remote. The playing of the SCO could not be more responsive, but there's a schoolmasterly severity about Sir Charles's Mozart – enough to send me scurrying to Pinnock's warmer view. *CB*

Sound Quality: 72%



VIVALDI/REBEL

The Four Seasons/Les Éléments

Midori Seiler, Akademie für Alte Musik Berlin

Harmonia Mundi HMC 902061

Similar in spirit to Alice Harnoncourt's groundbreaking Teldec *Seasons* (1997), the Berlin group gives a real edge to Vivaldi's pictorial writing here, yet with tranquil moments in the introduction to 'Summer' and 'Autumn' (ii). Sledgehammer D-minor discordancy launches 'Chaos' in the coupled ten-track 1737 score, Rebel's *nouvelle symphonie* for dancers/orchestra. Continually inventive, with mechanical nightingales, a hunt scene, 'Tambourins', 'Warblings' for piccolos/violins, *etc*, this is not music of great substance yet it's still worth knowing. Translucent sound and, as ever, superlative execution. *CB*

Sound Quality: 88%



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Audio equipment is a means to an end, yet it has its own fascination for writer and Yorkshire Television broadcaster Ian Clayton. The author of *Bringing It All Back Home* and *Our Billie* has a vast music collection and appropriate vintage gear on which to play it, as **Steve Harris** discovers...

For Ian Clayton, as he says 'It's not just hi-fi. It's all that connects, for me. The stories, the music, the original recordings. It's just knowing about it!' Ian's best-selling book, *Bringing It All Back Home*, is a story of a life entwined in music, a story we can all relate to. He's an incorrigible collector, an authority in several genres. You realise how serious he is when he shows you a rare single-sided Billie Holiday test pressing from the mid-1930s, or joyfully plays you a priceless 78 of Sonny Boy Williamson. Above all, as you will know when you read Ian's new book, *Our Billie*, he believes in the healing power of music.

How did his interest in hi-fi start?

'I came from a noisy family, who always had a radio or a record playing. We had an old Decca record player in a blue and cream box. My dad had worked on a fairground, so he was used to the loud rock 'n' roll they played on the waltzers. My mum was a big Shadows fan, and Buddy Holly. In fact, I've still got our family's old record cabinet with records in it. It's a classic piece of 1950s cheap kitsch, but I still use it.

'When I lived at my granny's, I had a GEC record player. But the first serious hi-fi separates I bought

were from a back-street shop in Castleford, which is still there to this day. And it's one of the famous old-fashioned hi-fi stores, Eric Wiley. They still sell top quality gear!

'I think Eric Wiley himself was a camera enthusiast in the 1950s, and he set up his hi-fi shop when hi-fi was getting going. Anyway, I first went there in the winter of 1979. I would have been 20 years old. I bought a NAD 3020 amplifier, Mission speakers and a Dual turntable. I wanted a Dual CS505 belt-drive but they didn't have that one in, so I got the direct-drive 606.

'That was my first serious hi-fi, and I adored it. At the time I was listening to a mixture of punk and bands like Wishbone Ash and Jethro Tull. But buying those hi-fi separates had me searching out other kinds of music that might sound good.'

LINN OR NAIM?

'That Dual deck ended up at my brother's, and he broke it! The Mission speakers went on to him as well, although they were 20 years old by that time. The NAD 3020 I've still got, and it still works. It's up in the loft now.

'And then? Well, I used to go to York a lot, and there was a hi-fi shop there called Sound Organisation.

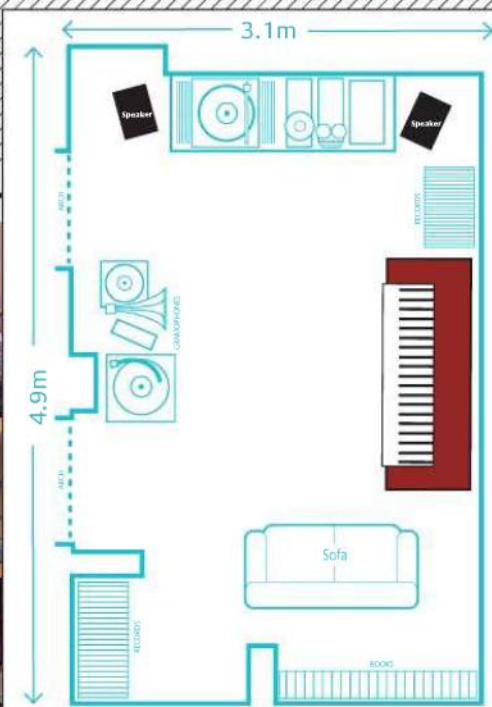


'I'm timid about hi-fi equipment, actually. When I go in hi-fi shops and they start talking about the technical specifications, it panics me slightly, because I don't know what I'm supposed to be listening out for. But I needn't have worried, because when I went into the Sound Organisation, I met Hamish, who turned out to be a lovely man, and knew everything there was to know about his job.

'I told him that I'd got this Dual deck, but I'd saved up for a Linn Sondek. Because I'd read so much about it! And he told me I'd do no better. I listened to a Linn with a Naim pre and power amp combination. I couldn't afford both the Linn and the Naim, so I bought the Linn and continued to use the NAD. And when I'd saved up again, I went back there. Hamish said, "Have

RIGHT:
Ian still enjoys playing 1960s records on his Hacker record player from the same era, seen here to the right of his well looked-after 1930s portable gramophone





MUSIC ROOM

Ian's home is a converted gospel hall, built with Victorian solidity and now providing him with a big, high-ceilinged, semi-open-plan living area. His system shares a section of this with a piano and other instruments, not to mention the vintage Illingworth gramophone. But the sheer height, irregular shape and open archways are largely beneficial. The clarity and focusing abilities of the Audio Physic speakers are evident and they produce a satisfying sound stage in this relatively small space.



'If I pick up a record and put it on a decent hi-fi, I'm not just picking a record up, I'm picking up a memory, an emotion, a place and a time...'

you come back for the Naim? I knew you would!"

'That coincided with CD taking hold in the late 1980s. I held back, because I had so much vinyl. But then I was walking past the Bang & Olufsen shop in Leeds, where they were demonstrating this CD player, beautiful-looking thing. I said to Heather, "Can I?" She said, "Go on, you know you like it!"

'I bought the B&O player, but I never really got on with it for some reason. I don't know why. I had it for a while, then I went back to Hamish, and he introduced me to the Meridian. And I swapped the

B&O for the Meridian. The last link in the chain was the speakers. At that point, this would be 14 years ago now, I still had my old Missions. So I went to see Hamish again. I listened to several speakers, and couldn't get on with any of them. So he said "Ian, I'm going to bring you a pair of third-hand Isobariks!"

SATISFIED, BUT THEN...

'Hamish brought the Isobariks to the house, and I loved them. Now, I don't know if I'd been lulled into liking Linn Isobariks because everybody had been talking about them in the 1980s, but I bought

them, at a good price. So now, I had Linn Sondek with Lingo, Naim pre- and power, and Isobariks. And I suppose I was satisfied then.

'But then something else comes along. Come the new millennium, and I'd been reading about a Danish CD player called a Copland, and how good it was. And, bizarrely, I'd read that one of the few dealers in England was just six miles away from my house. He was Colin of Premier Audio in Sandal, near Wakefield.

'When I phoned him, he said he didn't have the Copland in at the moment. But he started talking to me about hi-fi and asking me what

ABOVE: Almost engulfed in a vast CD collection, Ian's system includes a Pathos CD player and hybrid amp, a Linn record player and Audio Physic speakers

INSET: Ian plays a treasured 78 on his Bradford-built Illingworth gramophone

HI-FI @ HOME

I wanted and what I liked, and he said, "If I were you, I would go for some new speakers, before you do anything else."

'He said the Isobariks were good, but some of the new generation of speakers could far outdo them. "I think you'll have a pleasant surprise," he said.

'And he brought over the Audio Physics. There was a very discernible difference! Now, it was like being at a theatre or a concert. Everything seemed to be where it should be. The vocals came in at you from some space in the middle between the loudspeakers.

'My ears really tuned into that. The music wasn't just firing off in every direction. You could almost see the musicians! So I bought them.

DISCOVERING VALVES

'After that, Colin told me that he thought the Naim was all right, but there was a great trend back towards valve amplifiers. He brought over the Kora Design 50.

'We listened to it and I loved it. In a way, I wish I still had it hooked up now. But it was so expensive on tubes. The Svetlana valves were nearly £30 a piece, and there were four. I replaced them three times in three years. But it's a nice thing, and I've kept it as I'm going to use it again at some point.

'Then Colin then suggested I start looking at replacing the Meridian, as it was a bit outdated now. And he came up with a Shanling.

'You don't always pick the right music when you're auditioning something. The Shanling came with



ABOVE: Elegant and mellow-sounding, the Pathos Classic One hybrid amplifier replaced a valve-hungry Kora, while the Pathos Digit, seen on the right, replaced a Meridian 200 series CD player

BELOW: Vinyl front end is a Linn LP12 with Lingo, Linn Ittok LV III arm and Linn K18 II cartridge. Phono stage was built for Ian by an engineer friend

BELOW RIGHT: Budding young pianist Edward, 13, with his proud dad



a demonstration disc of Chinese orchestral music, and it sounded fabulous. I listened to that, and it made a real impression on me.

'But when I started playing my own CDs on it, over the weeks and months afterwards, I never got that same "Wow factor" I'd had with the Chinese music. And it seemed quite bright and brash. I don't know whether it was the looks of it that made me think that, because it's a silver thing with lights, a row of buttons. But I went off it quickly.

'So Colin said, "Well, the new generation of Italian stuff that's coming is so mellow and beautiful sounding; it's the kind of thing I think you'll like." I listened to the Pathos, and it was.'

PURE EMOTION

'But I view buying hi-fi as sometimes like buying a painting. I've got a lot of paintings in this house. And you don't need 'em. You don't *need* to have a painting, like you don't *need* to have ridiculously expensive hi-fi. But there is a certain pleasure to be had. And that rush of pleasure that I get is worth a lot of that money.

'There's a great satisfaction to be had from something that is well made, that is beautifully designed, that is worth having in your house. William Morris said something like, "Don't have anything in your house that isn't beautiful or well made."

'And I hold dear to that. I buy beautiful German pans, ridiculously expensive, but I enjoy them. And they'll be there for ever. My lad will be using them in 40 years' time.

'So there's far more to it than the technical specifications, which I know not a lot about. I don't know a lot of the language of hi-fi, to be honest. A lot of it baffles me. Even though I make my living from words, I don't always understand what people are talking about with the lexicon of hi-fi.

'Even if I did, it probably wouldn't mean much to me, because I'm not relying on definition to enjoy music. I'm relying on emotion, I'm relying on memory, I'm relying on sentimentality and nostalgia. All these things that add up to making enjoyment are far more important to me, really.

'A lot of things in my life are connected to the story, and I always go back to that, the pulse of life to me is the story. If I pick up a record and put it on a decent hi-fi, I'm not just picking a record up, I'm picking a memory up, I'm picking an emotion up, a place and a time and what that meant to me. And when I put it on and listen to it, not only

am I listening to it in real time now, at 33 and a third, I'm also listening to it at a time long ago. It might be – I don't want to get too fancy about it but it might be

– that I'm going all the way back to what my forebears listened to as well! The kind of rhythm, the metre and the melody that they might have been enjoying. Because I think although we learn a lot, a lot of it is in us, and how we respond. I might be listening to my dad's fairground waltzer experience.

'I enjoy all the different technologies as well! When I

'I love listening to Dusty on a Dansette, or my old Hacker'



Focal make some of the cleverest loudspeakers in the world, from the mighty Grande Utopia to simple bookshelf models.

Some Super speakers

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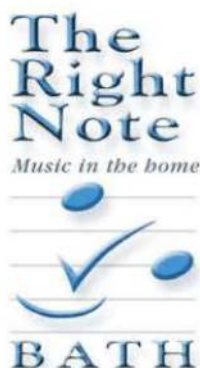
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listen to my old George Formby records, I listen to 'em on a wind-up gramophone. There's something right about that, to me. I've even got some of George Formby's dad's records. He was one of the ultimate entertainers, he was the man who brought music hall up out of the gutter into being a big theatre thing.

'And I think because of my love of stories, I have a fascination for machines that talk. It's interesting that they were called talking machines. George Formby's dad actually talked to the machine, his recordings were very much the same as his performance. He didn't just sing his songs, he'd talk about 'em.'

FIRST GRAMOPHONE

'Now, I've actually got some of his records on a CD, but they don't sound half as good as they do on the clunky old 78s that were made before the First World War. Likewise, when I listen to Dusty Springfield, I love listening to Dusty on a Dansette, or my old Hacker record player. Because a piece of art that was made in the 1960s, to me, is lovely when it's played on 1960s technology, and I don't need it on CD or as a download.

'I first bought an old gramophone, a 1920s portable, just to play some old 78s I had –



ABOVE: Ian's Illingworth gramophone with built-in horn, made in Bradford in the early 1930s. Here it's playing Sonny Boy Williamson

BELOW RIGHT: This view from the balcony shows the high ceiling in Ian's listening room

BELOW: Audio Physic Tempo – the backward lean is real



Elvis Presley, Louis Armstrong, Billie Holiday. When it broke, I went and had it restored at a place in Sowerby Bridge in Pennine Yorkshire. The shop is called Talking Point and it's owned by a guy called Paul. It's a box of delights, that shop.

'And there was one machine, called the Illingworth, which he told me had been made in Bradford. It was always for sale, but it never sold. I used to admire it, and think "Could I really...?"

'Then he told me to ignore the price on it and he offered it to me for a lot less, and I said I'd have it. And he said, "Now you're having it, I want to tell you that it belonged to me, it's my own personal machine that I've had for years. I restored it, brought it back to life, and had it for many, many years. I hope you'll give it a good home."

'And it's an incredible machine. It's everything that a piece of 1930s music reproduction should be. I use it for my best records.'

ORIGINAL BLUES

'Because I'm also an avid collector of original recordings, if I can find them. And because I'm a great blues fan, I try to collect original blues recordings. I've visited the Mississippi Delta three times, and I go into old shacks in the middle of nowhere, trying to find if they've got any old records. Usually, they have. And there's one label that I'm very fond of, and that's the Trumpet label, run by Mrs McMurray, who recorded Elmore James in 1951.

'My searches have been in vain, for Elmore James originals, but I have got some very rare Sonny Boy Williamson originals on the Trumpet label. So my Bradford Illingworth is what I use for playing my Trumpet

records. I keep it "for best!" And just finding original things really pleases me, just knowing about things pleases me.

'I did a television programme about the day The Beatles played the Regent Cinema in Doncaster, and I got chatting with an elderly man who still worked there.

'He said, "Oh, I remember The Beatles coming here, I were working that night. I were on spotlight duty. I shone my spotlight on to Lennon and McCartney. In fact, I'll show you the spotlight." And he took me and showed me the very spotlight that he'd turned on to Lennon and

McCartney that very night.

'He said, "I'll tell you what, Ian. If I have a look in the cupboards at the back of the screen, I think I've still got the

microphones they sang into. I'll get them out for you."

'He got them out and set them up on the stage. And I came to the microphone and I sang some Beatles words into them, "I wanna hold your hand", "She loves you".

'I was singing into the very microphone that Lennon had sung into. And I love things like that! ☺

'I was singing into the very mics Lennon had sung into'



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Workshop Notes 13: A Tale of Two Turntables. British Brio versus German control.....

It is an irony, 30 years it was laid to rest, that vinyl sounds better than ever. Brilliant, if fanatical, designers like Conrad Mas and Helmut Brinkmann have pushed the performance envelope so far that vinyl still gives even the very best of digital not just a run for its money, but very often a good kicking. And that's before we factor in the thousands of LPs we vinylistas still own and the very special magic of it all. **AVID** have perfected the suspended, belt-driven design and their double belts and sophisticated power supplies are way ahead of anything else on offer. Joining the fray is a particularly interesting turntable from Germany the **Brinkmann Bardo** – no belts, no suspension. Direct drive, mass loaded & electronic speed control. Which is better? That is for you to decide. These two outstanding, fresh-off-the-drawing-board designs are at Audio Workshop Norwich raring to go and eager for your attention. Please don't disappoint them.....

Call me, Julian Musgrave, and hear the best that vinyl can offer.

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Paul Miller Editor

Technician and writer on all things audio for over 25 years, Paul Miller took over the editor's chair in 2006. He invented the QC Suite, used across the audio industry

Turning back the years

Better late than never **Paul Miller** discovers the raw potential of the idler drive system that powered the classic transcription turntables of the '50s and '60s. Why was it abandoned, he asks.

I'm going to tell you what all vintage Garrard owners already know – a model 301 or 401 turntable in top-notch condition is more than a match for the best decks of today. I cut my teeth in the era of the Linn Sondek, the Pink Triangle, the Logic DM101 (remember that?) and the Michell Gyrodec and I'll fully admit to looking back somewhat quizzically at the idler or 'rim drives' of the era before.

I had bought into the superiority of the belt-drive as the way ahead. But as fans of the idler drive are keen to tell us – that ain't necessarily so. And it's a mantra I have been compelled to agree with following my recent experience with the remarkable Garrard 401 [see Vintage Review, p112].

IDLING ALONG

At first sight, the concept of an idler drive looks nothing if not arcane. Instead of powering up the platter with a peripheral belt and motor, these early decks coupled motor and platter via an intermediate or so-called 'idler' wheel, a rubberised disc that drove the platter around its inside surface.

The Garrard decks used a very hefty induction or 'shaded pole' motor rated at a whopping 16W and anything up to 245V. Mounted on springs to effect a degree of isolation, this high torque motor would drive the edge of the idler wheel via a stepped pulley, its three diameters engaged, in turn, by an ingenious 33.3, 45 and 78rpm selector.

Tensioning springs hold the pulley against the idler wheel and the idler wheel up against the inside periphery of the platter. The rubber-booted idler offers plenty of traction and the high torque motor sufficient grunt to have

the 6lb alloy platter up-and-spinning within seconds. Compared to the initial straining of so many over-burdened belt-drives, the slick efficiency of a well-maintained idler drive is a surprising and impressive sight.

An overriding benefit of the idler system is a freedom from the low-rate drift (or 'dynamic wow') that's present with most belt-driven decks. Have a look at the wow and flutter (W&F) spectrograms published in *Hi-Fi News* over the last few years and almost all of them show the 3150Hz signal

cut into the test LP as a broad splotch rather than a sharp peak. This is caused by low-rate drift and it's often missed by conventional W&F measurements. The sharpest peaks belong to mega-

bucks decks from SME and Clearaudio while the most smeared belong to... well, I'll let you discover these in your back issues.

The security (torque) of the idler drive ensures the 40-year-old Garrard 401 in our Vintage Review also has a sharp, well-defined peak at 3150Hz and it's this stability that lends the deck such a

granite bass. Notes stop and start with a convincing precision while the lowest bass has genuine weight and gravitas. Many modern decks sound flaccid once you've lived with a restored 401.

FLYS IN THE OINTMENT

Of course, in practice, the drive has its flaws. The speed of these powerful motors (often rotating up to 1600rpm) is governed by voltage rather than frequency and so the pulley is regulated by an alloy flywheel engineered to provide an 'eddy current brake'. This puts the motor permanently under load and offers a speed adjustment of a few percent either side.

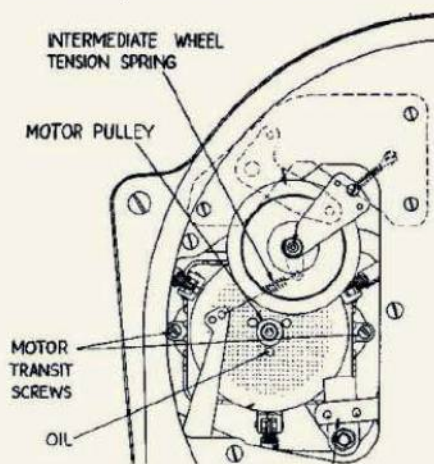
Over time, heat rising from the motor beneath can subtly warp the flywheel giving rise to the discrete wow seen on our W&F spectrum. Flat spots can also develop on the idler wheel, rubber and grime can be deposited on the driving surface of the platter while the somewhat agricultural motor contributes to the rumble spectrum.

A MODERN IDLER?

None of this really explains why the idea has failed to re-emerge in the modern era of turntable design. After all, the combination of an up-to-date bearing design, low noise motor and idler drive all benefitting from 21st century materials technology could be truly spectacular. The real reason why belt-drives dominate is because they are mindlessly easy to design and build. An idler drive with its intricate pulley system, spring-loading and complex interconnecting levers is something of an engineering minefield.

Garrard sold around 100,000 301 and 401s, which more than justified the initial tooling involved. Fifty years on, a modern idler, designed from scratch, would probably bankrupt the manufacturer before it got off the drawing board. ☹

'Many modern decks sound flaccid once you've lived with a restored 401'



ABOVE: Garrard schematic showing the intricate idler drive [see the real thing on p114]

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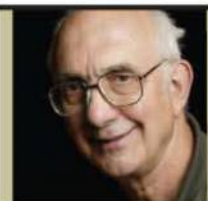
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Barry Fox Technology journalist

Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Third time lucky?

Direct Metal Mastering promised superior sounding records by eliminating stages in the cutting process. With interest in vinyl growing, is it time to give the process another spin, asks **Barry Fox**

In 1982, right at the end of the golden age of vinyl, Teldec (jointly owned by Telefunken and Decca) experimented with a completely different way of cutting hi-fi LPs, called Direct Metal Mastering. This had spun off from the work done by Teldec, at a semi-secret lab in Finchley run by Decca's respected recording engineer Tony Griffiths, on TeD – a floppy video disc.

The TeD video disc had a superfine hill-and-dale groove cut in a flimsy plastic disc about the size of an EP. The disc spun at 1500rpm and played ten minutes of colour video when tracked by a mechanical sled-shaped stylus.

Panasonic killed TeD with Visc, a rigid 12in LP that worked in much the same way as TeD to deliver an hour of colour video from each side of the disc.

Visc was mind-bogglingly clever but was soon killed by JVC's VHD, which used a grooveless conductive plastic disc tracked by a capacitive stylus, and by RCA's CED Selectavision which used a grooved capacitance disc.

Both came to market but were soon killed by Philips'

Laservision/Laserdisc, the optical video disc that later spawned us CD and DVD.

But when TeD died, Teldec adapted the video disc cutting system to audio mastering.

DIAMOND DIRECT

The object of Direct Metal Mastering was to eliminate the perennial problems with master lacquers, such as faulty blanks and blemishes caused by the first stages of electroplating (see p14). With DMM a diamond stylus cuts the groove directly into an amorphous copper metal coating on a blank stainless steel disc. There is no memory effect – relaxation of the plastic with high frequency loss – and the first



ABOVE: Design prototype of a player for the Telefunken TeD video disc, first announced in June of 1970, alongside Decca promotional material from July 1970, which shows the finished product



stage of electroplating is taken out of the process, which reduces the risk of plating errors. DMM also made it possible to pack grooves more tightly, thereby increasing playing time by 15%.

The heads which cut soft lacquer need

several hundreds of watts of driving power, so you can imagine what it takes to cut copper metal. Teldec used a modified Neumann stereo cutting head, and to help the stylus cut through

the metal superimposed an ultrasonic signal of around 70kHz on the audio signal being recorded. This acted in much the same way as the bias in a tape recorder, which shakes up the magnetic particles. The bias signal used for DMM mechanically excited the diamond cutting stylus.

In July 1982 Teldec offered to license the system to any record company, for a one-off fee. Between 1982 and 1986, Melodiya, Virgin and PR records each signed to use the system.

By 1985 the hi-fi press was already worrying that the high frequency bias might cause audible 'beat' effects. There was talk of DMM cuts having a certain characteristic 'sound'. And by then the record companies were cutting back on LP production, in favour of CDs.

TIME IS RIGHT?

Nothing daunted, Teldec came up with a modified system, for direct cutting Compact Disc masters. Direct Metal Mastered CD was unveiled at the Los Angeles Audio Engineering Society Convention in November 1986.

However, DMM CD also stalled. It proved difficult in practice to cut metal masters with a pit shape that accurately mimics the pits produced by the conventional technique of laser-cutting and etching a glass master coated with photo sensitive material. The difference in pit shape can confuse the laser optics in some domestic players.

Mechanically cutting CD masters would now be a pointless exercise. But perhaps the time is now right for someone to try DMM LP mastering again. ☺

'The object of DMM was to eliminate the problems with master lacquers'



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Barry Willis

Journalist for top American audio-video publications

While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

Universal faces the music

Universal Music Group's recent decision to cut the price of its CDs in the US to less than \$10 has seen sales soar. Back in the UK, iconic label EMI is finding things tougher. **Barry Willis** explains...

Sales of CDs have been in precipitous decline over the past decade. Denial among recording industry executives morphed into anger, but lawsuits and threats of lawsuits couldn't force music fans back into record stores. The industry's nearly century-old business model of high-margin packaged goods was disrupted by new technology, some of it used in clear violation of copyrights. Call it the revenge of resentful music fans, who'd been overpaying for years.

The demise of retailing giants such as Tower Records was one symptom of the disruption. Another was the emergence of downloadable music services. Convenient as such services are, they are hampered by limited catalogues and lingering doubts in the minds of consumers about what they are buying and how it may be used. Many express a preference for traditional physical products, with cover art, liner notes – and unrestricted freedom of use.

PRICE NOT RIGHT

Asked why they've stopped buying physical recordings, music fans offer many explanations, but the common thread is always,

'They're too expensive.' This is glaringly obvious in stores that stock CDs and movie DVDs near each other. Even low-budget movies incur production

costs in the tens of millions, while DVDs typically sell for approximately \$20 each. Upfront costs for ambitious high-concept audio recordings rarely reach six figures, but the retail price of CDs is often close to that of DVDs. Savvy consumers perceive a disparity in these pricing schemes and correctly conclude that CDs aren't good value, especially

'More than drastic price restructuring is needed to save British label EMI'



ABOVE: EMI was seeking a five-year licensing deal with the Universal Music Group which would see the UK company's catalogue distributed in the US. The deal failed to materialise...

given the vast percentage that have only a couple of good tracks.

Music-and-audio industry pundits have hammered at this theme for a tiresomely long time, but one major label has finally accepted reality. In mid-March Universal Music Group announced a programme to scale back the retail price of individual CDs to under \$10. While cutting profit margins to around 25% per disc, the scheme would bring CDs into line with what music fans pay to download a full album from iTunes.

UMG executive Jim Urie told Billboard that his company believes the plan may 'bring new life to the physical format.'

Several news sources mentioned that retailer Trans

World Entertainment enjoyed a 100% increase in CD sales after launching a sub-\$10 price policy. In the ongoing recession, the move makes sense, but may be a dismaying development for Universal's competitors, who could feel compelled to follow suit if UMG enjoys a surge in sales.

More than drastic price restructuring is needed to save iconic British label EMI. As



this column went to press (April the 1st), EMI Group Ltd had failed in its efforts to license its catalogue to the Universal Music Group and/or Sony Music for distribution in the Americas.

EMI had sought a five-year deal in an effort to forestall default on more than £3 billion in loans from Citigroup Inc. According to the financial press, the enormity of EMI's debt spooked negotiators from UMG and Sony.

ONLY HUMAN...

Unless they raise £120 million by June, EMI and owner Terra Firma Capital Partners Ltd may yield control of the company to Citigroup. A likely outcome would be the dismembering and sale of EMI and various assets, a potentiality certainly not imagined when Terra Firma acquired the label during 2007's buyout hysteria. Economists may dispute this, but the law of unintended consequences will always prevail in human affairs. ☺



Jim Lesurf Science journalist

Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

Unintended consequences

An amp that served as an indicator of dirty mains, a cartridge that might act as a thermometer... turning a setback into a triumph is just one mark of the canny designer, says **Jim Lesurf**

If what you've just build has a weakness, make it a selling point! So if you've just spent a year developing and making a new cartridge and it turns out to be temperature sensitive, see if someone will buy it as a novel type of thermometer. We might call that 'The Law of Unintended Consequences'. It's one of the many variations of the basic rules of engineering.

Back in the distant days when I designed audio equipment for a living I decided that I wanted to be able to tell if the performance of a power amplifier was being affected when overdriven into clipping. So I included a circuit to monitor what the amplifier was doing. This continually compared two locations in the power amp. When the amp was working effortlessly with no clipping or current limiting the two voltages were almost identical. But driving the amp into clipping would cause the voltages to differ. I arranged things so that a difference lasting only a few microseconds would light a warning LED for half a second. This meant that if the LED remained dark when playing music you could know that there was no clipping, no current limiting, and that the power amp was cruising along. And if you heard anything wrong, the cause was something else entirely.

A CURIOUS CALL...

In due course we started taking the amplifiers around to various dealers in an effort to place orders. While doing this I received a phone call concerning one particular hi-fi shop in Essex where there seemed to be a problem. There, the LED kept lighting up, even when no music was being played! So, I duly ventured to the shop to investigate.

'After some
puzzlement, the
penny suddenly
dropped...'

separate circuit board that provided the 'clipping indicator'. Even RF bursts just a few microseconds long were triggering the circuit that controlled the LED.

My reaction at the time was to be relieved that the amp was fine, and that the actual signal path was unaffected. But I also realised that the LED also served as an indicator to the user as to whether their mains supply was subject to spikes and RF interference – even at levels too low to bother the amplifier. Indeed, this

Once at the store it was apparent that the LED was indeed signalling wildly, in something akin to Morse Code.

After some puzzlement, the penny suddenly dropped. The problem was that the mains supply in the shop was infested with voltage spikes, surges and bursts of RF. These were at very high frequency, well

above audio. The power amplifier itself was rejecting these because it was designed to be immune to interference on the power lines. But it was radiating into a logic IC on a

wasn't a weakness, but an unexpected extra function. So I didn't change the design of the indicator, and the amplifier itself sounded fine. The amplifier was the Armstrong 732 (see www.audiomisc.co.uk/Armstrong/700/700page1.html for more on this design).

THE REAL MORAL?

I've recently been investigating the designs of mains RFI and 'spike suppression' filters for audiophile use, the aim being to provide a guide explaining how different types work. (You might like to navigate to www.audiomisc.co.uk/mains/filters1.html for more.)

While doing this, another consequence of my experience came to mind. That shop was clearly riddled with RF spikes or bursts. Yet no-one there had noticed. It had passed by their golden ears and seemed not to have degraded the behaviour of the components they sold. I won't name the shop, but they had a fine reputation and, so far as I could tell, many happy customers. So the real moral here may be that while mains RFI and spikes are common, if you can't actually hear them producing clicks or buzzes, perhaps they don't really matter. ☺



ABOVE: The Armstrong 732 power amp with 730 preamp on top. To the author's surprise, a prototype of the design sporting a diagnostic circuit provided an unexpected extra function



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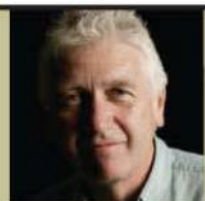
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Steve Harris Contributing Editor

Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Hunting high and low

A subwoofer doesn't have to be used solely to pound out the thrills of cinema surround sound; it can bring big benefits to a two-channel music system too. **Steve Harris** talks to a bass pioneer...

Subsonic frequencies came to the movies in 1974, with *Earthquake* and Universal/MCA's Sensurround system. Rumble and vibration effects, including frequencies down to about 16Hz at high levels, shook audiences as intended, if sometimes making people feel ill and even causing structural damage to theatres.

Although Sensurround was dropped, it encouraged the inclusion of low-frequency effects in later multichannel formats. REL prospered in the 1990s, as it does today under the ownership of Sumiko, because every 5.1 system had to have a subwoofer. But 'earthquake bass' wasn't on Richard Lord's original agenda. REL, the company he founded, came into being because he was trying to improve his two-channel music system.

BOOM GOES THE ROOM

With early retirement in mind, Richard had moved to a smaller house. In a smaller living room, less than 15ft by 12, his existing system now sounded too boomy. He changed to small AR18 bookshelf speakers, which suited the room better, but he missed the deep bass that he'd been able to get at the other house.

So Richard decided to try a subwoofer or, as he would still prefer to call it, a sub-bass unit. He built a Basset 100 from a kit based on designs published years earlier in *Hi-Fi News* [see Sound Off, p105]. Here's the story of what happened next, as told to *HFN* in 2002.

'It worked quite well, but I discovered that the crossover at 100Hz was far too high. Eventually, I realised that the easiest way was to forget the crossover and connect the sub directly to the main speakers. But I put in this little

switching device which allowed the sub to come up in small steps, to fit underneath the response of the main speakers. I didn't know it, but that was unique. No-one had done it quite that way; most people connected at line level at that time.

'But I felt that my way worked better. And I wrote an article which suggested that you could generate very clean, tight, quality bass in a very small room, because you are pressure-driving the room.'

THE BREAKTHROUGH...

In the end, *HFN* published Richard's full description of his completed unit.

'The mailbag from the magazine article was tremendous. And that's how it started. I did it as a hobby, in my garden shed. I just built a couple a week, took a few advertisements, made a few more.

'The breakthrough came in about 1993, when Harman said they'd like to distribute my products.'

Despite success in the growing AV market, Richard's passion was still for two-channel music. When Sumiko took on

REL's US distribution, he was delighted to find that the Americans could easily demonstrate an enhancement with music.

'When they switched in the REL Studio, you could

feel that the voice had more depth, was more holographic in its imaging. And this was before any bass was being played. This was just soprano voice!

'You can argue that there are no musical notes down there, unless you're playing a deep organ bass, but there is an obvious improvement. There is no doubt that a wide bandwidth, going down as deep as possible and integrated, makes a significant difference to the overall sound.'

Even so, it's not a coincidence that the late Trevor Attewell, originator of the



ABOVE: Richard Lord pictured in 2002 atop a Stentor III; it was his successful search for big bass in a small room that saw him found REL

Basset designs, was seriously interested in organ music. So too is Graham Holliman, who back in 1978 patented his infra-bass speaker, working down to 8Hz or lower.

MUSIC IN MIND

Today's technology gives us subwoofers that are a world away from the crudities of the designs from 25 years ago, thanks to the momentum of home cinema. Yet Richard Lord helped to raise standards, because he listened with music in mind.

And if, like me, you've never really been enthralled by the sea-bottom subsonics of *The Abyss*, and you've never wanted to have your own vibrating cinema seat, you might still feel the benefit of having a sub in your system. ☺

'There are no musical notes down there, but there is an overall improvement'

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BASS SEAT IN THE HOUSE READER SEEKS *HFN*'S DIY SUBWOOFER PLANS

I wonder if you can help? Back in 1997 I built a window seat subwoofer to a design published in *Hi-Fi News*. I made it using 3/4in high density chipboard and it worked extremely well. After trying sawdust, I filled the whole unit with sand and had about 13ft of tuned pipe running through it. I can't believe the amount of PVA and screws I used to make it all airtight! I fed mine with a 150W FET amplifier through an adjustable low pass filter (LPF) with a cut-off at 60Hz. My mains came in at 50Hz while the measured response in my living room (40x15ft) was 18Hz-50Hz (-3dB points). I was using an old Tandy 12in speaker with a foam surround and fitted sticky felt pads on the cone to bring the free air resonance down to 21Hz.

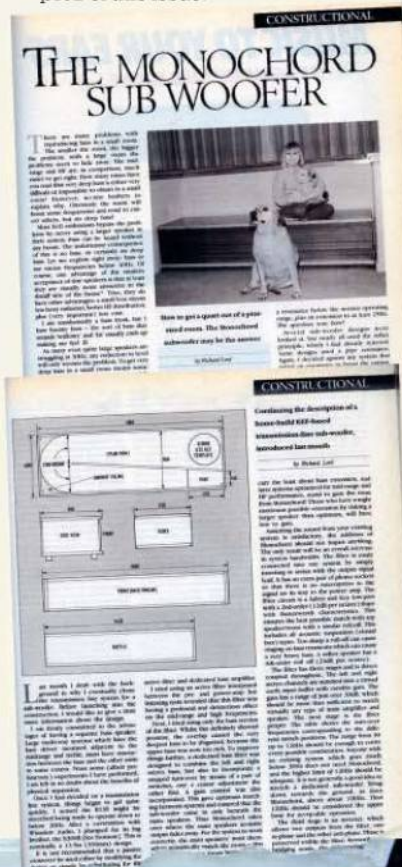
Unfortunately, I have moved, leaving the window seat behind. However, I would now like to build another. If you can tell me the month and year in which the design appeared I can order a back issue. I have enclosed a photograph of the original unit as it appeared before I moved out.

Andy Hearn, via e-mail

HFN replies: It was Richard Lord's Monochord design, the first part of

which was published in the December 1990 issue of *Hi-Fi News*, with the second part appearing in the February 1991 issue (see below).

As a bonus, Steve Harris talks to Richard Lord about this very design, along with the founding of REL, on p102 of this issue.



ABOVE: Reader Andy Hearn's take on Richard Lord's DIY Monochord window sub

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CAN YOU TELL ME WHY MY SPEAKERS ARE DIFFICULT TO DRIVE?

I've just read Keith Howard's article 'Valve-Ready Floorstanders' [*HFN* March '10] in which he says 'none of the speakers here presents an especially difficult amplifier load.' I often hear this phrase but have never understood what it means.

I have KEF 103/4 speakers [pictured below], with a sensitivity of 91dB, and have read on the internet that they are difficult speakers to drive. But I've never understood what is difficult about them and what solutions I should be looking for. I read that they sound extremely bright if not driven correctly, but I have no idea why this is.

Could you please explain this? I've been told it is not merely a question of raw power but that I need a 'high-current' amplifier. Again, I have no idea what this means.

Leo, Bromsgrove

Keith Howard replies: I sympathise, Leo, since this is quite a complex topic, one which many audiophiles don't fully understand. Moreover, it's not something I can explain every time I write a review, as you'll appreciate. Hi-fi is an engineering subject (unpopular as that reality sometimes is), with all the complexity that inevitably entails. But we do our best to make it comprehensible, so I'll try to answer your question succinctly, without taking up half the magazine.

The first thing to appreciate about audio amplifiers (the vast majority of them, anyway) is that they are voltage-source devices. In other words, it's their task to deliver an amplified version of their input voltage to the speaker's input terminals. In order to do this with low distortion, they have to be able to supply the commensurate output current.

Let's use a plumbing analogy here. Voltage is analogous to pressure, current analogous to flow. A pump which can maintain the required pressure in a domestic central heating system would be completely useless on a fire engine, because the pipe diameter – and rate of flow – are so much higher.



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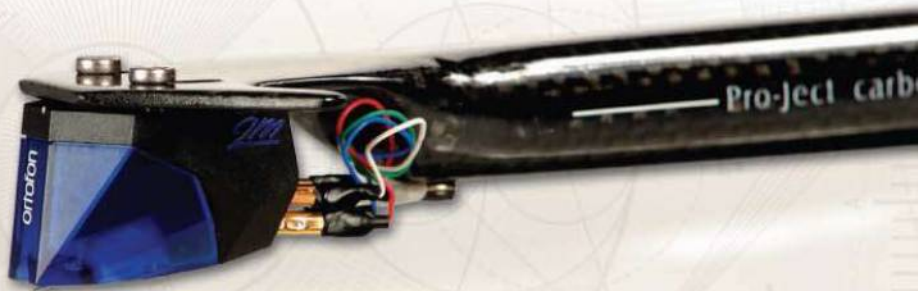
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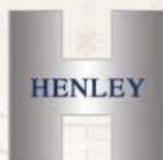
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Apple, Leaks and hum

A READER COMMENTS ON RECENT TOPICS

I'd just like to add my thoughts to some of the issues raised by your writers in recent issues. Firstly, Apple-type 'hi-fi' devices. Around three or four years ago I was paid by a market research company to listen to digital sound clips through headphones and rate them from 'poor' through 'average' to 'excellent'. The best grade I gave was 'average', and that to only a handful of an hour's worth of samples. I wasn't told the identity of the organisation that commissioned the evaluation, but all I can say about the clips is that if they are in any way representative of the sounds produced by products now masquerading as 'hi-fi' then the perpetrators of these devices are truly in breach of the Trades Descriptions Act.

As for your Leak Stereo 20 review, your evaluation was pretty accurate, but omitted the issue of mains hum. I was told that PSU upgrades were available for the Stereo 20 from third party manufacturers. I wouldn't tolerate that hum from a modern circuit, but the hum from my Stereo 20 only becomes objectionable when I've turned the input signal down to a very low level. By the way, I do like the coverage you're now giving to vintage hi-fi. Those pages and the Opinions – especially Ken Kessler's 'Off The Leash' column – are the best bits.

Phil Rowland, via e-mail



ABOVE: The Leak Stereo 20 integrated, as tested in the March 2010 issue of *HFN*

Kessler: Is this man for real?

DEAF WIVES, UPMARKET SPEAKERS AND IPOD BASHING... IS KK NOW OUT OF TOUCH?

I had to respond to Ken Kessler's 'Off The Leash' column in the May issue. Is the man for real? Jesus, you'd think he'd stepped out of some 1970s sitcom. So, the wife who tells her husband she can hear no difference between the sounds coming out of the more and less expensive speakers is 'moronic', 'deaf' and 'stupid' eh? And she's just being ignorant because she wants to spend the money on shoes?

Sheesh. Get real man. You think everyone spends their life critically training their ears to the subtle difference in lows/mids/teble responses offered by speakers that cost more than most people spend on cars? No, the vast majority of the population are too busy trying to scrape a living doing jobs that provide them with zero exposure to music of any kind.

Is it any wonder the iPod and its docks are considered good choices, when they are highly portable and accessibly cheap? How many people do you think want to be lugging 25kg speakers and amps onto the bus or tube with them? Or be selling a liver on the black market to afford something that can reproduce the sound of a jazz combo playing in their living room?

For Ken to be bashing the opposite sex in such a ridiculously one-sided way is for him to be avoiding the main problem – namely that of making decent sound accessible to all. Focus on that question and you might start drawing conclusions other than that the general public are idiots, manufacturers are whores, women are simply shoe-obsessed and high-end audio shows and £5k+ speakers are the light at the end of the tunnel.

Ben Clayton, via e-mail

Ken Kessler replies: Mr Clayton makes some forceful and well argued points. But he misses one huge question. My main contention is simply this, and it relates solely to the high-end. That is, what is the point of superior sound systems if we're allowing a generation to accept guano? Mr Clayton infers that I believe high-end audio is a substitute for iPods *et al*. This isn't the case. It's like suggesting that a car reviewer posited a Ferrari as a substitute for an estate. I am not even proposing, ludicrously or ironically, that one strap a pair of Magicos to one's shoulders as a portable solution. I am a horses-for-courses guy – in this case, *what system does a music lover deserve?* My sole argument is about the needs of music lovers, which are being done a disservice by a host of forces, including digital

compression, in-the-ear headphones, nasty wives, *ad nauseum*. And yes, I used the words 'moronic', 'deaf' and 'stupid' because they are perfectly apt.

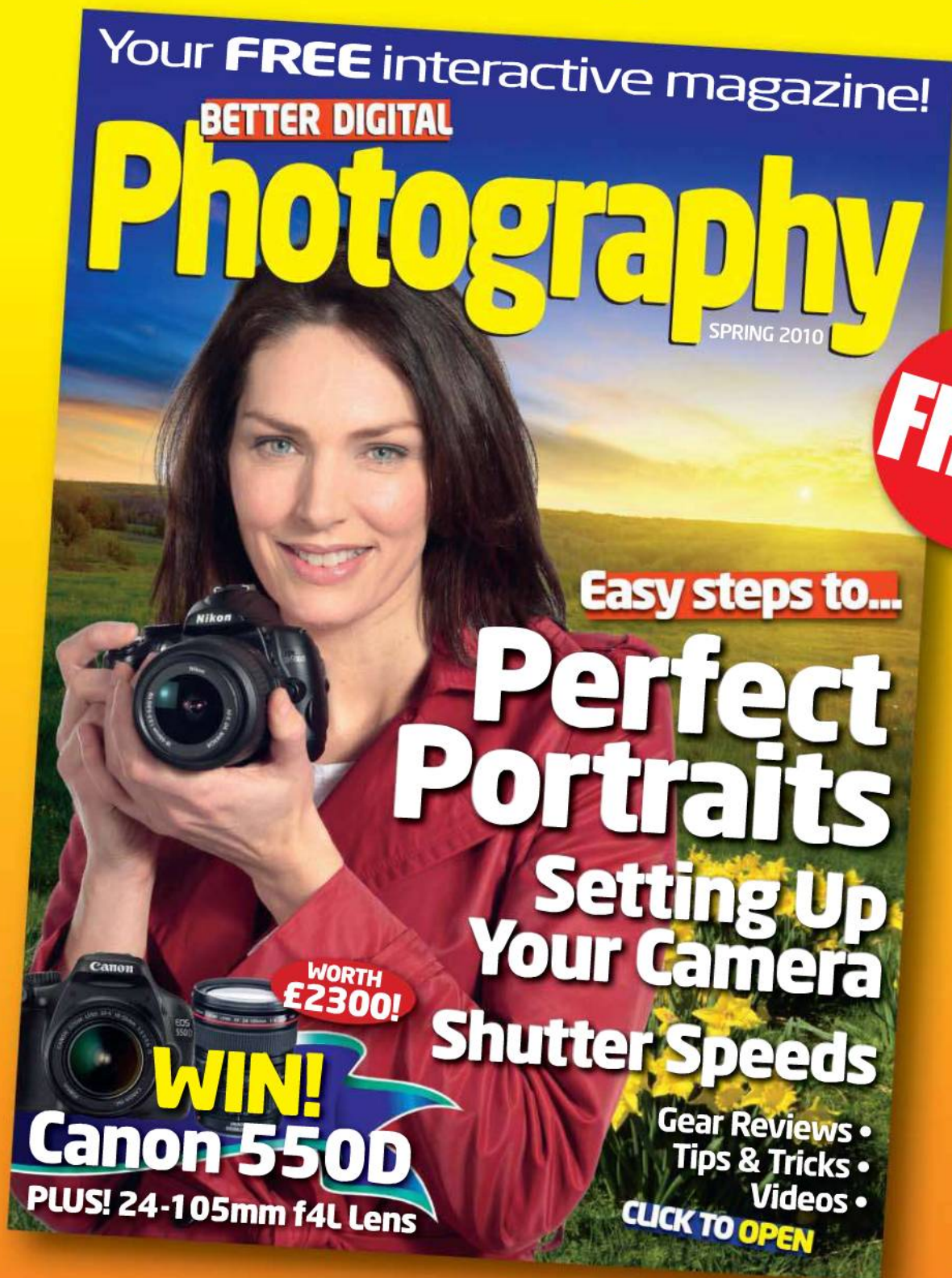
I have been at the receiving end – as has every hi-fi reviewer, rep, salesperson, *etc* – of wives whining about their husbands' innocent desire for decent speakers. We're not talking about husbands having affairs, drink or drug or gambling problems, or even turning their wives into golf or angling widows. We're talking about staying at home and listening to music!! What is so wrong with the guy wanting speakers bigger than a loaf of Hovis? And in the column under discussion, it has more to do with size than price. What's more, the column is about the global dumbing-down of how sound quality is perceived and, like this magazine's primary *raison d'être*, it deals with the highest levels of achievement, not the lowest common denominator.

To put this into the proper context, I would *never*, and have never criticise any individual for spending £1200 on a pair of ski poles, £25,000 on a suitcase, £7 for a beer nor £1000 for a pair of shoes. We live in a world where people can drop £50 on a shave, £500 on a plate of sushi, £35,000 on a frikkin' belt buckle. Seen in this context, an SME turntable is a giveaway bargain and a pair of Wilson Sophias a budget item. As for 'decent sound accessible to all', I have been championing affordable kit for nearly three decades – Croft and NAD and Marantz and PMC are but four. It is the primary reason I write about audio equipment. But we need ultimates. Otherwise, we only aspire to mediocrity.



ABOVE: Magico speakers – not made for buses

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Graph scaling proves a Strain

WHAT'S GOING ON WITH YOUR SOUNDSMITH CARTRIDGE GRAPH?

I was intrigued by the vertical scaling on the frequency response graph for the Soundsmith cartridge reviewed in the May 2010 issue. For equal width divisions, it was first 2dB, then 3dB, 3dB, and finally 2dB.

I thought the response of the cartridge was quite unusual enough without adding to it! I looked on your website to try to find unadulterated graphs, but they're not there yet.

M Jones, via e-mail

Paul Miller replies: I sympathise, Mr Jones, for graphs (or worse, pictures of 'scope screens) printed without scales, units or

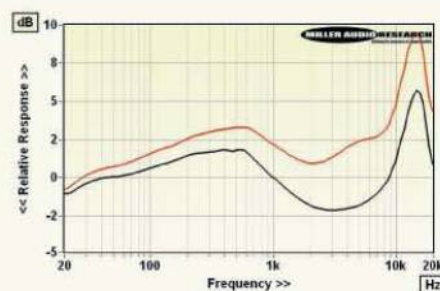
legends are pointless – and yet we still see them published outside of *HFN*.

Wherever possible I try to ensure consistent scaling for graphs that our readers encounter from month to month. The black/blue distortion vs. digital level plots you see with all our 'digital' reviews are a case in point. It allows easy cross-referencing between issues.

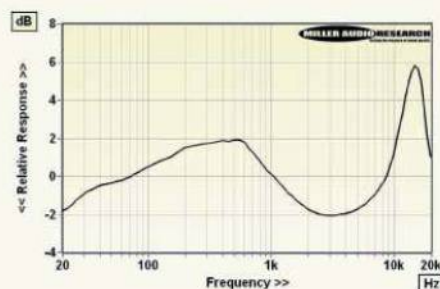
Our standard Y scale (relative response) for MM/MC frequency response graphs is $\pm 5\text{dB}$ plotted at 1dB per division. This is a big enough window to accommodate the undulations in output from most modern pick-ups, but insufficient to express the

unusual response of the SG-200. For this I chose a $+10/-5\text{dB}$ Y scale with linear divisions set at 2.5dB, although the tick numbers were rounded to the nearest whole value.

In case this gives the impression of a non-linear scale, I have re-plotted the SG-200 response data [see graph, below right] with 2dB divisions. Please compare with the original [see Graph, upper right]. Unless we encounter another wild child of the pick-up world, future MM/MC response plots will return to our standard scaling [see Sumiko review, p80]. And finally, our web-based test data is now bang up to date!



ABOVE: Response curves for the Soundsmith SG-200, as published in May '09 at 2.5dB/div



ABOVE: Left channel frequency response only, re-plotted at 2dB/div for comparison

Pushed to the limit?

NAGRA AMP PERFORMANCE AND NOTES ON THE 300B

Reading your show report on CES 2010 [see *HFN* Mar '10] I see you are impressed with Nagra achieving 20W from a push/pull pair of 300B tubes in its 300i integrated amp. That's a good result, but only on the high side of average.

I recall a rival UK magazine producing a kit where the 300B push/pull pair put out 28W. And US audio consultant Murray Zeligman building a 2A3 push/pull amp on a Dynaco Stereo 70 chassis that put out 18W a side. Admittedly he ran the amplifier AB2.

Murray was not a huge fan of the 300B. I recall once asking him how he rated it. He shocked me, giving it merely a B+ grade. I asked what was an A-rated tube. He told me the 2A3, telling me that in Japan it was much more revered than the 300B.

He explained that the 2A3 was much more linear than the 300B (linearity being defined as if 1V in gives 5 out, 2V in should produce 10V, etc). And for him linearity was the single most important spec in audio.

Then I recalled that the 300B was designed by Western Electric for amplifying signals over long distances. It didn't have to be a great tube (though it was good) but it had to be extremely reliable. The company wanted to be able

to bury the tube in the ground for ten years and not have to worry about it. So its 'great' rating was based on reliability in the telephone industry. It was a bonus it was also a good tube.

I also remember an audio show about ten years ago where an amplifier manufacturer did some tube rolling, switching various 300B and 2A3 tubes. I know it's dangerous to jump to conclusions but to me the 2A3's superiority was clear, it having greater detail, openness, and transparency.

As an aside, Murray was very interested in the Sony and Yamaha VFET amps of the '70s. They had triode curves with 2A3 linearity. Unfortunately, they passed quickly as MOSFETs came along (not triodes or as linear). But now the Yamaha designer has brought the device back. And the Digital Do Main B1A has received excellent reviews and comments. I'm sure it doesn't sound like a 2A3 but it seems to have many of its virtues,

with the ability to produce 150W a side.

Allen Edelstein, USA

Paul Miller replies: You are not alone in preferring the sound of 2A3 direct-heated triodes – a pair of the very same earned themselves an Editor's Choice award as implemented by Pure Sound in its integrated amplifier [*HFN* May '10]. Specifying the final output power of either 300B or 2A3 triodes in push-pull mode will depend on Class and the level of distortion judged to be acceptable.

Pure Sound's 2A3 circuit was capable of delivering around 10W at 1% THD and 20W at 2%. This is almost identical to the performance listed for pairs of 300B tubes operating in Class A1 mode, according to the Bell System Practices document for the Western Electric 300B published in 1950.

This assumes a plate voltage of 350V and a maximum signal plate current of 200mA. Drop both to 300V and 150mA, respectively, and a pair of 300Bs in push-pull will offer just 10W output at a rather higher 4.5% distortion.



LEFT: The Nagra 3001 amp with its push/pull 300Bs

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Garrard 401 turntable

With roots that lie way back in idler drive designs of the 1950s, surely the Garrard 401 will pale in performance by 21st Century standards? Prepare to be amazed...

Review: **Haden Boardman** Lab: **Paul Miller**

The history of Garrard as a manufacturer can be traced back to World War One, when the famous jewellers to royalty wished to do 'their bit' for the wartime effort, ultimately setting up an ammunitions company. After hostilities ceased, the family was left with a small manufacturing plant in Swindon, which in turn switched to the manufacture of wind-up motors for gramophones. From Tommy gun to turntables, one might say...

Skip forward to 1952 and Garrard launched the predecessor to the 401 – the 301. (The performance of both decks is interrelated, so comments made here are applicable to both – unless stated otherwise.) American company CBS had just launched the 12in long playing 33.3rpm disc, and RCA the smaller 7in 45rpm record. A few years earlier in the UK, Decca had released the 'Full Frequency Range Recording' or FFRR on high quality 78rpm disc, so the post WWII 'gramophile' had a confusing choice of formats.

CHASSIS TO DIE FOR

The 301 was the first 'transcription quality' turntable launched in the UK to feature all three speeds plus a pitch control. Common to both the 301 and the 401 is a superb die-cast chassis and platter, massive

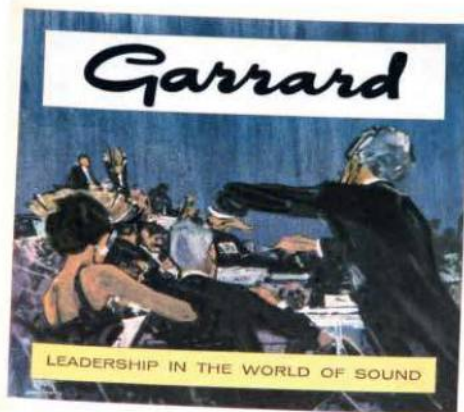
motor, a quality idler drive and superbly engineered main bearing.

The 401 was launched in 1964, and was more a cosmetic upgrade than anything else with a re-styling from the pen of industrial designer Eric Marshall. But there were mechanical upgrades, including a stronger eddy current brake, the relocation of the mains power switch to below the chassis, 'dish shape' changes to the platter (some early 401s have a 'flat' 301 platter, like our sample) and the fitting of an upmarket neon strobe lamp.

The 301 had begun life with a rather industrial look, being finished in silver grey hammerite, progressing through the more common off-white. The 401 was more svelte in appearance, sporting a chrome and luxurious dark brown charcoal finish along with a stainless steel trim.

Penny pinching did effect the quality of the last of the 401s to leave the Swindon plant and while the later decks have the same sonics, fit and finish are poor in comparison. These later units can be recognised by the 'low rent' neon lamp fitted as opposed to the more expensive mirrored unit of the earlier decks.

Idler drive has been blamed in some circles for rumble and for killing the sonics



ABOVE: Garrard's premium brochures emphasise the company's market position

of these decks [see Opinion, p95]. While no drive system is perfect, in my experience this design betters any 'slippy' belt-drive system. Also, chances are that the main bearing has taken a hammering over time. If in good condition there is nothing fundamentally wrong with it. I am sure today's modern precision engineering could make an improved version, and it is easy to bolt it on and off.

The motor can be a bit of a noisy brute I do admit. When the 301 was launched, pick-up tracking weight was in ounces



ABOVE: Original English and Italian brochures

RIGHT: Note earlier 'mirror' neon strobe lamp





rather than grams and, of course, the need to play 78rpm discs meant that by today's standards the motor had to be large.

Like the Technics SP10 – a deck that's very similar in performance – the Achilles' heel here is the plinth. Most turntables are supplied complete, and whatever you may think about coloured-sounding wooden boxes or sub-chassis sonics, it does make life simpler! But if you seek the ultimate in performance, why compromise?

As the record pushes the stylus into the cartridge, everything fights back and this energy is transmitted in a loop between the deck, cartridge, arm and then plinth. Similarly, external vibrations reaching the plinth will also enter this loop. We all know the effect the cartridge and deck, and of course the arm, have on sound quality, but the plinth can also have a huge impact. Although a modern pick-up will be tracking at just 1.5-2.5g the fine stylus profile equates to forces measured in tonnes per square inch – a serious amount of energy. Our aim is not to colour the sound, yet we have to support the stylus and cartridge as it digs out as many delicious details from the record groove as it can. So the plinth is pivotal in dictating the sound quality of this kind of deck.

DREAM MACHINE

For the purposes of the review, a simple wall-mounted open plinth was used. This was made from two layers of 24mm-thick strips of walnut, measuring 68x48cm (wd). The plinth was cut for a 12in arm, and both SME 3012 and Ikeda 407 arms were used

ABOVE: SME 2000 plinth and Garrard 401 – popular combo

RIGHT: Detailed instructions and mounting information

with a mix of Ortofon SPU MC and Nagoka MP30 MM cartridges. A semi-active, semi-passive valve phono stage of my own design was also employed, along with a PX4 PP power amp and Diatone P610 speakers. For comparison, I used a similarly mounted Technics SP10/II.

Over the years I have spent time with just about every so called high-end turntable. Yet I still come back to the superiority of this class of deck, whether it be direct or idler drive. From the minute the needle hits the groove there is a quality to the sound that can leave most other designs standing.

The first thing of note is the pitch and timing. It almost sounds as if these decks run fast; they do not of course, but they do not smear dynamics in the way every single belt-drive deck I have auditioned does. Then there's the clarity and freedom from mush in the bass. The strong chassis also helps in the bass department.

With such sturdy foundations to the sound, the Garrard is able to dig out a truly amazing performance. Classic vinyl tracks, such as Massive Attack's 'Unfinished Sympathy', took on an amazing persona,

while a spin of some mid-'60s Stravinsky on Decca SKL amazed with its sheer power and flow. Likewise, Jimmy Smith's *Walk On The Wild Side* LP hammered home the dynamic capabilities of the 401.

BIG ON BACH

On more subtle material (it does exist around here, you know!) the low levels of background noise were truly appreciated, but it was hard not to return to the more gutsy material. A very early 1958 DG stereo recording of Bach organ was immense, as was some more up to date pop stuff.

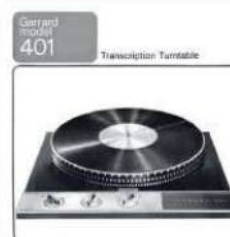
On audiophile-recorded direct masters and assorted Sheffield Labs material (we're talking Kodo drums here) the sound was cavernous. What stands out with the

'The sound can leave most other decks standing'



LEFT: Our deck sports the flat Garrard 301-style platter

RIGHT: The decks were used in studios, including the BBC's



VINTAGE HI-FI

LAB REPORT

GARRARD 401 (Vintage)

With little more than some refreshed lubrication and a light dusting, this unmodified 401 motor unit returned a spectacular set of measurements that would put many a modern deck to shame. First, let's look at the rumble spectrum [see Graph 1, below]. The 'white noise' portion of the deck's output above 50/60Hz is comparable with most recent turntables but there are a series of correlated rumble peaks from 20-40Hz that contribute to the DIN B wtd total of -67.6dB. This may be 5-6dB shy of the very best decks, but remains remarkable for a 40-year-old bearing. Noise and electrical noise is dominated by a 100Hz peak (ostensibly a resonance from the 'shaded-pole transcription' motor), but even here a figure of -55dB (re. cartridge output at 5cm/sec) is very good indeed.

Because the idler wheel showed very little sign of deterioration, and the inside of the 6lb aluminium platter remained very clean, there was very little noise contribution from the drive itself. The sharpness of the central peak in the wow & flutter spectrum [see Graph 2, below] is also testament to the security of the idler drive as is the mere -0.17% absolute speed error, set visually from the integral strobe. Unlike most belt-driven decks whose wow is often noise-like (visible as a broadening of the peak), the 401 has a discrete wow (visible as a 'triplet' on the main peak and the ± 100 Hz flutter sidebands). The ± 3.5 Hz rate is probably tied to the 8cm flywheel used to regulate the 401's speed. Readers are invited to view a full QC Suite report for this original Garrard 401 turntable and SME plinth by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: The cast chassis is what helps give the Garrard 401 its clean, fast sound, along with the jewel-like idler drive system. Note the mechanical brake to the right

Garrard is what it does not add. The heavy solid chassis keeps everything clean, taking away the minimum, and adding very little. By the way, comparing the Garrard with the Technics revealed little difference. The Technics was the thinner-sounding of the two decks; I suspect its thin-wall aluminium construction to be inferior to the cast Garrard.

MATS 'N' MODS

Spares for the 401, if needed, are easy to find. A damaged idler can kill performance, but that's obvious! Everything else is pretty much bomb proof. The plinth is the key element

and the area to address one's attention. Arm and cartridge choice are very personal; being a solid deck, it is of course much more important to match arm and cartridge. After all, when it comes to tonearms, anything can bolt to a Garrard.

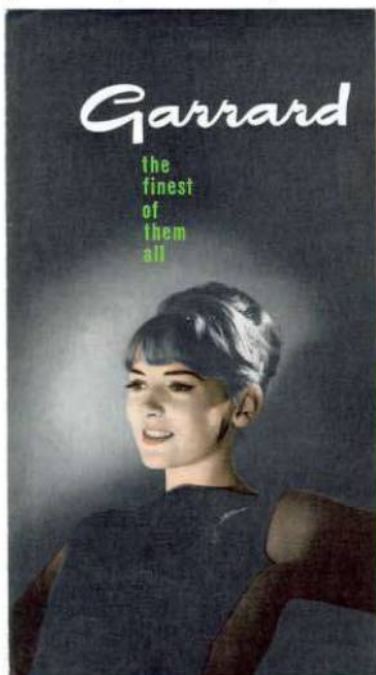
Modifications to note include a metal 'H' bracket that further strengthens the Garrard's top-plate around the bearing housing. Various upgraded thrust pads for the bearing (including a complete replacement from Swan Labs of Japan), heavier platters, lead mats... All these change the sound.

If constructing a non-open plinth, Dr Martin Bastin offers a way to detach the motor from the chassis, mounting it from below. This can further improve noise levels (the motor still needs to be firmly connected). Nevertheless, rest assured that the 401 is a solid performer as standard. ☺

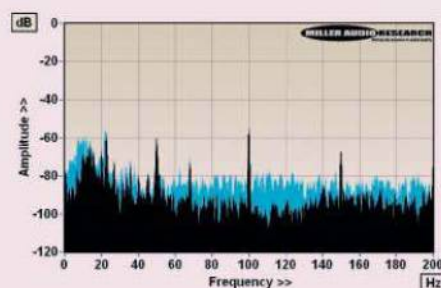
HI-FI NEWS VERDICT

Demand for Garrard decks has gone through the roof. Some 15 years ago you could find 401s for 'sane' money. Today you are likely to pay between £250 and £700 for a good clean chassis and much more for a decent plinth. Nevertheless, with a little work (on the plinth!) you'll have in your possession one of the finest turntables out there and – to these ears – a deck worth sonically far, far more...

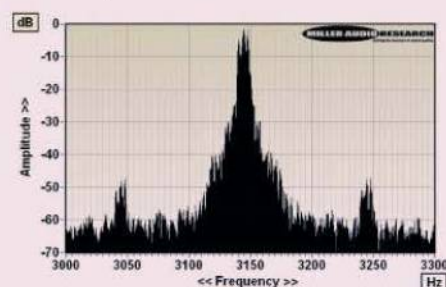
Sound Quality: 85%



ABOVE: Beehive yourself! It's amazing what a Garrard can do for you...



ABOVE: Unweighted bearing rumble from DC-200Hz (black infill) versus silent LP groove (blue infill) re. 1kHz at 5cm/sec. Tested with SME Series IV tonearm



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ± 150 Hz, 5Hz per minor division). A ± 3.5 Hz wow is seen alongside 100Hz flutter sidebands

HI-FI NEWS SPECIFICATIONS

| | |
|--------------------------------------|-------------------|
| Turntable speed error at 33.33rpm | 33.28rpm (-0.17%) |
| Time to audible stabilisation | 2sec |
| Peak Wow/Flutter | 0.03% / 0.07% |
| Rumble (silent groove, DIN B wtd) | -67.0dB |
| Rumble (through bearing, DIN B wtd) | -67.6dB |
| Hum & Noise (unwtd, rel. to 5cm/sec) | -55.0dB |
| Power Consumption | 14W |
| Dimensions (WHD) | 580x230x470mm |

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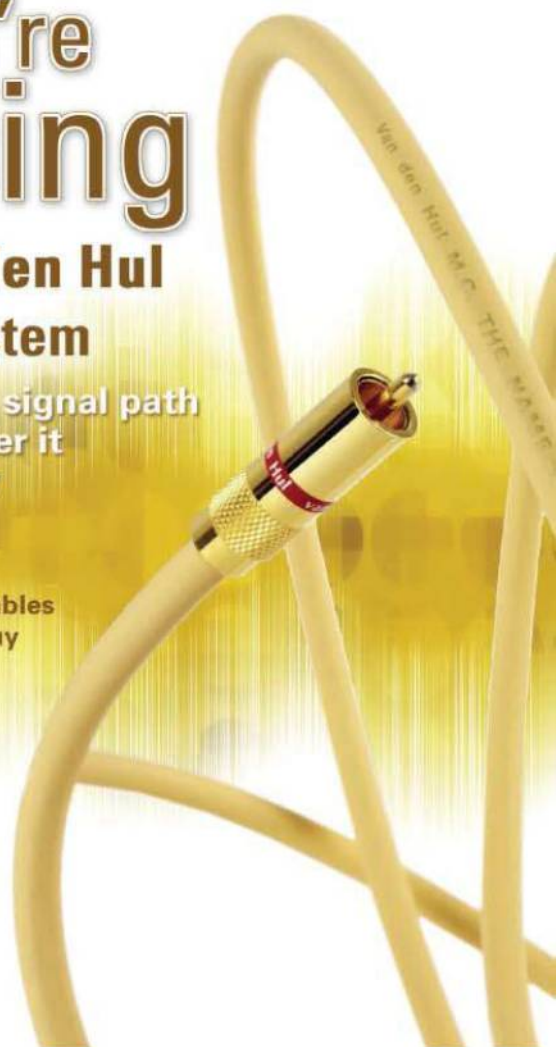
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HD 414 • HEADPHONES • SENNHEISER • GERMANY

Sennheiser HD414



They were arguably the world's first open-back headphones, but why would a company that prided itself on offering users products that put sound quality first suddenly market a headphone with the emphasis on comfort. **Ken Kessler** explains...

A salutary lesson can be found in the pages of the 1970 *Hi-Fi Yearbook*, in the section labelled 'Hi-Fi Headphones'. It's visual, and immediately apparent, illustrating a key moment in the history of the devices. In that august publication, among the 50 or so headsets featured, Sennheiser's HD414 was the only pair listed of the type we now call 'open-backed'. Even that description wasn't yet in place for the new German headphone, then making its UK debut. But it was clear that the alternatives exemplified a form of audiophilic masochism, for every pair available would exert some level of clamping pressure on the listener's head.

It wasn't even about weight, which the Sennheiser entry touted, because the rival AKG K60, at 7oz, was actually a half-ounce lighter than the HD414. (Both presumably measured with cables.) But, like nearly every other headphone at the time, the AKG's speaker cups were large and 'circumaural', meaning



ABOVE: Model wears Sennheiser's Open-Aire HD414 headphones in an original company promo shot from the late 1960s

that they were shaped and sized to encompass completely the wearer's ears. But such headphones possessed a singular benefit, particularly of use in studios: they blocked out all external sounds

A STRANGE DECISION...

On paper, then, it seemed odd that Sennheiser – by 1970 established as a world-class maker of microphones, headphones, mixers and other products for both professional and domestic use – would bring out a headphone that appeared to do everything contrarily bar provide hitherto unachievable levels of comfort. To understand the surprise this headphone's arrival must have inspired, one needs to look

at them in an historical context ... especially as 'their time would come', unbidden, unannounced and unexpected, a decade later.

Headphone usage back in the 1960s had long before evolved away from the devices' original *raison d'être*. The earliest headphones were simply the least expensive way of listening to early radios. Useful applications piled up, however, when they would serve as the equivalent of portable isolation chambers for studio denizens, as a means of hearing radio transmissions in the otherwise noisy environs of an aeroplane or helicopter cockpit, or anyplace else where ambient noise was so high as to prevent a listener from hearing clearly.

Perhaps the ultimate irony was that headphones, such as those common in 1968, could – if disconnected, and without any signal input or even without drivers – serve as ear protectors for people using power tools or other high-decibel situations. Yes, the seals they made were *that* tight, the isolation *that* complete.

So taut and confining were the cans of the day, that I remember vividly my dismay when shopping for my first pair of 'audiophile' headphones, coincidentally in 1968. Headphones were a must-have for another reason for a 16-year-old living at home, one who's father was of the 'turn down that ***** racket' temperament: they allowed music lovers like me to listen to music without disturbing others.

There simply was no leakage from the objects of my acquisitive lust: various skull-crushing Superexes, Sharpes (with an 'e') and Kosses. I ended up buying a pair which I soon stopped using, simply



LEFT: 'Do away with the heavy 'closed-in' feel of conventional headphones...' proclaims this original ad for the HD414



ABOVE: Concert-goers wear HD414 headphones as they listen to a binaural recording of music made by Sennheiser

because they hurt so much. It wasn't mere discomfort, it wasn't even the sweatiness around one's ears. It was good old-fashioned pain. When, six years later, I relocated to Canterbury, I was living in a basement room in a B&B, not conducive to the use of loudspeakers. My first system in the UK was terminated not in speakers, but in Sennheiser HD414s.

As for the clamping nature of pre-HD414 headphones, it was a pity, for many sounded wonderful, their seals ensuring decent bass. They were simply insufferable for long periods. Audiophiles, then as now, realised that a £15 pair

of headphones delivered sound quality equal to that of vastly more expensive loudspeakers because they had no room acoustics to accommodate, they presented easy loads, they cost less to manufacture, and possessed a host of other virtues which ensure that many purists still listen with headphones.

The only downsides, beyond the clamping of one's head, were the antisocial, onanistic nature of headphone listening, and the inescapable sensation of the music being inside one's head.

BUILT TO BE LIGHT?

By the time the HD414s arrived, headphone listening had established itself as outlined above: for close listening by pros in studios, for listening without disturbing others, for monitoring of recordings by amateur tape enthusiasts, and for uncompromised listening by fastidious audiophiles who could ignore the in-the-head-effect.

It has been posited that Sennheiser developed the HD414 for lightness, the company having shown for many years its expertise in miniaturising microphones and other transducers. But that would be to ignore the presence of the aforementioned AKG and a couple

THE ULTIMATE HD414?

Online site eBay has been a bit light of late when it comes to HD414s. Considering the number out there – 10 million or so – you'd think they'd come up for sale all the time. Not so: all I've seen on eBay recently are replacement earpads in either black or canary yellow.

Which raises the question: where do collectors go for HD414s? Should you uncover a cache, note that purists, of course, will want the original light grey version with blue earpads, followed by the post-1983 HD414 and HD414-3 with lower impedances. Googling HD414s will yield more than one *maven* who believes in 2000ohms-or-nothing, but frankly, all HD414s sound pretty damned fine to these ears.

Sennheiser had a slight lapse with a variant called the HD414SL, the letters standing for 'slimline' due to its thinner earpieces. It resembled the HD414 in model nomenclature only, Sennheiser realising with great marketing savvy that 'HD414' had subsidiary brand potential like 'Mini' or 'KitKat'. However, the unit had a smaller voice-coil and diaphragm, a slightly lower (though not *low*) 600ohm impedance and a sound that the hardcore cannot abide.

If you're able to keep your purism in check, the HD414 that might impart the most kudos has to be the HD414 50th Anniversary Edition, released in 1995 to mark the 50 years since the company's founding [see picture, p118]. Black with yellow cushions, these models are notable for having the founder's signature across the headband in gold.

(I don't know if there are plans for a 50th Anniversary model of the HD414 in 2018 to mark the HD414's half-century.)

To show how far the headphone had come from its debut, which was in the same year The Beatles released the 'White Album', the Anniversary model was specified as possessing a frequency response of 18Hz-21kHz, its impedance was said to be 52ohm, and it could deliver sound pressure levels at 1kHz of 94dB albeit taxing the limited output of some portables. Its weight without cable was 80g (2.82oz.) and it came with a gold plated 3.5mm plug with 1/4in adaptor. And the price? Whatever the market will bear.



ABOVE: Cleaning HD414 earpiece components on the production line in the Sennheiser factory in the 1960s

AUDIO MILESTONES

of others that could match the HD414's all-in 7.5oz weight, or around 3oz without the necessary cable – which is a cheeky way of measuring it. One might also conjure up a number of other sensible reasons for the HD414's birth, especially in practical terms.

They were virtually unbreakable.

The removable cushions were easily washable. The cable was replaceable. They were compact. If isolation wasn't an issue – and this is where circumaural rivals could actually prove hazardous if they prevented the listener from being aware of the outside world – the HD414s allowed enough sound through so that someone could speak to the listener without shouting too loudly.

Conversely, the sound leakage from the 'phones was an early example of the hiss that now plagues any commuter sitting next to a headbanger armed with an iPod.

SPECS 'N' PRICE?

Certainly, their specification didn't create any waves. A high 2000ohm impedance made them slightly hungry for volts, if not outright power, but I never found a standard ¼in headphone socket headphone output on any receiver that wouldn't drive them. The 20Hz-20kHz frequency response was par for the

course. It was the skeletal form and the grey-headband-with-blue-cushions that made them stand out among the massive headphones of the opposition.

At a price in 1970 of £11 5s, or £225 at today's prices, they were not cheap, but neither were they out of the ordinary: the least-expensive 'phones in the *Yearbook* were £2 5s, around £40. When you consider how sublime are 2010 budget headphones costing around £20 in today's money, including models from Sennheiser, you have to wonder how anyone could afford

decent equipment 40 years ago. Who knew that headphone prices had dropped in real terms over the years, like flat panel screens and notebook PCs?

The HD414s, despite the sound leakage in both directions, quickly developed a following, not least among professionals. By the time they were in the shops, having been patented in 1967, studio behaviour in the post-Sgt *Pepper* era consisted of sessions running into the wee hours; the HD414's comfort was certainly welcomed.

Best of all, for domestic listeners, the open-back format went some way toward reducing the in-the-head effect, as noticed with Stax electrostatics thanks to their dipole nature. Miraculously, the HD414s

'The watershed was a small portable device from Japan'



ABOVE: Publicity shot showing the HD414s in use; the volume control unit shown, which appears to allow right and left volumes to be adjusted independently, was part of a company demo unit not for sale to the public

did not seem to sacrifice much in the way of bass, despite the loss of any seal which converted circumaural headphones/ears into virtual reflex enclosures.

ENTER THE WALKMAN...

Nobody could have foreseen what would make the HD414 not only the must-have headphone of the 1980s, but also the blueprint for the majority of headphones (with headbands, rather than earbud types) to follow. Few are the circumaural headphones still selling in great numbers, when compared to lightweight, on-the-ear types descended from the HD414. The watershed, of course, was a small



LEFT: Another original company promo shot for the HD414 from the late '60s, this time showing the headphones against a backdrop of contemporary LPs

RIGHT: The HD414 Anniversary Edition, released in 1995 to mark 50 years since the company's founding



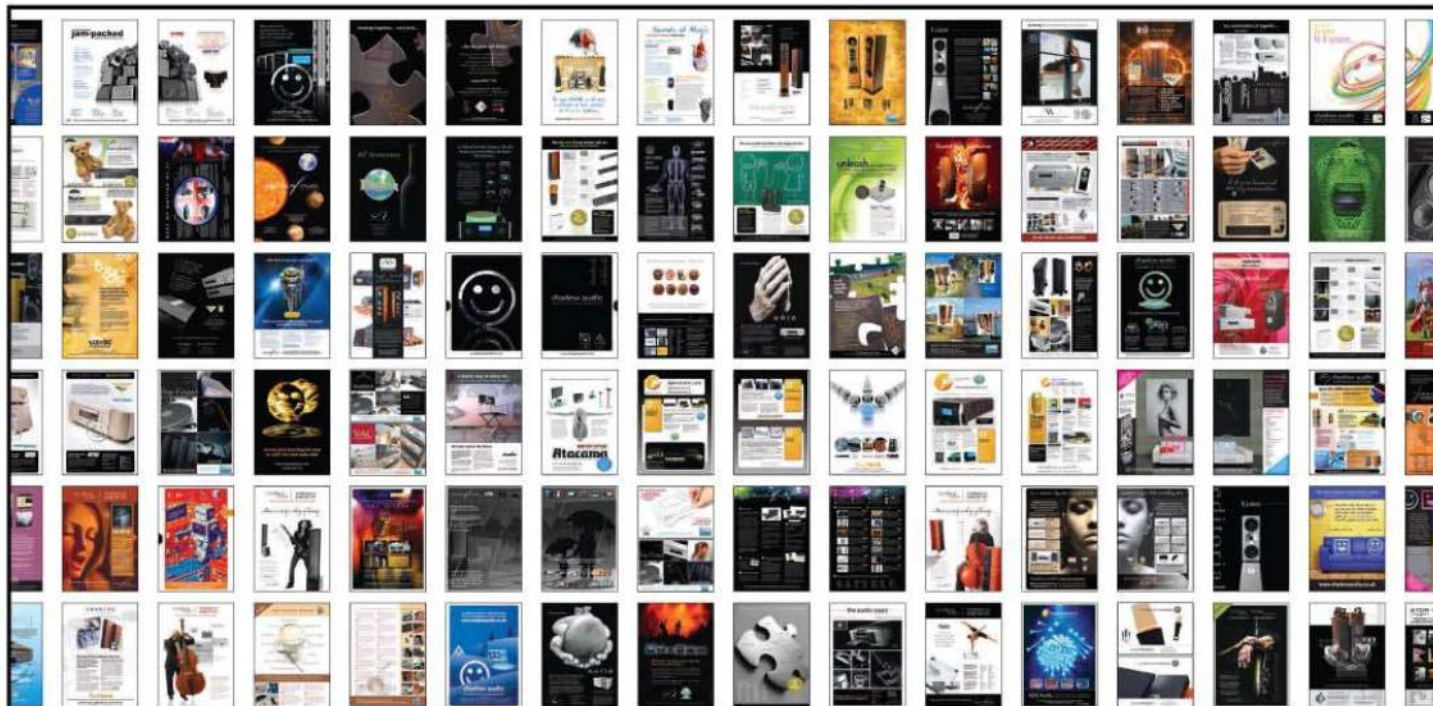
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AUDIO MILESTONES



portable device from Japan, called the Walkman.

As would be repeated 25 years later, only with earbuds and iPods, the Walkman turned a generation of music lovers into headphone users, music listeners who might otherwise have never bothered had it not been for the need to provide isolated listening on the move. Again as today, portable stereo cassette players, followed by portable CD spinners, came with headphones, but canny listeners knew that superior headphones would provide an immediate 'upgrade'.

NEW VERSIONS

Bandridge and a host of other suppliers offered 1.4in-to-3.5mm plug converters for as little as £1, so in theory, any headphone with

high enough sensitivity would work with portables. While the HD414's 2kohm impedance didn't suit the meagre voltage output of some portables its lightweight and compact form brought it added appeal over competing 'phones. By 1983, Sennheiser had released 600ohm and 50ohm versions, and, for a decade or more, it was not uncommon to see yellow earpads in every commuter train or flight, on joggers and on cyclists.

Fifteen years from now, *Milestones* will probably feature whichever earbud became the default purchase for dissatisfied iPod owners. Is it a Shure, an Audio-Technica, a Monster? It remains to be seen if that in-the-ear model – probably a Sennheiser – will match the 10 million sold by the HD414. ☺

TOP: Sennheiser's dummy head, nicknamed Oskar, which was used for the making of binaural recordings in the late 1960s. The headphones in the picture are the original HD414s

ABOVE LEFT: Modelling the HD414s in an original late-1960s promo shot

ABOVE RIGHT: Fritz Sennheiser (right) pictured with his son, Joerg

SENNHEISER TIMELINE

- 1945 Dr Fritz Sennheiser founds 'Laboratorium Wennebostel' (aka 'Labor W' or Lab W) for the manufacture of valve voltmeters
- 1946 Microphone production starts with the DM 1
- 1950 Labor W launches its first mixing amplifiers and preamplifiers
- 1952 HM 11 and HM 21 magnetic miniature headphones added to Labor W line
- 1953 Launch of the classic MD 21 microphone
- 1958 Labor W is renamed Sennheiser Electronic
- 1959 Introduction of the MDS 1 stereo mic
- 1965 Philharmonic 'audiophile system', the first to use active loudspeakers
- 1968 Sennheiser develops the HD414
- 1977 Unipolar 2000, the world's first open electret headphones
- 1983 HD414 released with lower impedance of 600ohm, and HD414-3 with 50ohm impedance
- 1987 Sennheiser develops NoiseGard active noise reduction for Lufthansa airline
- 1990 Founding of Sennheiser UK
- 1991 Launch of the electrostatic Orpheus with valve amplifier
- 1993 Launch of the world's first digital infrared headphones, the IS 850 system
- 1995 HD414 50th Anniversary Edition released to mark the company's first half-century
- 1995 Sennheiser launches its first RF wireless headphone system, the RS 5
- 2002 Prof. Dr. Fritz Sennheiser awarded AES Gold Medal for lifetime achievement
- 2006 Launch of Street Line, Sport Line and Style Line headphone series

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Audio Accessory Magazine, Japan



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Awarded to Platinum Eclipse interconnect

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Platinum Eclipse interconnect Hi-Fi News, UK



Platinum Eclipse speaker cable

"Platinum Eclipse represents a formidable accomplishment in my book."

The Absolute Sound, USA

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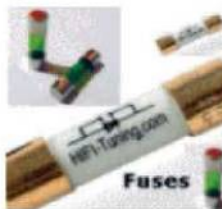
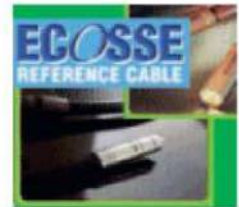
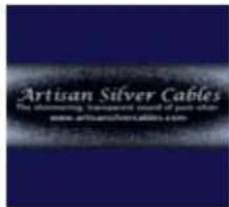
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| Tom Evans Linear A power amplifier. No box. Francis Bacon styling - take me away. | £2000 | £4400 |
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| CEC Tube 53. Very cute and super-neat 5881 integrated. 16 watts. Sweet, refined and detailed sound. | £1500 | £2350 |
| Sugden Masterclass Stereo Power Amplifier. Titanium fascia. c.5 years old. Good condition. | £1750 | £3675 |
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| AudioQuest Topaz HyperLitz interconnect. 5 pin DIN to 2 x RCA | £75 | -- |
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LFD Linestage 1 (upgraded*) pre-amplifier in great condition can demonstrate, (*has previously been upgraded by LFD), excellent example, contact Stuart Tel: 07870 912963 or email: stuardarshan67@googlemail.com [FG]

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ARCAM Alpha 7R, black, boxed £150 Tel: 01206 510392/07765 264381 [GH]

LFD LS1 Preamplifier excellent upgraded example, new, mint condition, offers invited Tel: Stuart on 07870 912963 [GH]

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SUGDEN A21-A integrated amplifier silver fronted with inbuilt MM phono stage, in superb condition with original box. £645 ono Tel: 07747 168224 (Manchester) [GH]

SANSUI amp, AU-X510 £85 Tel: 020 8950 0658/email: michael.stewart5@ntlworld.com (S. Herts) [GH]

AYRE KX-R preamplifier in unmarked condition still under warranty with boxes and manual, £7950 (£12000 plus new) Ayre MX-R monoblock amplifiers in unmarked condition still under warranty with boxes and manual, £7950 (£12000 plus new) Tel: 01797 253073 or e-mail: majba13@yahoo.co.uk [GH]

NAIM 32-5, Hi-Cap, 250, a classic combination, boxed and complete with all leads and MM, MC and variable level boards for the 32-5, fully serviced by Naim Audio in Dec 2007 (bills to prove), £850 Tel: 07976 407863 or email: w.phelps@ntlworld.com (Beckenham) [GH]

ROTEL RA-06 amplifier, boxed as new in silver £250 (3500) Tel: Lee on 01384 412234/email: lee2009@hotmail.co.uk [GH]

ANATEK A50R class A integrated amplifier, very musical sound is fluid and transparent, still under warranty, can demonstrate, I live in London, RRP (£1600), bargain at £550 Tel: 07790 441862 [GH]

QUAD QC 24 valve preamp, 2 x Quad 11 40 valve monoblocks, superb condition boxed with instruction books, £2500 total Tel: 01202 481386 (Dorset) [GH]

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KIMBER Select 1030 1m RCA interconnect, deep cryo treated black pearl silver conductors + flight case, list price £1844, accept £500 ono Tel: 01294 829323 after 5pm [X]

KIMBER D-60 Digital interconnect, 0.5 metre, Hyper-pure silver, Ultraplate phonos, superb cable that ensures a clean and clear, sweet and natural sound, boxed as new in hardcase, cost £240, sell £120 ono Tel: Darran 07876 705266 [GH]

CHORD Indigo interconnects 1m, unused, boxed £495, Signature interconnects 1m, mint, boxed £295, Champagne silver + interconnects 0.5m, mint, boxed £59, Odyssey 2 speaker cables 4m, factory terminated £75 Tel: 01984 640588 [GH]

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JPS GPA-2 power cords with watt gate x5 (£165) £90, Audio source 6 way conditioning block (£350) £220, Spectral-MIT interconnects MI330 1.5m £300 x 2 handmade equipment support in oak, offers, all mint, all ono Tel: 01159 126424 (Notts) [GH]

TRANSPARENT Audio Music Wave+ speaker cables & MusicLink interconnects, SME 4 tonearm cable (internal & external) VDH 501 interconnects, all new/mint condition, offers Tel: Stuart on 07870 912963 [GH]

CHORD Crimson interconnect 0.5m £120, boxed as new Tel: Lee on 01384 412234/email: lee2009@hotmail.co.uk [GH]

4. CD/DVD PLAYERS

MARANTZ SA KI Pearl, months old, as new, complete with anniversary book, SACD & certificate £1900 Tel: 07809 383556 or email: neilmacmillian36@hotmail.com [GH]

PRIMARE CD31 one owner, boxed as new £895, Avondale Arcam Alpha 5 £350 Tel: 01452 770007 [GH]

ARCAM DV79 CD/DVD player, HDMI, superb audio and video £200, both mint, boxed, manuals Tel: 02380 611519 email: rmurchie@yahoo.co.uk (Hampshire) [GH]

TEAC VRD210, black £399 ono, Yamaha CDX-750E, black, remote £99, Pioneer DV350 £50 Tel: 01206 510392/07765 264381 [GH]

ARCAM Alpha 8 CD player + R/C £55 Tel: 020 8950 0658/email: michael.stewart5@ntlworld.com (S. Herts) [GH]

NAIM CD5, immaculate condition, light use only, boxed and complete with

all leads £450 Tel: 07976 407863/ email: w.phelps@ntlworld.com (Beckenham) [GH]

5. DACS

MUSICAL Fidelity KW DM-25 Dac, mint, boxed, bought new last year, little use, fantastic sounding DAC, valve and solid state Class A outputs, can be run simultaneously, cost £2000 sell £600 ono Tel: Darran 07876 705266 [FG]

MUSICAL Fidelity TriVista 21 DAC, new Nov 2004, MF serviced Jan 2008, perfect condition, email: effbee584@me.com for photos etc, offers over £600 plus courier costs [GH]

7. SPEAKERS

WILMSLOW Audio hand-built large floor standing classique loudspeakers, 910mm tall x 260mm wide x 300mm deep, to large after all my efforts for my room, as new £600, buyer will have to collect, 40kgs in weight Tel: Vic on 01372 456196 anytime [X]

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ATC SCM50 ASL Active towers in walnut, only 6 months old, absolutely mint, barely run in, Class A amps, amazing sound, superlative build, boxes etc. Cost £9500, sell £5500 ono Tel: Darran 07876 705266 [FG]

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SPENDOR S5e in black ash, excellent condition, boxed with all original packing, floor spikes, instructions etc. £700 or close offer contact Mike on 01424 753641 or email matthews.mike@btinternet.com for further information (East Sussex) [GH]

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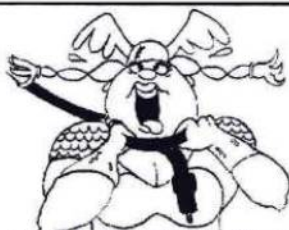
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Hi-Fi News magazine incorporates: Stereo, Tape & Tape Recorders,
Audio News, Record News, Audio Record Review, The Gramophone Record,
Which CD? and Music Business. Hi-Fi News is a
member of the Audit Bureau of Circulations (ABC)
and of EISA (www.eisa-awards.org)



Hi-Fi News is published on the first Friday of the
month preceding the cover date by IPC Inspire, part of the IPC Media Group.
It costs £4.00 per issue (£51.35 for 12 months) in the UK; £10.47 in
Europe; \$14.63 in North America; £9.61 for the rest of the world. Rates
are for annual delivery. See subscriptions order form on page 73 or call
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Distributed by Marketforce (UK) Ltd, The Blue Fin Building, 110 Southwark
Street, London SE1 0SU. Tel: 020 7633 3333. Typeset by CTT, London E17.
Printed in England by Southernprint, Unit 17-19, Upon Ind. Estate, Plover,
Dorset BH14 5SN. ISSN 1472-2569.

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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Two 'real world' buys with different outcomes provide **Ken Kessler** with food for thought...



Despite the privileges available to those who work in a given industry, eg trade discounts, some reviewers do behave like normal consumers from time to time. My sporadic forays into the real world are motivated by two things: convenience and a desire not to owe *quid pro quo* favours to manufacturers.

I was in Morrison's the other day and I saw an HDMI cable on sale for just £4.99. Gold-plated terminals, nicely made, 2m long – just right for another supermarket purchase that had been languishing because I was short of an HDMI cable. Rather than be an avaricious pig and acquire one for free from an accommodating cable maker, I figured that even I can spare a fin in these parlous times.

A BARGAIN...

Lo and behold! The cable worked as well as a £40 'high-end' wire! A quadruple result: instant satisfaction by not waiting for a freebie; the joy of finding a bargain; freedom from guilt; and discovering that bubble-pack items on sale at supermarkets occasionally deliver decent performance.

Less luck accompanied another venture into the real world. Why I did so will fill a future column; let's say that I am at an age where I wish to divest myself of accumulated detritus, one method being the transferral

of 2000 cassettes to a computer. Why? Because cassettes age badly, and mine contain material never commercially issued, such as live broadcasts.

Getting past other details to appear in that column, like realising that I hadn't even touched a cassette in nearly a decade, I thought about the available options. I still own a conventional tape deck, a playback-only Walkman and a Walkman Pro. Being criminally lazy, though, I chose not to find some software solution for transferring tapes, nor a means of plugging their analogue output into my PC, though I know the computer's soundcard has a 3.5mm stereo input.

Confession: I, too, succumb on occasion to offers in newspapers, although I know better. When it comes to consumer electronics, it's always crud, eg all-in-one music centres that play every format for £179. This was no exception, so it will remain anonymous. Suffice it to say, I re-learned a lesson I should never have ignored, and I am telling you this partly to caution you never to do the same, partly to remind you that the purchase I extolled in a previous column (in which a supermarket provided a honey of a Blu-ray player for £115) is the exception to the rule, and partly to debase myself for your own *schadenfreude* moment.

Regardless, I could not resist 'A Personal Cassette Player With USB Output And The

Requisite Software For £19.95!!!' Hell, I even bought two, hoping they would operate as described, but knowing that what would arrive would be a perfect example of plastic electronic swill with – optimistically – a 20-hour active life.

When they arrived, I was not disappointed because I received exactly what I expected: lumpy portables of dimensions common in 1986, plastic buttons that clunked like the controls on a Fisher-Price learning toy, the imagined stench of slave labour in Cambodia assembling the things in a 42°C climate. But if it would make the task painless, I figured, what the heck.

...AND A BUG

As advertised, the units came with a USB cable and a CD with the necessary software. It installed in mere seconds. So far, so unexpectedly good. Then the swill hit the fan: the program has a bug in it. It opens into a too-small window that cannot be re-sized, and half of the commands are therefore inaccessible. As luck would have it, one of those was among the most important: the Tools button which allows you to set up the thing in the first place for level, balance, etc.

Fudging as best I could – the website simply sent me a worse version of the same software – I managed to transfer enough of a tape to see if it even worked. It did, barely. A continual hum ensured that the music was unlistenable, the level was too low (reminding me that I needed the Tool button) and I couldn't assign track breaks needed for CD transfers.

As is well-known in this day and age, magazines are supposed to concentrate on positives. Life is miserable enough without columnists wailing and gnashing teeth about petrol prices and rail strikes and the rest. So, uncharacteristically, I shall end this on an 'up' note: at the very worst, the experience provided me with three benefits.

The first is that I learned again never to buy anything from a direct-selling newspaper advert. The second and third are two brand-new personal cassette players. Which will never be used... at least, not until my Walkman Pro dies. ☹

'I am telling you this partly to caution you never to do the same...'

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