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9 PAGES OF LETTERS - THE BEST WINS A PAIR OF KEF Q100 LOUDSPEAKERS! (UK ONLY)

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"Drums had real punch behind their sound and I felt the timing had much more cohesiveness ... the real delight was the Indigo. It offered insight and musicality and made listening to digital sources a far more involving experience" Tony Bolton



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Jon Myles, Martin Pipe



Whoops! We didn't manage to get our review of The Beatles in Mono LP box set into this issue – so I apologise to all those readers eager to find out about this new release.

You can read about the Abbey Road demo of these new albums in this issue, on page 25. OK, it isn't the same as an album review, but in there you'll see that the world consumes surprisingly large quantities of vinyl with a release like this – and it dwarfs production: there are not enough LP

stamping machines to cope.

The upshot is, review samples are secondary to meeting pre-order demand. I've been begging for ours and we have been assured a box set will arrive soon – but too late for this issue I'm sorry to say. The review will now – hopefully – appear in our next (October) issue. We have a special 'authentic' system ready and waiting for them, featuring Ortofon's dedicated 2M Mono SE cartridge and sparkly new Tannoy Kensington Gold Reference loudspeakers, whose dual-concentric predecessors were used in Abbey Road Studios at the time. So I hope you like it – when we can publish it!

We had more success with other planned items. Yamaha's new Soavo loudspeakers were eagerly awaited, because we loved their predecessors. Yamaha are a company dedicated to audio quality, graced by the pedigree of their historic piano division, and we all heard this in the new NS-F90Is reviewed on p10.

If you use headphones, you owe it to yourself to hear a valve headphone amplifier – and we review a great one on p22. It'll drive any phones, no matter how insensitive and exotic, and give that lovely big, spacious and liquid smooth sound only valves offer.

There's no whiff of the past in the Invicta Mirus DAC reviewed on p36. This is as hot as it gets in digital today – no fewer than two ESS Sabre32 DAC chips strapped for full performance lurk inside – and what a sound!

So the success of LP today defeated us, you could say – but perhaps that is no bad thing: vinyl will forever sound wonderful. There's still plenty in this sizzling September issue – I hope you enjoy it.

Noel Keywood,
Editor.



hi-fi world

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verdicts

●●●●● OUTSTANDING
●●●● EXCELLENT
●●● GOOD
●●● MEDITOCRE
● POOR
£ VALUE

amongst the best
extremely capable
worth auditioning
unremarkable
flawed
keenly priced

testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.



ELECTRONIC MAGAZINE

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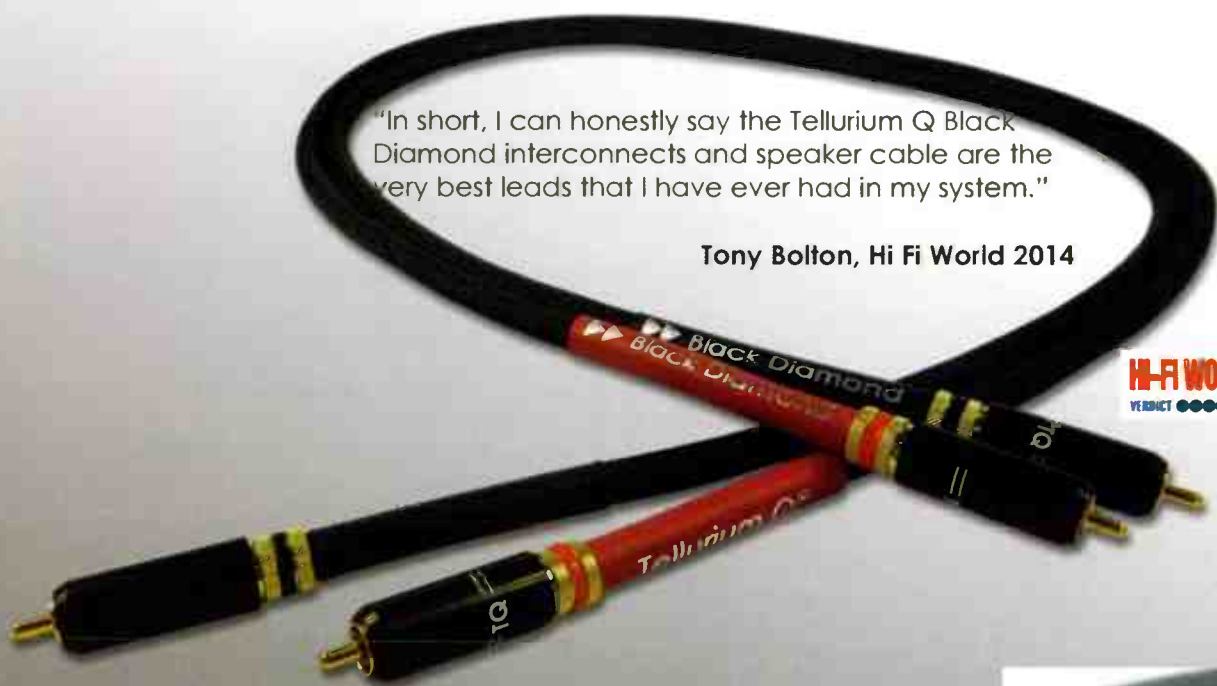


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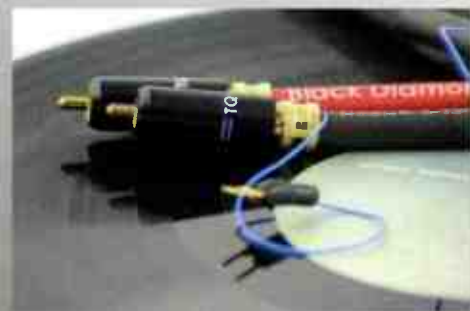
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"In short, I can honestly say the Tellurium Q Black Diamond interconnects and speaker cable are the very best leads that I have ever had in my system."

Tony Bolton, Hi Fi World 2014



HI-FI WORLD
VERDICT ●●●●●



HiFi Pig Review

"The top end was clearly beyond what the K2 [Audioquest] had to offer me and I was really trying to hear something that presented itself to me which would lead me to believe that it was a bit over the top, harsh and spitty but it just didn't happen. A true increase in perceived bandwidth was shining through with strings giving small nuances of reverbs that I hadn't heard so well articulated before"

"Nordost-with-substance"

The new Ultra Silver Dan Worth, Hifipig.com

Find out why more and more people are talking about Tellurium Q® products.

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news

NAD HAS SPOTS

NAD has introduced Spotify Connect to its M50 Digital Music Player.

While the focus of the M50 is on high-res audio listening, the addition of Spotify Connect allows music lovers the ability to playback millions of songs on the M50 using any iOS or Android device. NAD's M50 will offer Spotify Connect to Spotify Premium subscribers. Owners will need to upgrade their M50 Digital Music Player to software version 1.10.0 and download the updated iOS App v1.10.0 or Android App v1.10.0 to be able to experience Spotify Connect.

Click on www.nadelectronics.com for more information.



CHORD REFRESH

Chord Electronics is refreshing its Chordette range, replacing the QuteHD DAC with the QuteEX, a 384kHz PCM/DSD128 device compatible with today's high-resolution DXD (Digital eXtreme Definition) music files. The QuteEX is an upgraded version of Chord Electronics' QuteHD and has been available alongside the QuteHD since the EX's introduction in October, offering music lovers the option of decoding at up to 384kHz PCM and DSD128 over USB, against the QuteHD's 192kHz PCM and DSD64.

QuteHD models can be upgraded at the factory for £200 plus shipping, which represents the cost differential between the two products. Existing QuteHD owners should contact their local Chord retailer for further details.

Click on www.chordelectronics.co.uk or call 01622 721444 for more information.



KEF EAR TIPS

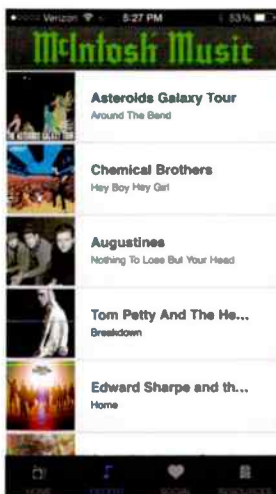
KEF has announced an improvement to its M200 in-ear headphones. The product will be packaged and sold with Comply ear-tips, improving fit, comfort, noise-isolation and performance. The material conforms more faithfully to the unique shape of the user's ear canal, creating a better seal. That means better noise isolation, as well as a more comfortable fit.

There is no price increase as a result of this improvement. Even better, existing users who have registered their product will be provided with the Comply ear-tips at no extra charge.

The M200s use unique 'DDD' (Dual Dynamic Driver) technology, a genuine two-way system – unusual within in-ear headphones at this price point. Each side contains a 10mm driver for the bass and a 5.5mm dynamic neodymium driver for midrange and high frequencies.

The M200s also utilise an adjustable Secure Arm that helps to keep them snug in the ear, and a rigid aluminium driver housing that eliminates unwanted vibrations and raises sound performance. Price for the earphones is £150.00

For more information click on www.kef.com or call 01622 672 261



MCINTOSH MUSIC

A new music stream designed for those who want to access music, direct to their PC, tablet or phone. The service is freely available either as a direct stream from the McIntosh Music website or via a free app for both Android and iOS devices.

Controlled via a stylised, McIntosh interface, complete with illuminated power output meters, the web version features a sliding volume control and pause/mute function, plus a number of additional functions, including links to the main McIntosh website and social media pages, a 'share' facility and scrolling track information, akin to an RDS display.

The apps add increased functionality including enhanced graphics, album artwork and direct links to Amazon, enabling users to directly purchase music featured on the service by simply tapping the album art.

McIntosh Music is freely available as a web stream or as an Android and iOS app.

Tel: 01202 911886 or click on www.jordanacoustics.co.uk for more information.

DEEZER AND DOLBY ON ONKYO

Onkyo has confirmed that it now offers direct access to the Deezer audio service on its new range of AV receivers. Deezer will be available on the new TX-NR535, TX-NR636, TX-NR737, TX-NR838, TX-NR1030, TX-NR3030 and PR-SC5030 models from Onkyo's 2014 range, as well as on future products.

Deezer is a music service that delivers a multi-local music experience to more than twenty-six million music fans worldwide. Available in more than thirty languages, Deezer gives access to a catalogue of 30 million tracks and allows each subscriber to build up his own library over time, enjoy personal music recommendations and listen to dedicated personalised and themed radio channels.

To use Deezer on their Onkyo receivers, users will just need an Internet connection and a Deezer+ Premium account. Subscribers will then be able to enjoy unlimited music via their home cinema system.

Onkyo has also announced that its upcoming TX-NR1030 and TX-NR3030 network A/V receivers, flagship PR-SC5530 Network A/V Controller, HT-S7705 and HT-S9705THX HTiB (Home Theatre in a Box) systems and SKS-HT678 and SKH-410 speaker packages will launch with Dolby Atmos.

The company will also release a firmware update later this year enabling Dolby Atmos on its mid-range TX-NR636, TX-NR737, and TX-NR838 network A/V receivers. Dolby Atmos has been developed to give the impression that sounds are coming from above you. It is not based on channels but audio objects such as a child yelling, a helicopter taking off or a car horn blaring. Phone **08712 001996** or click on www.onkyo.co.uk for more information.



ONKYO



PRIMARE REFERENCE 60

Primare has launched its 60 series pre/power amplification system. Designed and built in Sweden, the PRE60 is a pre-amplifier housed in an alloy steel chassis. It features an OLED display and incorporates balanced XLR inputs, four pairs of RCA inputs, RS232, trigger and IR inputs.

The PRE60's integrated DAC/media board offers streaming connections such as USB, iPad and LAN. The Primare App for iOS or Android is available to control functionality including input selection, volume and the browsing and selection of online and stored media.

The matching A60 is a fully balanced 250W UFPD power amplifier designed to provide high power output in a fully balanced configuration. Each channel incorporates unbalanced RCA and balanced Neutrik XLR inputs, as well as WBT Nextgen speaker terminals. Unbalanced input signals are converted to balanced signals by an integral conversion stage. Prices are: PRE60 preamplifier £6,500 and A60 power amplifier £6,500. Click on www.karma-av.co.uk or call **01423 358846** for more information.

CAD CABLE

Computer Audio Design has launched a new USB cable using proprietary technology. The cable uses a shielded independent cable for the power line designed to mitigate high-frequency noise from a computer's USB power interface.

CAD is so confident music lovers will enjoy the cable it is offering a 30-day no quibble money-back guarantee.

The CAD Cable is available now priced at £480 for the standard 1.1m length.

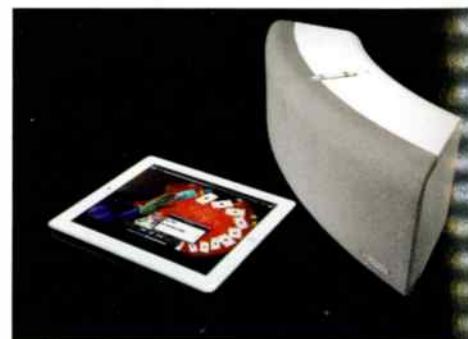
Call **0203 397 0334** or log-on to www.computeraudiodesign.com for more information.



MONITOR AUDIO SOUNDBAR DROP

Now priced at £800 (down from £1,000) and with a comprehensive firmware upgrade, the ASB-2 soundbar accompanies the Airstream S300, which has also experienced a price drop to £250 from £350.

Click on www.monitoraudio.co.uk for more information.



ADL EARPHONES

The new Alpha Design Labs (ADL) EH-008 earphones feature dual dynamic drivers, treated with Furutech's Alpha process (a cryogenic and ring demagnetisation treatment). An 8mm low-to-mid frequency driver is positioned in a bass chamber located directly behind a high-frequency titanium film driver, delivering phase-correct output to the ears. The inner and outer housings of the EH-008 are designed for driver stabilisation while the outer ring seals improve sound isolation.

The chassis features diamond-cut aluminum end plates and carbon fibre enclosures. Price is £175.

Call **0118 981 4238** or click on www.soundfoundations.co.uk for more information.

ATLAS HYPER INTEGRA

Atlas Cables has announced the latest addition to its mid-priced analogue interconnect Hyper range: the Hyper Integra. Handmade at the Atlas Cables factory in Scotland, the new cable introduces Atlas' in-house Integra RCA plugs to its Hyper range for the first time.

The Atlas Hyper Integra consists of a central conductor made up of 90 individual strands of OCC copper wire with 99.9997% purity. Insulated by an extremely low-loss foamed polyethylene dielectric, the return conductor is a two-layer braid made from a total of 252 strands of Ultra-Pure OFC (Oxygen Free Copper). This double layer of tightly woven wire mesh is wrapped over a PVC foil to provide 100% rejection of RFI.

The Atlas Cable Hyper Integra is available now in the following lengths: 0.5m, £105; 0.75m, £115; 1m, £125; 1.5m, £145; 2m, £165 & 3m, £205.

Call 01563 572666 or click on www.atlascables.com for more information.



NEW NEO & NOMAD

Distributor Renaissance Audio has announced two new products for its product portfolio. The Moon Neo 430HA is a headphone amplifier with an optional DAC included.

A fully balanced amplifier, it includes an output stage using a discrete transconductance circuit topology, selectable gain setting (14dB or 20dB), an oversized power supply and a defeatable analogue crossfade circuit. Rated at 667mW at 600 ohms and 8W at 50 Ohms, The optional DSD256 and 32bit, PCM capable DAC can be used with virtually any digital source such as a computer for streaming music, satellite TV receiver or Blu-ray player. Price is to be announced. Also coming is a new turntable from VPI. The Nomad is an entry level package that comes complete with a headphone amplifier, phono stage and pre-mounted Ortofon 2M Red cartridge. Price is £795. Call 0131 555 3922 or log-on to www.renaissanceaudio.com for more information.



HEAD: FROM OLD TO NEW

Martin Pipe is of course no stranger to these pages. He is now offering to put his collection of obscure formats, some of which have been featured in *Olde Worlde*, to good practical use. He invites you to get in touch if you have any dusty old media you want transferred, with the painstaking attention to detail of an audiophile, to CDs/DVDs or digital files. Among his capabilities are many consumer and professional audio, film and videotape systems. Martin can also affordably undertake the conversion of vinyl/78, DVD/laserdisc and CD collections to digital files - ideal for those migrating their music and film collections to today's servers and personal players. More information is available on www.tekktalk.co.uk - contact him directly on 07802 200660 or tekktalkuk@virginmedia.com with your requirements.



DAMSON HEADBONES

Damson has announced Headbones. The design creates sound by sending vibrations through the temporal bone straight to the inner ear, without blocking the ear canals. This means that the potential dangers of wearing headphones while cycling, skiing, snowboarding, skateboarding, running or crossing the road are eliminated, as the wearer can still hear the surrounding environment.

It also arrives in a limited edition carbon fibre finish. Headbones utilises Damson's Incisor Diffusion Technology (IDT), also found on the Twist and Jet wireless speakers.

Damson Headbones are compatible with any Bluetooth-enabled device and users can expect up to ten hours of music from a single charge. Price should be £99.

For more information click on www.damsonaudio.com.

ADIDAS ORIGINALS BY MONSTER

Already available in both over-ear and in-ear flavours, the over-ear model launched in three classic colours: black, white and blue. This month, three additional colours hit the streets: yellow and green over black, white and red over white and blue and red over white. Nicknamed 'country colours', these limited-edition colour combinations pay homage to the national football team colours of Brazil, England and France.

Monster has struck an exclusive deal with John Lewis to retail the Brazil, England and France-inspired over-ear headphones in the UK. Only 2,000 of each have been produced worldwide. Price is £219.95.

Click on www.johnlewis.com for more information.



Piano Forte

Noel Keywood is beguiled by a beautiful-looking new floorstanding speaker from Yamaha.



So stereo loudspeakers are ugly boxes that blight the living room. If that's a view you've heard from - or - other members of the family, then harmony and even happiness might be improved by Yamaha's lovely NS-F901 loudspeakers, priced at £2999. "The cabinets have Yamaha's signature piano black finish and are designed by Toshiyuki Kita, whose work is featured in the permanent collections of museums all over the world, including the Museum of Modern Art in New York and Centre Georges Pompidou in Paris," Yamaha tell us.

Brushed aluminium trims and white driver cones contrast well with the deep gloss black lacquer finish of the NS-F901s to give the eye a treat. OK, they are still big loudspeakers but they do have a classy air about them, making a clear statement of quality. It isn't one subverted by reality either: the NS-F901s feel beautifully made in the flesh.

At 30.5kgs the NS-F901s are heavy, but not cripplingly so. Internal bracing aids cabinet strength and rigidity to the 106cm high cabinets (when on their spikes). That figure puts them in the popular 1m high floorstander category, which these days an overwhelmingly large number of loudspeakers occupy, so the Yamaha's fit in with the crowd.

The cabinets have non-parallel sides to lessen discrete resonances, as well as slanted internal baffles and braces for the same reason; symmetry is not wanted in loudspeaker cabinets because it promotes discrete resonances, or so popular supposition has it. In practice I have found when designing loudspeaker cabinet chambers it isn't so simple; chambers have discrete resonances no matter how weird you make 'em, but their Q is usually

reduced, measurement shows, so asymmetry does help, if not for reasons commonly quoted.

Two 61/2in bass units can be seen at the bottom of the vertical drive unit array. Above sits a 5in midrange driver with a shallow cone; at top sits a 1in aluminium dome tweeter. Yamaha's bass and midrange units use polymer injected mica diaphragms, hence their whiteness. They are extremely light, Yamaha say, and are rigid and stable for smoothness, a very fast response and good dispersion. The frames are made from rigid die-cast aluminium and the magnet of the midrange is a powerful neodymium type, able to concentrate flux around the small, light voice coil. The bass units are of similar construction but use larger ferrite magnets.

The two bass units are reflex loaded by a large front facing port. This may look good, directing low bass to the audience it would appear, but generally it is avoided because box colourations are also directed to the audience; it is after all simply a large hole in the cabinet (in which air resonates). Bass wavelengths at the port frequency are no less than 30-40ft, far larger than the cabinet's dimensions so where the port is placed, front or rear, is acoustically unimportant - and that's why ports are usually rear mounted.

The plinth at the base of the cabinet is only that; there is no hidden port. Height-adjustable feet are fitted as standard, and spikes are supplied as options. Rear connection panels carry large, gold-plated screw terminals that accept bare wires, spade terminals (USA) or 4mm banana plugs (Europe). Bi-wire links are fitted and must be removed if bi-wiring is to be used. The piano gloss finish of the cabinets extends all the way around to include the rear panel, a nice point.

SOUND QUALITY

As always the NS-F901s were run in heavily, using pink noise, then music, then a Monitor Audio De-tox/run-in CD. We took them to 60 hours before listening, which is plenty enough for most loudspeakers, and sounded right in this case - they lost a light midrange patina and developed a sense of depth. Speakers with Kevlar cones and diamond domes need 200 hours and Tannoy Westminster Royal SEs need 8 months whilst the woods settle, I am told!

The drive system comprised Quad QMP monoblocks, driven by a Mirus Invicta DAC (reviewed this issue), fed by an Astell&Kern AK120 acting as a digital transport, playing CD and high-resolution digital up to 24/192. Also feeding the Quads directly was an Icon Audio PS3 valve phono stage (it has a volume control) hooked up to a Timestep-tuned Technics SL-1210 MkII Direct Drive turntable with SME309 arm and



Ortofon Cadenza Bronze moving coil cartridge.

Moving up and down in front of the speakers confirmed that they focussed properly low down, as measurement had suggested, imposing a low optimal seating height. I had to remove the rear feet and unscrew the front feet to their limit to tilt the cabinets back to correct this, and still a little more backward tilt was required - so ideally the legs need to be longer. I sat reasonably low, ear height 100cms, 350cms away (11.5ft) in our 25ft long listening room.

Appropriately, I really 'got'

these loudspeakers when listening to Benjamin Grosvenor playing (superbly) 'Chopin's Nocturne No5' (24/96). His piano sounded wonderfully pure, the notes having a lovely fresh and elaborate character to them that came from the instrument rather than the loudspeaker, I felt.

And they drifted outward nicely at me with no hint of being anchored to the cabinet, such unfettered purity being a sign of low colouration. I rather suspected someone from Yamaha's famous piano division had sat in on the voicing of the NS-F901s when listening to this. If you want a loudspeaker that captures the sound of a great piano, these are the ones.

This gorgeous performance immediately placed the Yamaha's in a particular mould: they are an academically refined and extremely well considered loudspeaker, I learnt from this and other performances.

So on to John Coltrane playing 'It's Easy to Remember' (24/96), a laid-back performance that moves at a slow gait with Coltrane's saxophone sounding richly metallic and smooth as it drifted from the left loudspeaker (piano occupies centre stage in this piece), the final drum roll delivered powerfully by the right loudspeaker. The Yamaha's delivered this remaining clean and composed and spry; they are not heavy or wallowy or boxy, but very nimble.

With Diana Krall's 'Narrow Daylight' (24/96) I realised the Yamahas are deeply insightful, teasing out every little whisper of breath from Diana Krall at the microphone. The final guitar solo cut out with tremendous speed, and the strings were vibrant and had sonic texture; they were palpably alive and forceful too, yet there was no laceration, no sting and no hardness; the tweeter sounds sweet. Meanwhile the prominent bass line was nicely supported, although there was a smidgen of box thrum here.

Tom Petty belted out 'Refugee' (24/96) with pace and vigour and again I heard every nuance of his vocal inflexions; the Yamahas again showed themselves to be extremely revealing. Here I detected a hint of forwardness, or lifting of detail; the Yamahas are not backward in coming forward, but their projection is subtle. There was plenty of space around Petty - and drums lay a few paces behind him; a sense of depth was apparent. Drums and bass were firm and fast, clean too, with a slight



HEAR LIKE A PRO

'These are supremely musical mini-monitors with astounding bass punch and rhythmic ability allied to class-leading resolution.'

Hi-Fi World, July 2013



LS50

To celebrate 50 years of groundbreaking innovation, our LS50 mini monitor applies KEF's latest acoustic technologies from Blade and beyond to deliver the uncompromised sonic purity, accuracy and transparency we originally pioneered with the legendary LS3/5a professional studio monitor for the BBC. The good news is that you no longer have to be a sound engineer to enjoy the startling illusion of presence it creates.

www.kef.com/LS50



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INNOVATORS IN SOUND

GP Acoustics (UK) Limited, Eccleston Road, Tovil, Maidstone, Kent, ME15 6QR, UK T. +44 (0)1622 672261

boom from the box, through the port, evident at times, but subsonics are muted, this keeping the speakers sounding tight and fast. This particular track commonly sounds a little harsh but the NS-F901s sounded almost magically clean and pure again, a very welcome feature.

Spinning Phil Collins singing 'I Don't Care Anymore' (180gm audiophile pressed LP), initially with an Ortofon 2M Black MM cartridge had the man sounding light in character, drums fast but lacking body and the soundstage a tad flat in perspective. Going back to our usual Cadenza Bronze largely corrected all these factors, showing how critical the Yamahas could be. They are very revealing and have strong upper midrange projection, so a preceding system without these traits is needed to achieve balance. Where I used the Mirus Invicta with the ESS Sabre's Slow filter engaged to ensure smoothest digital, with LP I had to use a quality moving coil; MMs won't

Moving on to a modern, well-balanced recording on 200gm audiophile vinyl, Kate Bush singing 'King of the Mountain', the strong reggae bass line rolled out fluidly whilst La Bush trilled clearly centre stage, every word sharply outlined and obvious. As the organ on 'Pi'

drifted out, the sheer tidiness and sophistication of these speakers made itself obvious. They're a little over-revealing for older recordings perhaps, but with modern material that has a natural balance and is well recorded, they fly.

CONCLUSION

Think of the NS-F901s as highly crafted loudspeakers that offer a sound characterised by poise and sophistication.

They are smooth yet very insightful, pushing vocals and instruments out to listeners. Having neither excessive bass or treble, minimal colouration, but quite a forceful air, they were dynamically lively and engaging to hear. Classical listeners in particular will love their poise and refinement, but they played rock well too. The NS-F901s are true sophisticates, reflecting the pedigree of their manufacturers, Yamaha, who are also famous for their piano division.



do (the 2M Black is a bit shiny up top).

With Mark Knopfler's 'True Love Will Never Fade', from 'Kill To Get Crimson' (an audiophile pressing) I could hear every little detail of his finger work on the guitar's strings and there was again a lovely sweet quality to treble. This track, that I use a lot for review work because it is so well recorded and pressed, confirmed that the NS-901s push vocals forward, due to their strong upper midrange. They lack the slight softness common in so many speakers, imposed by their crossover dip. This helps explain their tremendous detailing and insight but I knew that if I span 'Please Please Me' (1963) it would be overly analysed - and this was the case.

MEASURED PERFORMANCE

Our frequency response analysis shows a nice even result right across the audio band, with a small amount of lift around 6kHz, enough to add just a fraction of 'light' onto the sound, without obvious brightness. There is absolutely no sign of any crossover dip around 3kHz that can soften the sound, and detail delivery will be strong. This was an optimum result, with our measuring microphone on the axis of the top bass midrange unit. Moving it up or down introduced phase dips, suggesting phase alignment of the drivers wasn't perfect - a surprise considering Yamaha's technical ability and high technical standards. This was

attributable to wide driver spacing, a styling imposition; high frequency drivers need to be very close, less than half a wavelength.

Bass extends down to 50Hz, a port frequency of 34Hz working to support lower bass output. The NS-F901 goes low and should deliver firm deep bass, these results suggest. Because there is no bass peaking, quality will be good and balance accurate.

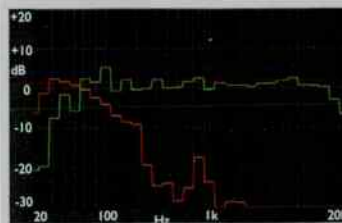
Sensitivity was very high, measuring a good 90dB sound pressure level from one nominal Watt (2.8V) of input - and with a measured impedance of 7 Ohms overall this was a real Watt, meaning the Yamaha's are efficient. They need little power to go loud, 40 Watts being plenty enough for high volume. The impedance curve is normal enough, with twin residual and reactive peaks around port resonance that these days are commonly tuned out, a trick Yamaha have missed.

A 200ms decay analysis showed the speakers to be clean across midband and treble, but suffering box overhangs below 200Hz that correlate with bumps in our frequency response analysis. The box is quite lively, a decay map showing it is relatively 'hot' in the bass regions, likely to add fullness at least to bass.

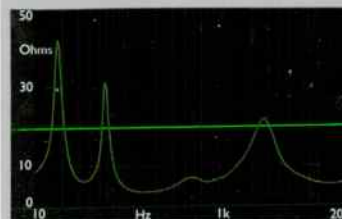
The NS-F901 measured well, if with minor flaws. It is, all the same, accurate, has low coloration and is very sensitive, all properties that will ensure a high standard of sound quality. **NK**

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



YAMAHA NS-F901
£2999



OUTSTANDING - amongst the best.

VERDICT

A beautifully built and finished loudspeaker with a sophisticated sound. Exudes quality in every area.

FOR

- smooth, clear and accurate
- highly insightful
- rich cabinet finish

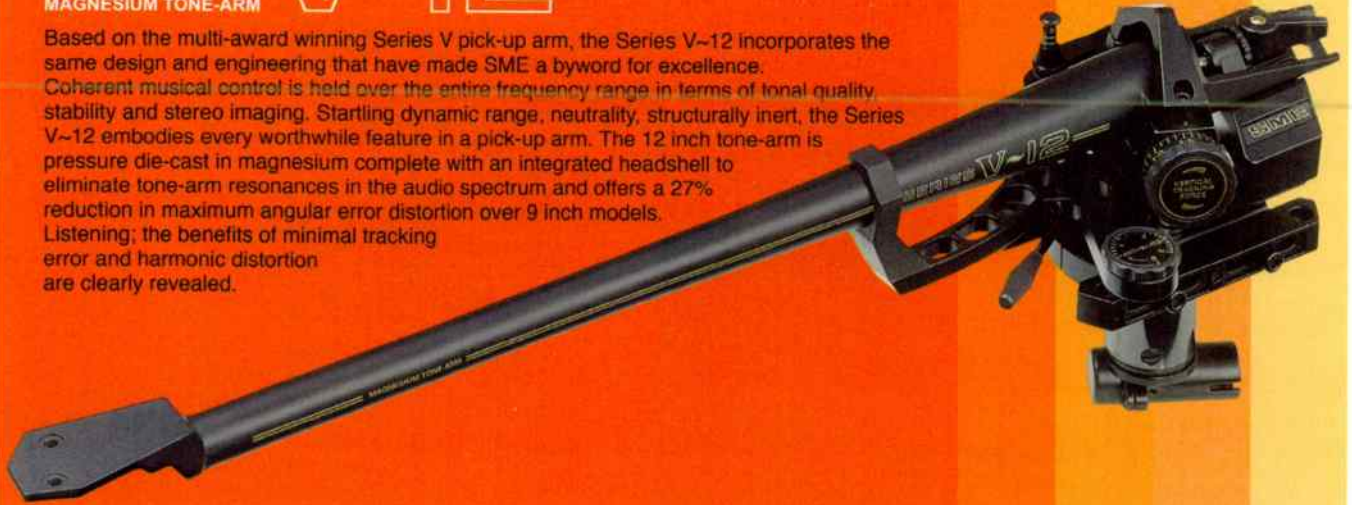
AGAINST

- inadequate tilt adjustment
- forward upper midband
- occasional bass bloom

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Halo effect



Martin Pipe rediscovers his CD collection with Parasound's state-of-the-art CD1 player

The 1980s icon that is the Compact Disc may be slowly disappearing into Vintage Format Heaven, but most of us - even those who listen mostly to vinyl - will probably have large collections of these round silvery things. After all, a huge variety of music spanning three decades was never released in any other worthwhile format. It was thus a case of 'CD or nothing'.

Given how much material there is on CD, though, it makes sense to build a player capable of extracting every last ounce of performance from the format.

Which brings us to the Parasound Halo CD1, a collaboration between a US brand that has hitherto made little impact in the UK and a Danish high-end company known as Holm Acoustics. A look at Holm's website (www.holmacoustics.com) demonstrates that the company's expertise is in the DSP arena; an impulse/frequency response measurement freeware for a

Windows PC (equipped with suitable microphone) can be downloaded that can analyse the acoustics of a listening room.

At over 8kg the CD1 is as heavy as some amps! Build quality is massive and the chassis rigid. It's also beautifully-finished, and the blue-backlit front panel is crowned by a comprehensive alphanumeric fluorescent display.

Around the back are a goodly selection of outputs - balanced/unbalanced analogue audio, plus optical and coaxial digital. Parasound has resisted the temptation to include the USB port or digital inputs that would enable its player to double as a DAC. No, the CD1 is one of a fast-disappearing breed - a CD player, the purpose of which is to...play CDs. No DVDs, SACDs, computer audio, downloads, MP3s or kitchen-sinks here. Parasound and Holm have instead concentrated on making the best CD player their joint technology allows.

No conventional trays here; the

mechanism is slot-loading, smooth in operation - and yet oddly familiar. Hmm. I've come across that sound and feel before...in one of my computers.

So let's take a peek inside the machine. The CD1 has at its heart an Intel D425KT mini-motherboard. Then there's a 2GB memory module and under that lurks a 1.8GHz Intel Atom D425 microprocessor.

The aforementioned slot-loading optical drive (which is compatible with finalised CD-Rs and CD-RWs as well as CDs) connects to the motherboard via a SATA cable. You wouldn't know it from the outside, but the hardware features of a typical PC motherboard are present. Its Ethernet jack and VGA (monitor) connector are unused, as are all of the USB ports bar the ones that link to Parasound's proprietary electronics and load the player's Linux-based operating software ('firmware') at startup from a bracketed USB thumbdrive.

Yup, this player has to 'boot'

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The Unique Stereo 40 MK III KT88m

Our best ever mid-range amplifier!



HI-FI WORLD said:

VERDICT ●●●●●
 The third generation Stereo 40 brings focus and scale to a perennial entry level valve integrated favourite. An excellent budget buy.

*Free KT88 Upgrade**



Low Distortion Tertiary wound transformers

designed by David Shaw

Shown with upgraded Treasure CV181s and Full Music TJ 6SL7, Jensen copper foil in paper and oil capacitors Plexiglas valve cover included

Probably the best value valve amplifier in the world. just look at these features:

Tertiary Wound Transformers

Ordinary output transformers only have the audio signal going through them once, our Tertiary winding allows the audio signal to go through the transformer a second time allowing much of the distortion to be cancelled out without use of high overall feedback.

Valve Rectifier and choke

The heart of a good valve amp is its power supply, only a valve rectifier and smoothing choke can deliver the constant current needed without the constant "switching spikes" of a "capacitor only" power supply.

Ultralinear/Triode switch

Most (but not all!) music lovers prefer the sound of Triode but the penalty is always lower power, with the Stereo 40 you have both options at the throw of a switch allowing you to choose depending upon your mood, music and speakers. 40+40w UL, 20+20w Triode.

Tape Record Loop

This facility allows the connection of home cinema systems, recording devices and equalisers to give greater flexibility.

Gain, Feedback and Damping

The complex relationship between amplifier and speakers means that less than the best results are not always achieved, a rear switch allows you to choose the optimum feedback and speaker damping for speakers and room. Naturally we include both 4 and 8 ohms output.

Easy Bias Meter

Not even "matched" valves are identical, the only way to be sure of the correct setting is to measure it! And adjust if necessary using the built in meter. This way you can be certain that you getting the best performance throughout the life of each and every valve. Will also indicate "end of life" and failure.

Tube Rolling

The Stereo 40 is designed to work with all the popular valves in the EL34, KT88 6L6, 5881, 6CA7, KT66, KT77, 6550, family to give you maximum flexibility.

6SN7 and 6SL7 Driver Valves

More expensive but worth it! These older designs have a long reputation for sounding more musical than their miniature cousins.

Choosing any Hi Fi component never easy. The Stereo 40 gives you a huge range of possibilities making it the most flexible solution for anyone looking for a high quality valve amplifier. Icon Audio have one of the biggest and most respected ranges of amplifiers from our 1w IIP8 to our 150w MB150. See our website for more.

All of our amplifiers are designed and finished in Leicester they are commissioned and serviced by the people that designed them so you can be sure of our quality control and long term performance. All our amplifiers are hand made using "point to point" soldering without using printed circuit boards. We are convinced this sounds better. It also allows for easy servicing, upgrades and modifications and long life. Remote controlled volume is useful for fine tuning your listening level to match your taste. High quality components are used throughout including an "ALPS" volume control, silver plated PTFE audio cable SCR capacitors audiophile resistors. Power Amplifier operation is possible. In short we have created an amplifier of excellent flexibility and quality which retains the qualities of traditional design and performance.

*Either upgrade EL34 valves to KT88, or upgrade std KT88s to "Treasure" type free of charge. Limited offer whilst stocks last. Applies to UK only.

All our amplifiers are made in kit form in our own Asian factory and hand finished in Leicester UK. No one else makes amplifiers for us. We do not make amplifiers for anyone else.

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World Radio History

- and although the process is much faster than the average PC at under 30 seconds, thanks to Parasound's use of solid-state memory rather than a hard disk, it makes the average CD player look like a speed demon.

There is, of course, much more to the CDI, and this is evident from the neat and highly-compartmentalised interior layout.

The aforementioned Parasound electronics consist of the DAC (built around a single Analog Devices AD1853 chip) and the circuitry that drive the display and accept user commands from the IR handset or front-panel controls. The PC part is powered by a switch-mode supply, but the audio electronics are served by a linear power supply based around an R-core transformer. All of these different sections are separated by large chunks of aluminium plate to prevent them from interfering with each other.

Hardly surprisingly, the CDI works differently to the average CD player. The optical drive reads data off the disc multiple times. Two reads of each sector are compared, and if the results are identical the data is passed to the buffer. If the two reads don't match then there's a bit-error somewhere and more reads are tried. If errors are still encountered before the buffer empties, a 'last resort' option is used. The player's software isolates the bad fragment, and 'recreates' it via a proprietary interpolation process. Traditional CD players can't do this because they decode the data as it comes off the disc, before converting the recovered digital audio into analogue.

The Parasound/Holm approach is designed to be bit-perfect if at all possible. It thus keeps audible errors to a minimum and all but banishes the effects of jitter. This clean data is passed from the motherboard to the DAC via an asynchronous USB interface that is clocked by an ultra-high precision voltage-controlled crystal oscillator. Holm specified the established AD1853 delta-sigma 24-bit DAC for its 'neutral, highly-resolving but still warm sound'.

Here, an 8x oversampling process is employed to deliver a smooth aliasing-free analogue output. A single stereo DAC is used not, apparently, to save money with simpler circuitry but to minimise the inter-DAC delays of multiple-DAC arrangements.

In the analogue sections Parasound employs National Semiconductor LME49990 op-amps.



Internally, the CDI looks quite different to the average CD player. Amidships, you can see an Intel computer motherboard (aft) and a SATA-interfaced CD/DVD-ROM (forward). Parasound's custom audio circuitry, which interfaces to the motherboard via USB, can be seen top-right. Note how the interior has been divided into sections using heavy-gauge aluminum plate.

There is, however, an alternative output stage built from discrete components based on the circuitry of Parasound's 20-bit D/AC2000. A switch on the front panel toggles between this and the op-amp derived output.

Buckley's extraordinary vocal range comes across well, and there's incredible resolution of detail from his stringed instruments. When his band gets into full flow, the various musical strands and their textures remain individually-identifiable in a

"this is a very well thought-out player that will breathe new life into CD"

Another remote-only switch inverts the phase of the analogue outputs, which may be of some use if recordings were made incorrectly or inversion has taken place somewhere along your amplification chain.

No provision has been made for headphones or volume adjustment.

PERFORMANCE

The CDI was partnered with a Roksan K2 BT integrated amp driving a pair of Acoustic Energy AE109 speakers.

First into the CDI's slot was Jeff Buckley's haunting masterpiece 'Grace'. Suffice to say the Parasound CDI managed to bring back to life a much-missed musician in dramatic fashion. Listening to tracks like 'Lover You Should Have Come Over' and 'Mojo Pin' I could almost sense his presence in the room, such is the transparency on offer.

soundstage that's rock-solid.

On lesser players, this disc sounds recessed and far less emotionally-involving; that the CDI is able to coax so much out of the music is a testament to its underlying technology and design.

An excellent performance of Ralph Vaughan-Williams' 'Fantasia on A Theme' by Thomas Tallis, part of an exceptional-value 30-disc collection of the quintessentially- English composer's music, was bestowed with a pleasantly-balanced string tone. However, this archive recording (1968) was spoilt by tape hiss and the attendant roughness during the quieter moments; like most players at this level, the CDI will lay bare any inadequacies.

The early summer's cycling fever having put me in the mood, I dug out my copy of Kraftwerk's 'Tour de France Soundtracks' CD. Sadly,

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* On compliant devices.



No digital inputs or USB ports - the CD1 is built for CD replay alone. In addition to balanced and unbalanced analogue outputs are optical and electrical S/PDIF digital outputs, so you can feed the minimal-error digital audio to the high-end DAC of your choice.

it wouldn't play - but there's a good reason for this. This disc features copy protection, which makes it incompatible with computer-type disc drives. Referring to the Parasound manual, I found a note to the effect that such CDs can't be played.

But my desire to listen to music of this type remained untainted. When digging around for media to check disc-compatibility, I came across a dusty CD-RW that contained 'headline (mix) sets' broadcast by the BBC's Mary Anne Hobbs on her late-night Radio 1 Breezeblock show. They were captured as broadcasts by a Philips CD recorder from a DAB tuner's digital output at the turn of the millennium; at that time, Radio 1 employed a DAB bit-rate of 192kbps and kept audio compression to a minimum. Radio 1 hadn't sounded so good before - and arguably hasn't since.

One of these mix sets was by Two Lone Swordsmen, comprising British house DJ/producer Andrew Weatherall and studio engineer Keith Tenniswood. It contained a lot of techno and electro, and was done justice to by the CD1. Fast-paced electronic rhythms were delivered with impeccable timing, verve and attack. Deep synthesised basslines got the articulate heft they needed while analogue synths, a key contributor of melody, retained their organic texture. In short, a compelling treatment that relays the excitement of such music.

Similarly, Rage Against The Machine's 'Evil Empire' - a politically-charged fusion of rap and hard-rock - exhilarates with its high-octane riffage, feedback and vocal aggression, yet the subtleties aren't ignored (as evidenced by the acoustic guitar-driven 'Beautiful World'). I switched between the op-amp and discrete output stages and, to tell the truth, I couldn't sense an awful lot of difference between the two across

a host of different musical genres. Splitting hairs, though, I'd say that the discrete setting was maybe a tad more revealing.

CONCLUSION

On the whole, this is a very well thought-out player that will breathe new life into CD collections.

There's an absence of the fatigue that plagued CD in its early days, a broad frequency response and

plenty of dynamics coupled with a neutral character. It also has some nice usage touches - it will play a disc on insertion, and spit it out when switched to standby. The fact that the item of hardware most likely to fail - the optical drive - is a standard PC item should help to keep the cost of repairs down.

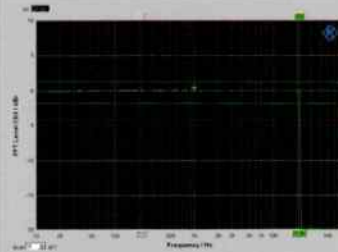
But most importantly of all, it has an innate musical quality. Slip in a CD, sit back and enjoy the music.

MEASURED PERFORMANCE

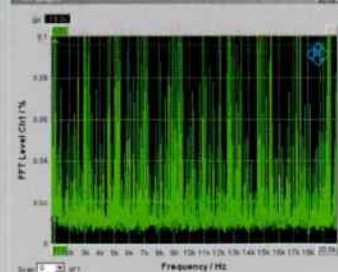
The Parasound CD1 possesses ruler flat frequency response to 21kHz our analysis shows, like most CD players, with strong stop-band attenuation. This result remained unchanged with Discrete or Op-amp output selected. It means the player is fundamentally accurate, and not equipped with unusual (e.g. slow) filtering.

Distortion levels were as expected from a good CD player, peak level (0dB)

FREQUENCY RESPONSE



DISTORTION, -60dB



measuring a low 0.0006% and -60dB 0.24%, again with no change between the output amps. EIAJ Dynamic Range measured a conventional 100dB, again about the norm for CD. Some players manage a tad more, up to 102dB, but CD performance is dominated by 16bit quantisation noise so all this is as expected. Because of the limitations of 16bit it isn't possible to get any better.

The unbalanced analogue phono socket output delivered 2V and the XLR output 4V. Unusually, the latter gave no better results than the former, and this appeared to be due to the unusual circuit internal circuit arrangement used. Also peculiar was the fact that the Op amp and Discrete output stages gave identical output voltages, as well as identical distortion patterns. Parasound say the Discrete stage lies in the feedback loop of the Op amp stage, which would suggest they are in truth heavily linked and inter-dependent.

The CD1 produced a conventional measured result for CD. NK

Frequency response (-1dB)	4Hz-21.4kHz
CD	
Distortion	%
0dB	0.0006
-60dB	0.24
Separation (1kHz)	112dB
Noise (IEC A)	-109dB
Dynamic range (EIAJ)	100dB
Output (phono / XLR)	2V / 4V

HALO CD1 £4,699



OUTSTANDING - amongst the best

VERDICT

Delivers a musically-satisfying performance from CD

FOR

- fatigue-free listening
- cutting-edge disc-reading technology
- fast, evenly-balanced and detailed

AGAINST

- Red Book audio CDs only
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- ruthlessly exposes deficient recordings

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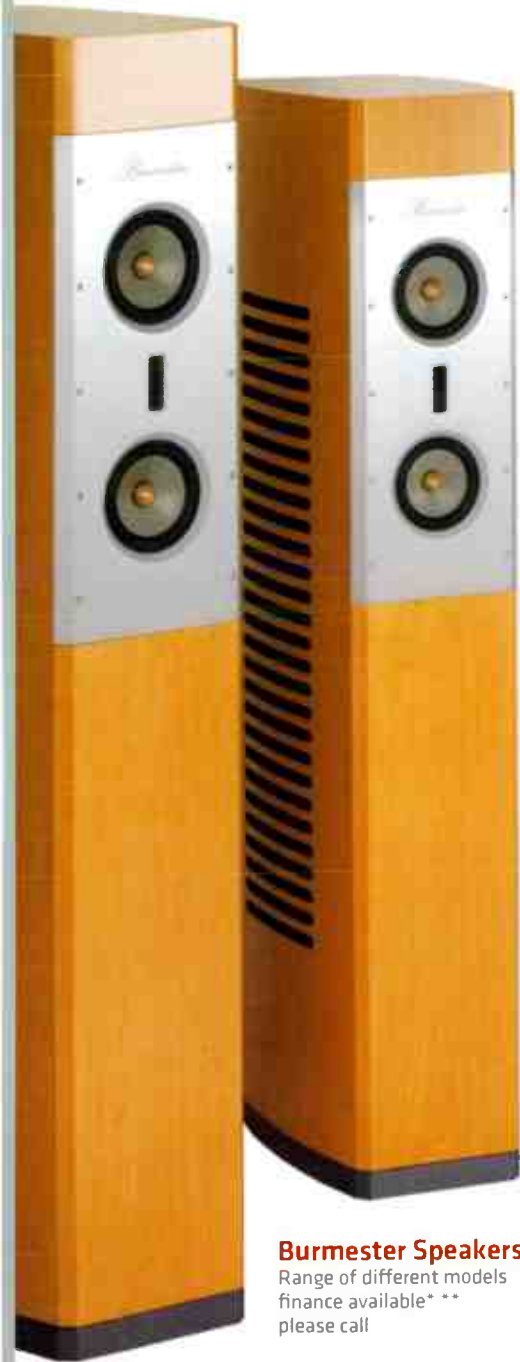
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World Beater

Tony Bolton finds himself seduced by the World Designs HD3S valve-powered single-ended headphone amplifier.

Building your own hi-fi from a kit is a hobby that has declined as the complexity of some components, such as CD players, renders them inappropriate for DIY construction, and the cost of pre-built products, relative to disposable incomes, has come down. However, for the enthusiast who likes creating his own equipment World Designs offers a range of products from phonostages and amplifiers through to the HD3S Headphone Amplifier under discussion here.

Unlike the majority of solid state headphone amps that I have listened to recently, this one has no in-built DAC or other extras. Also unlike them, it uses output matching transformers to feed headphones and is fitted with a volume control. Priced at £499 for the kit, or £659 for a pre-built version as used in this review, HD3S is the latest version of the World Designs headphone amplifier. It features an aluminium case in place of the steel of the previous model. It is also equipped with internal dip switches to select output impedance, to match a wide variety of headphones.

The single ended circuit design uses two ECL 83 triode-pentode valves (one per channel). A large

toroidal transformer supplies the power and two E/I output transformers drive any load from 16 Ohms to over 300 Ohms depending upon how the dip switches are set. Volume is set by an ALPS Blue Velvet potentiometer.

The fit and finish of the casework (measuring a compact 220 x 310 x 85mm; w/d/h) is excellent with touches, such as the precisely engraved World Designs logo and the heavily chromed volume control knob, ensuring that this product looks considerably more expensive than even its pre-built price tag would have you believe.

A lot of different brands of valves were listened to during the development of this component and original Mullard tubes were chosen for their sonic capabilities. Purchasers are, of course, free to change these for other brands. And with prices starting at around £15 each, valve rolling to fine tune the sound to your preference is an easily accomplished and affordable exercise.

The back of the case is only marginally more populated than the front with the mains IEC input and power switch on the right and two pairs of RCA phono sockets for the signal in and out situated in the middle of the panel. An earth

terminal is fitted to allow separate grounding should hum be a problem.

I set the HD3S up on the downstairs system fed by the Tucana II amplifier and also tried it plugged directly into the outputs of my Agena phonostage. Listening came via a pair of ADL HI 18 headphones. Apart from the music mentioned on the next page I also listened to both the TV and FM radio through it where I was impressed with the amp's ability to create a sensation of a three-dimensional field of sound around my head, making the afternoon play on Radio 4 a thoroughly immersive experience.

Listening through headphones allows an almost forensic analysis of the sound and even with records that I know very well, such as the 'High Society' sound track, I found myself appreciating micro-details in Louis Armstrong's playing during the 'High Society Calypso'. Although this is a mono record, the sense of space between and around the artists was well-described and the details of the tonality of the various instruments excellent. This combined with a good grasp of the Latin rhythm made for a thoroughly enjoyable listening experience.

I was particularly impressed with the bass performance and explored



this further with a recording of Widor's 'Toccatà' played on the Exeter Cathedral organ. Although I was not playing loudly (I dislike loud noises too close to my ears) the final majestic chords left me feeling that my insides were vibrating with the power of the bass pipe. I am familiar with the acoustic of Exeter Cathedral, having attended many concerts there, and felt that this amp produced enough detail and texture in the sound to go a



Rear panel layout is simple with clearly-labelled and reasonably well-spaced RCA sockets for the signal input and output.

long way to convincing me that I was actually present at a performance in that space.

I finished off my listening with some classic electronica from The Orb. This style of music makes great use of the spacial capabilities of stereo and I got totally involved with following the quite complex array of sounds as they floated through my head in all directions.

I really like the sound of this headphone amp - which offers a superb ratio of sound quality per pound.

The presentation is beautifully textured and detailed, precise in its handling of rhythms and, I would say, uncoloured in the presentation of instruments.

The bass can also go very deep but is not overblown. The

midband sounds natural and the treble has that silky smoothness that thermionic amplification does so well.

Whether bought as a kit, or pre-built, I think this is an excellent value for money product that will provide many hours of undiluted listening pleasure.

SYSTEM USED

Clearaudio Master Solution/ Magnify arm/ Benz Micro Wood SL cartridge, Leema Acoustics Agena phonostage, Tucana II amplifier, ADL H118 headphones.

MUSIC USED

Paul Morgan. 'Exeter Cathedral Organ'. Exon Audio Records. EXCATH 2. 1975.

Various Artists. 'High Society Soundtrack'. Capitol Records. LCT 6116. 1956.

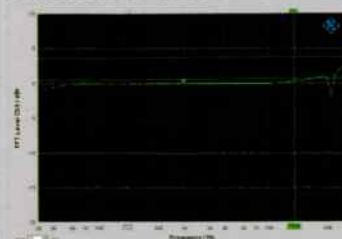
Orb. 'Blue Room'. Waul Mr. Modo Records. BLRT 75. 1992.



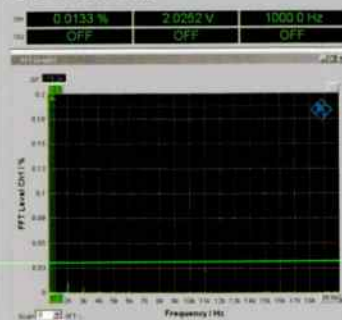
The dip switches to the right of the two ECL83 valves allow the user to set the impedance to match the headphones in use.

MEASURED PERFORMANCE

FREQUENCY RESPONSE



DISTORTION



The World Designs HD3S's output transformers each have four secondary windings. DIP switches arrange these to suit loads of 16 to greater than 300 Ohms. Both gain and maximum output level vary according to settings.

As delivered the HD3S was set to suit 16-50 Ohm 'phones, had a gain of x4 (12dB) and a maximum output of 3.8V - more than enough for any headphone.

This gain is sufficient to work from tape outputs and external phono stages, delivering 800mV output from 200mV input for example. The higher impedance settings give more gain and output, right up to x16 (24dB) gain and 14V maximum output for the 'greater than 300 Ohm' winding.

Frequency response, with a suitable load connected, measured flat across the audio band, our analysis of the 16-50 Ohm winding shows, with a 40 Ohm load connected. The higher impedance outputs

gave a similar result. Output starts to rise above 20kHz so the HD3S will not have a dull or warm balance, although valves never have transistor spit, even when treble rises a little. Distortion levels were very low at 0.018%, mainly second harmonic, at 2V output. Noise was low at -90dB when delivering 2V out, a very good result.

The World Designs HD3S measured very well in all areas, offering impressive results. It is able to drive modern 'difficult' high-resolution headphones (e.g. Oppo PM-1s) of low impedance and sensitivity, as well as conventional designs. NK

Frequency response (-1dB)	20Hz-30kHz
CD	20Hz-30kHz
Distortion	0.018%
Separation (1kHz)	110dB
Noise (IEC A)	-90dB
Gain	x4 (12dB) ~ x16 (24dB)
Output	3.8V ~ 14V

WORLD DESIGNS HD3S HEADPHONE AMPLIFIER £499 (KIT) £659 (built and tested)



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VALUE - keenly priced

VERDICT

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- wide bandwidth
- excellent spacial presentation

AGAINST

- nothing

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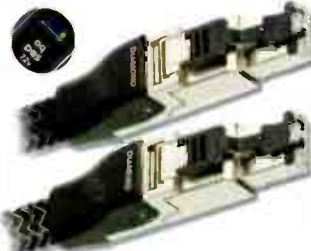
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Beatles session

Noel Keywood heads to the famous Abbey Road Studios in London to hear the first UK presentation of the forthcoming The Beatles in Mono LPs.

Abbey Road Studios, 8th July 2014, I attended a listening session of the new The Beatles in Mono LPs, held in Studio 3. It was the first time these master-tape derived LPs have been played in the UK. The USA has already received the presentations, it is such an overwhelmingly important market in terms of sales, as well as enthusiasm, but Britain got to hear them only days later – in the building where the Beatles recorded (Studio 2), giving these presentations an air of authenticity that presenter Steve Berkowitz alluded to.

On hand to explain the new release was Guy Haden, Vice President Apple Corps, backed up



Presenter Steve Berkowitz sits beside The Beatles In Mono LP box set.

by cutting engineer Sean Magee who put this new release together. Steve Berkowitz – who oversaw the mixing of the album – lead the presentation, adeptly playing ten tracks to a small invited audience – not so easy with LP where cueing requires a steady hand and a good eye.

First off was 'All My Loving' (With the Beatles, 1963), followed

by 'Twist and Shout' (Please Please Me, 1963), high-energy tracks to kick things off. They were noise-free and well presented although bass, famously weak on early albums to limit groove excursions, was present but not strong; the original balance was retained.

There was a change of tempo to the wistful "I'll Follow the Sun", (Beatles for Sale, 1964), that had the sound soften out, becoming more full-bodied and naturally balanced. This was followed by 'A Hard Day's Night' (A Hard Day's Night, 1964) that, like our factory stereo LPs, had prominent treble.

The biggest differences in mixing between the Mono LPs and Stereo LPs were, we were told, on The White Album (1968) and Sgt Pepper's Lonely Hearts Club Band (1967).

Interesting was the fact that a massive 35,000-40,000 box sets of these new LPs were to be manufactured, and around "one million pieces" (LPs) in all to be pressed. The quantity was too large for most of today's pressing plants as they lack sufficient stamping machines to produce on an acceptable time scale, explaining long production times – and also why we failed to get samples scheduled for a review in this issue!

The playback system comprised a pair of McIntosh XRT1k line array loudspeakers equipped with no fewer than 44 titanium 2in midrange units, flanking 28 3/4in titanium tweeters; they stood 6ft 8in high (202cms) no less!. Two 10in bass units occupied the lower bass bins. Line arrays are good at projecting to



an audience and this the XRT1ks did well, but their titanium drivers were fast and forward, in the manner of most metal cone/dome drive units, brutally exposing imperfections in the early 1960s recordings.

The speakers were driven by massive MCI power amplifiers (2kW), a C50 preamp and an MT5 turntable. A MEN220 room correction unit was also used. The arm carried an Ortofon Quintet Mono moving coil cartridge. Leif Johannsen from Ortofon was present and explained what lay behind their new 2M Mono SE moving magnet cartridge, designed to replay these LPs.

Box sets (£288) and single LPs will become available September 2014.

We hope our review, originally scheduled for this issue, will appear in the October 2014 issue.

Studio 3, Abbey Road, with audience and McIntosh hi-fi system. Each XRT1k loud-speaker boasts 74 drive units, no less.





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LETTER OF THE MONTH PRIZE



KEF Q100 LOUDSPEAKERS

Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF Q100 loudspeakers.

Answers by: **NK** - Noel Keywood; **PR** - Paul Rigby; **TB** - Tony Bolton; **MP** - Martin Pipe; **HB** - Haden Boardman; **RT** - Rafael Todes; **RA** - Rod Alexander; **JM** - Jon Myles.

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters

A pair of KEF Q100 loudspeakers are on their way to DAVE ARNOLD, Letter of the Month winner in our August 2014 issue.

Letter of the Month

HYPERSONIC

I was interested to read Tony Bolton's comment regarding the perception and appreciation of sound. I had long felt that CD, while apparently covering all audible frequencies, for me was noticeably less satisfying than analogue sources. I look for, and relate to the emotion in music and, while I appreciate something that is well played and well produced, if it does not convey the emotion it leaves me stirred but not inspired.

I believe it is no coincidence that CD is designed to have zero output above 22kHz, whereas cartridges can extend this to double the frequency and beyond. This emotional connection could well relate to these 'missing frequencies'. There is a clear description of this on the YouTube video from [vwestlife](https://www.youtube.com/watch?v=4eC6L3_k_48); https://www.youtube.com/watch?v=4eC6L3_k_48 This is not the whole story, as CD players also include necessary error correction and filtering which can also degrade the sound, however, it is clearly a major part, as demonstrated with super tweeters.

I have moderate hearing loss and rely on an aid to supplement certain missing frequencies, notably 4-6kHz (which coincides with that of the female voice!). When tested by the audiologist, they now try out the head vibrator, the small contact transducer that transmits sound through the skull. Not yet as effective for me as the sound tube extending down my earhole, but a



Audio frequency range of LP vs. CD

Watch this video on YouTube (www.youtube.com/watch?v=4eC6L3_k_48), says Andrew Entwistle. It shows CD lacks frequencies above 20kHz, unlike LP.

fascinating development none-the-less, and one that demonstrates clearly that sound perception is not solely through the ear system.

My own experience of super-tweeters reflects Tony's findings. My ageing home-made KEF Chorales sounded more airy and atmospheric when two ribbon tweeters were added. It was very much the case that you couldn't hear them but did notice when they were switched off. This is totally illogical unless you can accept that we do in fact perceive and experience hypersonic frequencies.

How we perceive this HFC is another interesting topic. While I accept

that dimming the lights allows a more intense listening experience, I would doubt that we perceive these high frequencies through our eyes. I believe this heightened experience is due more to the fact that if you obscure or reduce the effectiveness of one sensory mechanism, others will react more acutely to compensate, e.g. blind people with sharper hearing and greater touch sensitivity to read Braille. Having heard high frequencies transmitted through the skull, the perception of hypersonic frequencies could well be a full body experience!

They say that only 30% of what we perceive, or what we can describe, is

The Beatles in Mono letters - see page 31

experienced consciously. A massive 70% is experienced without our realising or being able to identify or quantify its existence. The subconscious is a fascinating topic. When investigating hypersonics, we are perhaps considering the area where tangible and intangible overlap; the objective/measurable and the subjective/experienced; what we hear and what we feel.

In music reproduction, now we have access to sampling rates of 192kHz, we have the chance to refill those frequencies and that part of the music that was denied to us when we first moved to digital. It seems ironic that it has taken around 30 years to be able to mimic something that we had already; the vinyl experience!

Yours faithfully,

**Andrew Entwistle
Purton
Swindon**


Hi Andrew. Thank you very much for a fascinatingly informative and nicely penned view of a controversial topic. People who have bothered to experiment with super-tweeters consistently report they add a "sense of air" and also that they – surprisingly – sharpen up bass.

My only slight remaining reservation at present is that high resolution digital does not so strongly represent "air and space" as vinyl seems able to do, but this may be down to current limitations in recording equipment. At least the gap is closing and the high frequencies you talk about can now be captured by digital – an impossibility with CD, as you point out. **NK**

Hi Andrew. Thank you for your letter. My curiosity about this subject was first aroused when my mother, who is in her late 80s and wears two hearing aids, commented on the difference in the sound when I first got my supertweeters. Since conventional medical theory would advise that it was impossible for her to be hearing anything from the supertweeters, I found it most interesting that she found exactly the same benefits as I did; greater clarity in the bass and midrange areas and a sensation of greater space in the overall sound.

What further interested me was playing 78rpm records with the supertweeters in circuit produced quite noticeable benefits by way of the usual improvement in bass and midrange clarity, an increase in the

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Tannoy's ST-200 super-tweeter, complete with technical info., available at <http://www.tannoy.com/products/150/ST200%20Brochure.pdf>. This gives further insights into the benefits of super tweeters.

smoothness and air in the treble response, and most curiously, a perceived reduction in the level of surface noise.

The Townshend Audio supertweeters that I use begin to work at 6kHz. Pre-ffrr 78s allegedly weren't recorded above 15kHz so there is a limited amount of recorded information for the supertweeters to work with yet the sound displayed the improvements mentioned above. I have also found far smaller but still noticeable improvements in sound when playing acoustically recorded discs where it is highly unlikely that anything was recorded above 4kHz or 5kHz even on a particularly good recording, so quite what is happening in this situation I do not yet know.

I think there are several parameters in this discussion that would benefit from investigation with modern measuring equipment. When most of the definitions regarding the frequency response of both audible and recorded sound were laid down, the measurement equipment had a level of inbuilt noise that prevented true hypersonic information being distinguished from the measurement device's own noise level. A good

example of this is to look back to the 1920s and 30s, when the limit of human hearing was deemed to be around 15kHz. As measurement equipment improved, this figure was gradually revised up the 20kHz standard that is often quoted today.

Most of the research that I have quoted in my columns has taken place within the last 15 years, using state-of-the-art equipment, and I would be most interested to know if modern measuring equipment applied to both old and new records would come up with different definitions of what was actually recorded to those that are currently deemed to be accurate.

As for the premise of some of the hypersonic response being subconscious, I am quite prepared to accept this theory in principle but am interested to know if anyone has made a proper scientific study of this in any form.

No one has yet come up with a proven explanation of how we perceive hypersonic sounds, so I quoted the thought about our perceiving it through our eyes as a possible answer. I have also read theories that we absorb it though

our skin. When I come across any more information on this subject I will be writing about it. **TB**

Hmm... Modern measuring equipment typically has 24bit dynamic range (144dB) to over 100kHz, it has moved way beyond our hearing abilities. I think the answer lies in our cognitive processes. When CD was launched we could hear sounds 80-90dB down at most, we were told – and this is true in standard listening tests. However, I'm surprised to find that we seem able to subtly perceive the improvements offered by 120+dB DACs over older 110dB designs. What we perceive and how we do it is complex and baffling. **NK**

HEARING HYPERSONICS

Your article was most interesting. It closely touches points I have puzzled over. Perhaps at least part of the answer lies in the following?

We do not listen to pure tones. We listen to a single (but complicated) waveform modulating a single parameter - air pressure. This waveform contains, for example, some very abrupt and complex changes in which we can perhaps characterise as high frequency "tones" altering the shape of the rest of the wave. Is there any reason why such "tones" cannot be hypersonic but have audible effects on the waveform which we do hear?

Similarly, harmonics from musical instruments can presumably extend up and beyond the frequency range of audible single "tones", but may subtly and slightly affect the shape of the waveform we can hear, probably for the better.

Such an explanation would fit the evidence you present in your article.

Perhaps the same argument holds for subsonic "tones", but it is less easy to see how these might arise, and intuitively one feels they are less likely to be welcome.

Kind regards,

Paul Gladwell
Cheshire, UK

Hi Paul. Thank you for your letter. Yours is an interesting concept and if my understanding of it is correct, it would fit in with some of the findings that I presented in my Opinion Column in the July 2014 issue of Hi-Fi World.

The only drawback that I see with this theory is that the tests made by Tsutomu Oohashi, Emi

Nishina, Norie Kawai, Yoshitaka Fuwamoto and Hiroshi Imai entitled "High-Frequency Sound Above the Audible Range Affects Brain Electric Activity and Sound Perception" (Audio Engineering Society preprint No. 3207 - 91st Convention, New York City - Abstract page 2.) did not use harmonics to explore hypersonic hearing abilities, but fundamental sounds that are of ultra high frequency, so any harmonics associated with these fundamentals would go even higher. This information is buried in the main text of their report, but not immediately clear from the abstract.

In my first exploration of this subject in the January 2014 issue of this magazine I quoted the findings of James Boyk of the California Institute of Technology whose research demonstrated both harmonic and fundamental high frequency energy being present above 20kHz from random sounds such as car keys being jangled, some instruments and the human voice, so the harmonic explanation that you propose would only apply to certain parts of these findings, but not the overall result. However that is not to say that harmonics do not play a part in this whole debate over hypersonic sound and our response to it.

This is a subject where the investigation is still at a fairly early stage and is only confirming that, despite the level of knowledge that we have of the human body, we still have a vast amount to learn. **TB**

That's an interesting one, Paul. I think you are suggesting we hear, or perhaps I should say 'sense', the waveform - and somehow if this is altered by addition or removal of high frequencies, we can detect it. I'm sure there are experts who would point out the ear hears bands of frequencies, in effect analysing the incoming waveform, but I've seen it your way and wondered about this. I rather like what Andrew Entwistle has to say though, that the ear isn't the only sensing mechanism. Will we get skull-speakers in future I wonder? (and what should appear in News – skull speakers! Go to p9 and Damson headbones). **NK**

POWER ISSUE

This letter is in two parts, the first asking a simple question that I have been puzzling over for some time and

the second asking about a system problem that I am struggling with.

Firstly I would like to understand the relationship between amplifier power and the rated maximum power handling of a speaker. This concerns me because my speakers are rated at 200W and I expect, sometime, I will need to replace my power amplifier, but all solid-state amplifiers at the likely price point, say £1000-£20,000, produce way over 200W. Clearly, there's something I don't get, can you explain?

Secondly, I find that my system sounds best when it's playing quietly, producing a reading on an SPL meter around 68dB. If I turn it up to a louder, though still perfectly reasonable level, say 78dB, detail will be washed out, stereo imaging will be much diminished and it will sound generally less musical.

My system is LP only: source is an SME 20112 with Funk Firm tonearm and Koetsu Red Signature K cartridge; amplification is Art Audio Vinyl One Phono Stage, with volume control, feeding into a pair of Krell KMA 100 mono-blocks and the speakers are Usher Be-10s. The room size is 11ft x 16ft which, I know, is small for this type of system; within a few years I'm upsizing our home and the hi-fi will get a bigger room but, until then, it definitely has problems.

The hi-fi room is furnished like



You might need big power for these, Kingsound Prince II electrostatics, but otherwise few conventional domestic loudspeakers need high power.

a sitting room with plenty of soft furnishings and lots of record storage and book shelves lining the walls. Should I be thinking about vibration or room treatments or something else?

Regards,

Grant Robertson
Croydon, UK

Hi Grant. The issue of loudspeaker power ratings is arcanelly complex and definitive conclusions are just about impossible to reach. So don't fret about not understanding - no one does!

The maximum power rating of a loudspeaker is the maximum power it can absorb without showing signs of damage, under IEC tests. Damage can be thermal, usually an overheated voice coil, or mechanical - meaning surround, spider or coil former damage caused by bottoming out.

When testing to IEC standards to obtain a quotable power figure, pink noise (it represents music) is run for 100 hours and there should be no signs of damage at the end of the test.

This has only a loose connection with how loud a loudspeaker goes, since that also involves sensitivity - a sensitive 200 Watt loudspeaker will go louder than an insensitive one that can withstand 200 Watts.

These days loudspeaker manufacturers commonly quote 'recommended maximum amplifier power', so if that is 200 Watts a 200 Watt amplifier cranked up to deliver full output (i.e. deliver 200 Watts on musical peaks, and not overloaded) is suitable. In spite of this you can use an amplifier rated well above 200 Watts if you wish - but not up to full output.

In real life the situation is that although amplifiers commonly produce 100 Watts or more it is very unlikely most people play at much more than a fraction of this. When I play very loud, so loud people complain very quickly, so loud it permeates a building - home or office - I am using around 30-40 Watts absolute maximum, on short term peaks (I know because I check this with an oscilloscope able to capture short term peaks). Most of the time I play just loud - meaning 10 Watts or so!

Manufacturers know that power specs mean all to non-technical buyers, so we get the simple but misleading situation that 'big Watts' are better than little ones - but they are not and for most people they are



Usher Be10 loudspeakers deliver a high 89dB sound pressure level from one Watt, so 100 Watts is more than enough for them.

irrelevant.

If you live in a detached house a distance from neighbours and have a big room 25ft long or more, and play really loud then you might conceivably need 100Watts-200Watts, especially with insensitive loudspeakers like Kingsound Prince II electrostatics and a few other exotic devices. Because, counter-intuitively, big loudspeakers designed for big rooms actually need less power to go loud than small speakers. Your Usher Be10s are 89dB sensitive and are more than able to withstand high power, so I don't think you will reach their limits, especially in your current room.

I find it hard to understand why your system should sound "washed out" at such a low level as 80dB at the listening position (I rate 85-90dB as loud). I suspect reflections from nearby surfaces may be adding high frequency confusion and, although your walls have bookcases to break up and absorb sound, your ceiling and floor may need looking at. Stereo imagery will degrade as you move back, when there is a lot of reflected sound coming in, because the ratio of reflected-to-direct sound increases.

Low ceilings are a problem and need diffuser panels that you can obtain, for example, from

StudioSpares. I had to do this at our last offices, where the rooms were big at 24ft square, but had low 7ft 6in concrete ceilings (it was a converted car park!). Big diffuser panels 8in deep were attached to 8ft x 4ft plywood sheets and these sheets screwed into the concrete ceiling, so they could be easily removed. You may have to find your ceiling joists and put screw holes through the plaster into these joists - they can be easily filled in later on, with Polyfilla.

If you have hard floor, carpet it. Ikea have a thick carpet, Adum, whose "thick pile dampens sound and provides a soft surface to walk on" Ikea say. We use three of these and they work well in damping down our latest listening room.

I can see nothing else in your system that will cause "washout" at modest listening levels, unless something strange is going on, like your speakers feeding back into your turntable. You could listen using headphones to see whether switching the speakers off makes a difference, but this will mean borrowing a headphone amp unit.

If the turntable is being affected by acoustic feedback, then get it out of a corner (where bass is strongest) and off the floor, and onto a very stable surface. Typically, a short, stout

table one third to one half way down the room, with breeze blocks or marble top, is a good option. Or a wall shelf, on a brick wall.

I hope some of these suggestions help. I have a 17ft x 14ft lounge, like you, and have suffered problems getting my Garrard 401 into position - so I speak from experience! **NK**

HIGH WITH A PRO

Martin Pipe's article (*Hi-Fi World*, August 2014) really brought back fond memories of the Sony Walkman Professional (WM-D6). I used this machine professionally throughout the 1980s and early 90s for field recordings, both speech and music. I very much regret selling it to upgrade to a MiniDisc Walkman.

Sound quality and robustness were the main selling points of the Walkman Pro. I once used it to record myself making a parachute jump for a travel and leisure show on LBC Radio. The machine performed flawlessly all the way down, but one of my two microphones failed, so my material had to be broadcast in mono. I also recall a TV sound-man relating the story of documentary-making up Mount Everest. He took a variety of equipment with him, including a Nagra tape recorder: the only item that worked all the way to the top? The Sony Walkman Professional! With best regards,

Jonathan Kempster (MIPS)
Limehouse,
London



"I once used a Sony Walkman WM-D6 Pro to record myself making a parachute jump" Jonathan Kempster tells us. "The machine performed flawlessly all the way down".

PLEASE PLEASE ME

Thank you and your team for the excellent article about the new Beatles mono LPs in the August edition of *Hi-Fi World*. I've been a convert to the mono mixes of The Beatles albums since I bought the mono CD set back in 2009. But, being a fan of vinyl too, I now very much look forward to being able to hear these mixes on LP; especially given the laudable all-analogue philosophy behind the project.

However, I do disagree with your comment (*Letters Aug HFW*) that *Please Please Me* was "recorded in a rush". It's true, the album was recorded in a day. But the band had a great stock of material, were well rehearsed and the recording techniques and production values displayed by the EMI team are

consistently high. In fact, the *Please Please Me* sounds much better in every way to their next record. By the time *With The Beatles* was recorded, the pressures on The Beatles time really did produce a shockingly rushed recording with over-recorded audio and with some of the worse edits in their recorded legacy (just listen to the edit which inserts the four bars immediately following the vocal entry of *You Really Got a Hold on Me* if you need to refresh your memory!)

The problem with *Please Please Me*, and in fact all the Beatles material up to *The Beatles (White)* album is tonal balance and I don't believe this is related to the recorded medium, it's present on the original, studio masters. To put it bluntly, all EMI pop sessions were recorded shockingly bass-light. As Paul McCartney says in *Mark Lewisohn's The Beatles Recording Sessions*,

"On the original recordings you didn't really hear the bass much... EMI had very firm rules about that... [We'd say] "What do you mean we can't have bass?" They'd say, "Well our rule book says..."

So it's not even possible to blame bass-heavy monitoring (and the monitors on all The Beatles early session were Altecs, not Tannoys) because Paul here is commenting about the control-room playback. Sadly, if the new LPs are pressed from the original masters, they too will betray this bass-light balance.

The good news is that, despite the EMI rules on bass levels, the recordings were technically good and the information is still there, albeit at a low level. I know this because I have been listening to The Beatles albums for the last few years via tube equalisers I designed which accurately recreate the

The Beatles in Mono



The Beatles in Mono? What's all this about? If you missed our last issue (August 2014), then you missed our exclusive interview with Abbey Road Studios about the forthcoming *The Beatles in Mono* LP box set. You can still read this on-line however: go to www.hi-fiworld.co.uk and 'Read Online' button at top left. The letters here respond to this article, raising interesting issues our experts address in deep and fascinating detail!

EQ on the famous REDD consoles used on all The Beatles recording sessions until Abbey Road. (See <http://www.phaedrus-audio.com/philter.htm>). Using this gear, it's possible to give Paul the extra few dBs of bass boost he was asking for back in 1963! Now, I know it's an awful transgression to use tone-controls, and possibly worse still to admit it! But the results are so remarkable that I want to share the results with you and your readers.

Whilst a long way from the innovation he displayed later, McCartney's bass-parts on these early recordings were often far from obvious. Yet, they are so back in the mix they are simply eclipsed by the guitar parts. When the bass is boosted, sometimes a new, unfamiliar, bass root-note emerges from the mid-range; giving the impression that familiar tunes are re-harmonised.... An extraordinary effect! Best wishes,

Richard Brice

Thanks for that Richard. Long term readers will remember Richard's columns in this magazine – it is the same Richard Brice.

On REDD consoles and Abbey Road, readers will be interested in this source that has full explanations and great pictures: <http://www.philsbook.com/abbeyroad.html>.

The original EQs were re-applied manually on the fly, to get close to the original balance, cutting engineer Sean Magee told me. I believe I am right in saying Steve Berkowitz oversaw this, using original LPs for comparison..

On the matter of studio monitors I was quoting a fascinating reference from Tannoy that we have permission to reproduce here:

TANNOY SAY -

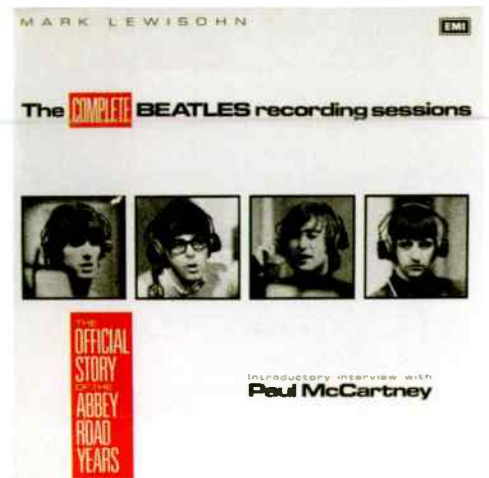
In 1949 the Tannoy 12" Dual Concentric loudspeaker was demonstrated to Decca, and they subsequently placed an order for 900 loudspeakers to be used in the Decola gramophone. Later, in 1950, Arthur Haddy, (Chief Recording Engineer at Decca) heard the Tannoy Dual Concentric and ordered them for use at the Decca FFRR Studios (situated close to Abbey Road, in North West London). The loudspeakers were named the Monitor Silver. Rapid industry recognition of the Dual Concentric continued when EMI ordered them for the Abbey Road recording studio in 1951.

By the early 70s most recorded

music available was being produced on the Tannoy Dual Concentric, using either Monitor Reds or Monitor Golds. All the music at EMI including Abbey Road and most of the Decca Classical output was produced using Tannoy loudspeakers.

From a Beatles History on the 50th Anniversary:

The group, consisting of John Lennon, Paul McCartney, George Harrison and Pete Best, arrived at what was then called EMI Studios on June 6, 1962, for a commercial test (an evaluation of a signed artist). Two days earlier, the band had signed a recording contract with The Parlophone Company Limited of Hayes in the County of Middlesex. The group was paid Musicians Union rates for the June 6 session, indicating that the Beatles were in fact EMI recording artists by the time they arrived at Abbey Road. Engineers attending the session in Studio Two remember the poor shape of the group's equipment, particularly Paul's bass amp, which was deemed unusable due to its rattling and rumbling. Engineers Norman Smith and Ken Townsend improvised and created a bass rig by soldering an input jack to a preamp and combining it with an amp and a large Tannoy speaker taken from Echo Chamber No. 1. A string was tied around John's amplifier to prevent it from rattling.



Our version of The Complete Beatles Recording Sessions, by Mark Lewisohn, cataloguing in detail events in the studio. It is still available today from Amazon (new, hardcover, from £53.29).

All the Beatles albums prior to Abbey Road were originally released in Mono with the Stereo release as an addition, this book tells us.

After resolving these problems, the Abbey Road staff was ready to record the group. Four songs were recorded that day.

According to our Tannoy history book (The Tannoy Story, Julian Alderton), Altec were seen as a rival, Tannoys eventually replacing Altecs it would seem.

Whatever – it gives us a chance to publish that lovely black-and-white picture again of Tannoys at Abbey Road. **NK**

I know that Paul McCartney was very happy with Please Please Me, especially the short time it took to complete, "There's power in John's voice there that certainly hasn't been equalled since and I know



Here's a filter unit designed by a hi-fi expert, Richard Brice. It's an interesting and more flexible alternative to tone controls and can be used to re-equalise The Beatles if you so wish, to strengthen Paul McCartney's bass.



Tannoy 15in Lancaster Golds in Abbey Road 1971. But The Beatles used Altec monitors, says Richard Brice, for their early 1960s sessions.

exactly why: it's because he worked his bollocks off that day," he told Mark Lewisohn in an interview. "We left 'Twist And Shout' until the very last thing because we knew there was one take. The whole album only took a day, so it was amazingly cheap, no messing, just massive effort from us. But we were game, We'd been to Hamburg for Christ's sake, we'd stayed up all night, it was no big deal. We'd started at ten in the morning and finished at ten at night, it sounded like a working day to us! And at the end of the day you had your album". **PR**

BEATLES IN MONO

I find your article puzzling. Mono was the dominant recording method at the time of Please Please Me, their first LP, a 1963 UK release. Really?

In classical music, for instance, which had been recorded (but not released) in stereo since at least 1954? If I read the Popular record reviews of The Gramophone for 1963 I see that most of the LPs were released in both mono and stereo. I have lots of jazz LPs released in and before 1963 which came out in stereo at the time.

Obviously the first few Beatles LPs were recorded to two-track for release in mono and the stereo version was an afterthought, but from Help! and Revolver on they were recorded properly in stereo and meant to be heard in stereo. What's the point of Sergeant Pepper in mono? All you could really say is that the stereo pressings of the time weren't as good as the mono pressings, but that's not a rationale for release in mono only for a better stereo stamper.

The paragraph about Magical mystery tour seems to imply that is has

never appeared as a mono vinyl LP but this is untrue as it was issued as an LP by Capitol in the US in both mono and stereo at the same time as the UK EP set, but the whole paragraph is so badly composed that its hard to know what it means. Why is Mono Masters in upper case and why does it have a singular verb? Is it a person like Tony Hancock's Magna Carta?

I find Tony Bolton's contention that a cartridge can have a comfort zone and be ill at ease with music that has attitude (what is the attitude that jazz has?) equally incomprehensible, but then he's a bit of a flat-earther.

Best wishes,
David Mansell

Hi David. The article was about The Beatles, not the music industry at that time. Mono was for them the primary mix, for reasons you can read about below. Bear in mind radio was dominant in exposing music to a wide audience back then, and it required a mono source.



"The monitors on all The Beatles early sessions were Altecs, not Tannoys", says Richard Brice. Shown here is Altec's big 604C full range drive unit with concentric mid/treble unit.

Only Abbey Road and Let It Be had no mono studio mix, so these albums are not within the mono box set. The new mono LP box set, entitled The Beatles In Mono, presents their mono studio mixes, it's as simple as that. **NK**

Economic factors played a major part in the adoption, or not, of stereo for LPs in the late '50's and '60's. In America the disposable income for all ages of the record buying public was greater than in Europe and the UK, due to higher wages and lower living costs. The far lower cost of both records and the playing equipment in the USA than on this side of the Atlantic was also significant. This meant that the American market moved over to stereo far quicker than the markets in Europe or the UK.

The classical market, which has traditionally been wealthier, moved over to stereo fairly quickly after its introduction although mono versions were still being made into the late '60's. The popular music market continued using mono as the main format into the early '70's due to public demand. Some younger readers may be surprised to learn that portable, leather cloth cased, auto-change, mono record players were still selling strongly into the early 1970's, although by this stage they would have been fitted with 'stereo compatible' cartridges so that both formats could be played without risking damage to the narrower stereo grooves from 0.0010" mono needles (the stereo standard being 0.0007" diameter).

Even Pink Floyd's first two LPs were released in mono. The mono version of Piper At The Gates Of Dawn was released on 5th August 1967 with the stereo mix following

THE 604C is the newest model of the famous professional type Altec 604 "duplex" speaker which has long been the quality standard of the audio industry. An improved 15" cone and a newly designed exponential multicellular horn make it possible for the 604C "duplex" to now have a guaranteed frequency response from 30 cycles to 20,000 cycles when mounted in the 604A cabinet. Further design improvements enable this speaker to handle 50 watts of peak power without distortion.

All frequencies from 30 to 1,600 cycles are reproduced by the 15" cone and those from 1,600 to 20,000 cycles are reproduced by the high frequency unit and distributed uniformly over a wide angle by the multicellular horn. A new N-1000A network provides a smooth crossover at 1,600 cycles.

The combination of wide frequency range, high efficiency, and high power handling capacity make this "duplex" speaker ideal for industrial sound systems, high quality public address, music and monitoring systems.

SPECIFICATIONS:

Angle of horizontal distribution	... 50 degrees
Angle of vertical distribution	... 40 degrees
Power rating	... 35 watts (50 watts peak)
Network impedance	... 16 ohms
Maximum diameter	... 15 1/2 inches
Maximum depth	... 11 1/2 inches
Weight with network	... 40 pounds

a month later, and 'A Saucerful Of Secrets' had both stereo and mono versions released simultaneously on 29th June 1968.

Since mono was the main pop music format, considerably more attention was given in the studios to the mixing and releasing of music in this form than the stereo versions. It was the most cost effective use of studio time to focus on the medium that produced most revenue. Also both AM and FM radio were monophonic at the time, so records were mixed with this in mind, to sound at their best when played through this medium.

After listening to a great deal of equipment across all recorded formats over several decades, my ears tell me that vinyl, valves and, preferably, high efficiency loudspeakers still give the best sound in the domestic environment. If that makes me a "flat earther" then I hold my hand up to be counted. **TB**

To follow up on Tony's points, there was also a sort of Catch 22 effect in terms of studio production because pop/rock studio engineers, in the early to mid sixties, saw stereo as a new toy and treated the buying public as guinea pigs. Like the early Surround Sound mixes, such early stereo mixes were lamentable in quality, Beatles or no Beatles. For example, I remember listening to an early Elvis Presley stereo track and thought my right channel speaker had packed up after the extended introduction seemed to drone on for five minutes. It was only after Elvis deigned to open his mouth on the right channel that I realised what was going on. At that time, engineers didn't have a clue what to do with stereo. Not just that, artists themselves didn't understand the format, initially. The Beatles (as a group and as a studio team) certainly didn't. Doing A-B comparisons on many stereo and mono versions of the same songs often reveals a rather sloppy approach to the stereo mixes that show a lack of attention to detail. The Beatles, largely, didn't even attend the stereo mixing sessions. Incidentally, many Beatles fans have created a minor hobby in finding the differences between mono and stereo versions of each Beatles song. **PR**

According to our Beatles bible, The Complete Beatles Recording Session, Mark Lewisohn's book, still available



Confusion about mono and stereo wasn't just confined to early Beatles albums like Please Please Me, Paul Rigby tells us. Early Elvis albums were also cut with what is in effect two channel mono – instruments on one channel, Elvis on the other! It was a misunderstanding of the time.

today from Amazon (new, hardcover, from £53.29), all the Beatles albums prior to Abbey Road were originally released in Mono with the Stereo release as an addition. Indeed, the recording notes show none of the Beatles attended the stereo remixing of Sgt Pepper's.

Interesting quote from George Harrison: "The console had four faders on it and had one speaker right in the middle. When they invented stereo I remember thinking 'Why?'. What do you want two speakers for? Because it ruined the sound from our point of view".

This explains Mr Harrison's failure to hold down a job in the hi-fi retail sector! **JM**

BEATLES MEMORIES

Your articles and Mario's letter about the Beatles, in the August 2014 edition, brought back many memories for me and even though I have gone digital I still play some of my 1960s albums with a turntable.

In 1963 times were very straitened both socially and economically. Parents were much stricter and attitudes were illiberal compared to now. A young single woman who got pregnant quite often had her baby taken away and there were plenty of loveless forced marriages. She's Leaving Home reflects this quite mildly but gives you a feel for the times. The Beatles represented the moods and desires of the young so well and that is why they were and remain so popular.

I was 12 in '63 and like Mario and

all my friends we could only play our records on a Dansette type player with a BSR or Garrard autochanger. There were many other brands with a similar style which were made by Fidelity, Ekco and Bush etc. The average family could only afford one valve driven television and a huge valve radio. The Dansette was a luxury item that had to be shared too. All of these had single speakers. A 12 year old was well down the pecking order of what was to be viewed or heard.

I had to save hard to be able to buy an LP and this is why I shared my LPs with my friends who did the same, or I just bought 45s. An LP record collection of 500 was a dream and you were lucky if you had 10. Our records were played over and over again.

By today's standards the quality of the sound reproduction was a joke. The valve amplifiers made a noticeable hum and created distortion. The cartridges had a limited frequency range and their heavy tracking soon damaged records. You could hear annoying rumble and pitch variations.

Surprisingly, given the expense, most teenagers did not take good care of their records or the equipment. Quite often records were left lying around to collect dust and dirt or to be trodden on by Chelsea Boots. The sapphire needles were rarely changed so groove damage was inevitable. The record player never saw a spirit level. The Dansette would have been positioned anywhere that was convenient; a table, a sideboard, a window-seat, the floor or even a bed.

Listening to The Beatles was nearly always a social activity: if you were the first to get their new 45 or LP then you held a record party to jive with your friends, but only if you were lucky to have tolerant parents.

The new record was guaranteed to get scratched sooner rather than later. Record playing was definitely not an audiophile or tweaker affair; there was little room for improvement. The Dansette was 1960s plug-and-play and only the music mattered, but it was crackle, pop, scrunch and wow wow all the way. However, we seemed to be immune to the grunge and the Beatles shone through all the murk and grime. This is why their music will live on forever.

Some of my old records now produce a slight buzzing noise on sections where there is intense groove damage. I never heard that on a Dansette as the cartridge just ploughed through it all. I am really surprised that my 1967 Sgt Pepper album is still playable but the surface noise is so bad that I can barely listen to it.

My 1963 mono of *With The Beatles* looks quite damaged but amazingly there is hardly a crackle or pop and the slight groove noise, even with a stereo cartridge, is masked by the music. The album sounds just as fresh as yesterday but modern equipment helps. This augurs well to get excellent sound quality from the new LPs.

I am sure that the new mono masters will be a treat for the ear and it is only fitting that they were produced from the original master tapes. I am now tempted to sample mono microgrooves for the first time and only the Beatles could have that influence on me.

If you are new to records and looking for a form of 60s sonic nostalgia then you will not find it by playing the newly remastered LPs of the Beatles, the Stones or the Yardbirds on your hi-fi. You will need to find a refurbished Dansette or Bush record player and some secondhand records. Most of the vinyl oldies will be in poor condition but they will probably still play through because of the heavy tracking. Then just hear what we had to suffer. I do not recommend playing modern LPs or 45s on such kit - any thoughts Tony?

You will be astonished at the difference between the sound quality of the 60s equipment and modern kit. Nowadays we are very privileged that we can listen to The Beatles at their very best. I am still picking out detail that I never heard in the good old days, but I won't be buying a refurbished Bush as I



"Record playing was definitely not an audiophile affair. The Dansette was 1960s plug-and-play" says Trevor Morgan. Picture from <http://dansette.com>, where you can buy one or get spares.

can remember those times all too well.

Yours sincerely,
Trevor Morgan
London

Hi Trevor. Thanks for sharing your memories with us. I would agree with you, a combination of tracking weights heading towards double figures, low compliance cartridges and not changing the needle are not a good recipe for prolonging the life of your vinyl.

I don't play modern records on old turntables. I do use restored or overhauled 50s and early 60s machinery mostly for playing my 78s, where a 10g tracking weight is inconsequential provided the needle is in good shape, and a crystal cartridge would be regarded as very high compliance compared to the steel needles and virtually zero compliance of the acoustic and early electric heads that these records would have originally encountered. I have 78s that I have had from my teens that show no signs of deterioration from being repeatedly played over the years on my Bush SRP3 I portable, with a Garrard RC120 autochanger. Vinyl, on the other hand, would fair less well, especially if the machine was not in the best of shape.

I was given a second hand 1954 Marconiphone radiogram when I was 7 to stop me using my parents record player, but I was lucky enough to have a father who taught me how to handle records properly and would make sure that the needle was replaced at suitable times. The cartridge was also later replaced with a stereo compatible unit. This has resulted in most of the records that I

have had from childhood still being in good condition.

Like you, I also find that the visual condition of a record is not necessarily a guide to the playing condition. I have bought second hand records that look mint, but have been played with a worn stylus that has left some horrible graunching noises behind it, and others that look as though they have been skated upon, that, having been through a vacuum cleaning machine, play superbly.

I firmly believe that record cleaning is essential, not just for the improvement in sound quality but the reduction in record and stylus wear due to not dragging the needle through a totally inhospitable place and grinding the dirt into the groove wall. If you haven't used a vacuum cleaning machine on the records that you had in your youth, I think you may well be surprised at how much less surface noise and perceived groove damage there can be after being properly cleaned. If you don't wish to buy a cleaning machine, a lot of hi-fi and record retailers offer a record cleaning service at quite affordable prices. I would have a look on the internet to find such services in your locality.

Despite having some very fine modern equipment, I still play some of my older kit periodically. It can be very easy to dwell in an audio-ivory-tower in this job, and I find that occasionally listening to a range of equipment from acoustic through to modern high end audio is a good way of staying grounded and getting a realistic perspective on the progress that we have made, or, sometimes, haven't. **TB**

Magical Mirus

Resonessence's new Invicta Mirus DAC sets new standards in both technical specifications and sound, say Jon Myles and Noel Keywood.

Canada's Resonessence may be an unfamiliar name to many readers – but its products have been causing a bit of a stir recently.

We were impressed with the Herus USB to headphone DAC we reviewed earlier this year and its first product – the Invicta digital-to-analogue converter and headphone amplifier – has drawn enthusiastic recommendations.

So it's no surprise we were keen to get our hands on the latest in the Resonessence range – the recently launched Invicta Mirus priced at £4,499.

At first sight the new unit looks just like the original Invicta, except without the headphone section.

But look under the hood and there's one massively important change. Yes, the headphone amp has gone – but it's been replaced by a second ESS Sabre ES9018 DAC meaning the Mirus uses two of these for its digital circuitry.

"So what?" you may be asking. But for those in the know ESS Sabre DACs are among the best in the business when properly implemented

– as in, for example, Audiolab's superb M-DAC and Q-DAC converters.

And, luckily enough, Resonessence knows exactly how to implement them. Not least because its founder Mark Mallinson was previously operations director for the Sabre's manufacturer ESS Technologies.

So to say Resonessence know all about getting the best out of the ES9018 is something of an understatement.

Which undoubtedly explains why the Invicta Mirus produced some of the best technical specifications we have ever seen in a digital-to-analogue converter (see Measured Performance).

But that's not the only trick up its sleeve – as is evident as soon as you unpack the unit.

Measuring 22cm x 28.2cm x 5cm and weighing in at 2.9kg the Mirus is a slim unit with a fetching Resonessence logo on the left hand of the front panel which glows blue when in operation and red while in standby mode.

To the right of the clear OLED

display sits a digital volume control knob which doubles as the function selector as well as, unusually, an SD card slot selector. The card reader supports both AIFF and WAV as well as DSD 64 and 128 files. Next to this is a set of discrete blue LEDs which indicate the sample rate of incoming files – with the Mirus handling everything up to 24-bit/384kHz if you happen to have any!

Round the back are the usual selection of connections – an AES/EBU S/PDIF, USB, Toslink input and output, two BNC S/PDIFs as well as XLR and RCA analog outputs.

Finally, an HDMI output allows the Invicta Mirus to be connected to a monitor to allow easy access to its comprehensive set of menus.

This is more handy than you might originally think as Resonessence has packed some serious processing power into the Mirus and the various options can be initially difficult to access using simply the rotary selector knob and front panel display. It also allows album art to be displayed.

Inside the aluminium case, apart from those aforementioned Sabre





Comprehensive digital inputs and outputs include HDMI for video connection to a monitor.

DACs, is an over-specced power supply built around a toroidal transformer together with galvanic isolation to ensure the various audio components do not interfere with each other and can operate at their maximum performance levels.

FILTER OPTIONS

Like the similarly Sabre DAC-equipped Audiolab M-DAC, the Mirus has a range of filter options to fine tune the sound.

Two of these are ESS's own and the other seven Resonance-designed. The company makes no recommendations on which to use but does say the Linear Phase Apodizing filter was preferred by many of its beta testers.

In truth, the differences between the various options can be subtle and are often music-dependent. But having the option is welcome and the fact that they can be changed on-the-fly makes for interesting listening sessions.

The Mirus also gives users the option of inverting right and left channel phase as well, if so desired.

SOUND QUALITY

As can be seen from all of the above, the Invicta Mirus packs a heck of a lot of digital firepower into its compact chassis.

However, all that would count for nothing if the sound wasn't up to scratch.

Fortunately, there are no fears on that score. To put it bluntly, the Resonance has the ability to truly beguile with its sound.

Overall, it has a sense of musical coherence, top-to-bottom integration and easy flow to its sound that makes listening sessions stretch into hours.

Partnered with our resident Quad QMP monoblocks feeding the impressive Yamaha Soavo loudspeakers (see review this issue) the sound was exceedingly smooth and detailed.

Led Zeppelin's 'Good Times,

Bad Times' had power, presence and tremendous timing. The Mirus brought out all the rich resonance of Robert Plant's voice while retaining the intensity of Jimmy Page's crunching chords.

Similarly Eleanor McEvoy's 'Non-Smoking Single Female' bounced along with verve and energy. Here the Mirus showed its tremendous sense of instrumental separation. Every element of the song can be tracked easily – from the walking bass line, through the delicate guitar overlay to the understated vocal performance.

In short, it has a musical integrity and sense of spot-on presentation that few other DACs can match.

Indeed, such is its ability you quickly forget you are actually listening to a digital unit.

And this is perhaps where its true magic lies. High-resolution files finally give our digital systems the chance to match analogue playback and the Invicta Mirus truly brings the best out of these.

Connecting a MacBook Pro and playing Michael Tilson Thomas and the San Francisco Symphony's rendition of Mahler's 'Symphony No 2' on DSD and the sense of atmosphere is mesmerising.

Instruments are not just well-reproduced, they are almost solid in front of you. Dynamic contrasts are a revelation and the soundstage doesn't just extend between the left and right boundaries of the 'speakers' but seems to occupy a space well beyond the rear boundary wall.

You can place the chorus and orchestra in their relative positions in front of you and feel the intensity as the music swells.

Interestingly, playing the same tracks through the Resonance's SD card slot option provided a slightly cleaner and crisper presentation.

The difference wasn't night and day – but it was noticeable so if you are considering storing music in the



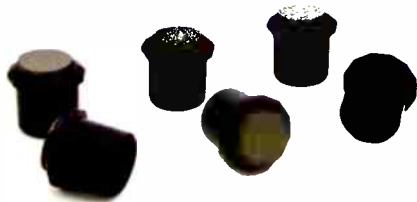
Inside, the Invicta Mirus features a sturdy line power supply, as well as two Sabre ESS DACs to give a class-leading 131db EIAJ dynamic range figure, our measurements show.

MWA-RC Magnetic Wave Absorbers



"Dynamics in the music seem to be more refined with the Magnetic Wave Absorbers fitted and the music flows more smoothly. This is an excellent value accessory for your hi-fi system"

HI-FI Choice, October 2013



These simple yet effective products from Oyaide in Japan have been designed to add further improvements to the equipment and cabling in your system.

MWA-RC caps are manufactured from high quality polypropylene which act reduce the vibrations found on unused RCA contacts on your system.

The inclusion of a 1mm thick piece Oyaide's very own Magnetic Wave Absorption material also acts as a barrier from the noise generated from the unused RCA contacts on your equipment.

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simplest way possible this may well be an option.

Switching between the various filter options also proved interesting. On the whole, I preferred the slow roll-off options, especially with CD where they seemed to ameliorate that slight tizziness inherent in the medium.

Having said that, with higher bitrate material the effect became less pronounced and the Linear Phase Apodizing option came into play more. But once again this will depend very much on personal choice – and the fact that the options are there is the most important factor.

What is also important, though, is whichever you choose the Invicta Mirus has the ability to provide some of the best digital playback available at the moment.

I'd go so far as to say it might even have the ability to make converts of even the most die-hard analogue aficionados – especially when used for the playback of DSD files which do have a depth and warmth of character to shame CD.

But even if you don't use the DSD facility, the Invicta Mirus's resolution, detail and downright musical rightness make it a delight when playing back anything from



Seven user selectable filter options allow the sound to be tailored to the individual user's taste.

standard Red Book CD to high-resolution material of 24/96 and above.

CONCLUSION

As you might have guessed, Resonance's Invicta Mirus is among that select group of components that deserves wholehearted recommendation.

Yes, its £4,499 price tag is not to be taken lightly. But neither is its sonic ability.

The decision to use two Sabre DACs running in parallel has given a level of clarity, musicality and all-round put-a-smile-on-your-face

delightfulness that makes many rivals at or anywhere near the price sound slightly stilted and mechanical.

SD card playback option is also a nice addition while DSD functionality and a comprehensive range of inputs means this is one DAC that seems virtually future-proof.

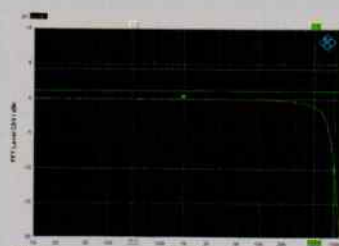
Its in-built volume control also means you can pair this with a decent power amp and then just take your choice of the various front-end options to build a very special system indeed.

Yes, in the end, there are cheaper DAC options available, but very few as talented as the Invicta Mirus.

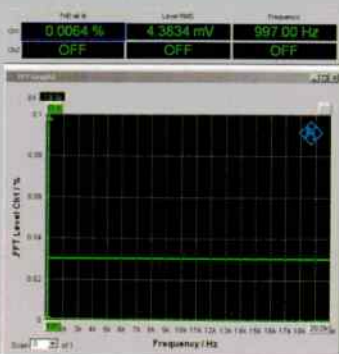
MEASURED PERFORMANCE

The Mirus has a wide range of filter options, programmed into each ESS Sabre32 DAC including the Sabre's own 'fast' and 'slow' options. There are seven options, giving variants of best

FREQUENCY RESPONSE, 192k



DISTORTION, 24bit, -60dB



bandwidth, phase or least time-domain ringing (i.e. best impulse response) behaviour. Our frequency response shows the 'worst' result achievable, that giving least bandwidth, provided by the Sabre's 'slow' option. With 192kHz sample rate this still gives an analogue bandwidth out to 53kHz (-1dB) so it does not affect in-band behaviour. Even at CD's 44.1kHz sample rate the in-band audio response with this filter did not appreciably roll off upper treble. CD was flat to 16kHz through the Mirus with the Sabre slow filter.

In my experience, slow filters sound best, irrespective (or perhaps because of) their frequency domain limitations. So although the Mirus, like the M-DAC, appears to give mediocre figures with such filters, in practice it is important that the DAC has them as options.

The big news with the Mirus is, however, its dynamic range. Where the less expensive M-DAC uses a single Sabre32 with four DACs per channel, the Mirus goes for broke with all eight of its internal channels paralleled to give the very best performance possible. This means two chips are needed, one per channel - expensive at around £35/chip.

But the result was an extraordinary 131dB EIAJ Dynamic Range figure, way above all other DACs. With distortion also way below all rivals, measuring 0.006% at -60dB, the Mirus is comfortably ahead.

Interestingly, these results were similar between the unbalanced phono outputs and the balanced XLR outputs. XLR had highest output (4.4V) and lowest distortion at -60dB, and since XLR cables are also free of earth currents, common mode interference, and are best screened, XLR should be used if possible.

The Mirus possesses the best measured performance of any DAC we have measured to date, by quite a large margin. With a good set of filters to allow fine optimisation, it looks like a fabulous way to process digital. **NK**

Frequency response (-1dB)
24/192 4Hz-53kHz

Distortion (24bit)	%
0dB	0.0002
-60dB	0.006
Separation (1kHz)	118dB
Noise (IEC A)	-129dB
Dynamic range (EIAJ)	131dB
Output (phono / XLR)	2.2V / 4.4V

RESONESSENCE INVICTA MIRUS DAC £4,499



OUTSTANDING - amongst the best

VERDICT
One of the best DACs we've come across. A tour-de-force in digital engineering.

FOR
- superbly musical
- dynamic
- class-leading bandwidth
- DSD playback
- SD card slot

AGAINST
- absolutely nothing

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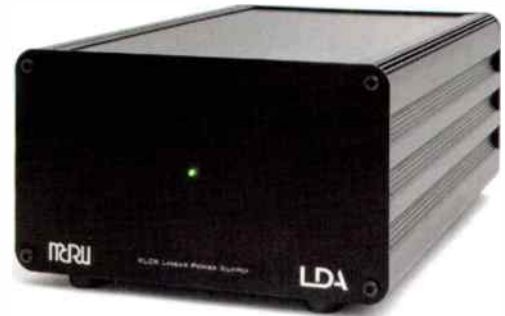
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to the piano of Keith Jarrett on Arvo Part's 'Tabula Rasa', it had both body and resonance. When the low notes faded away they did so in an entirely realistic way – just as you'd imagine they sounded in the studio.

Switching to female vocals – such as Nico on The Velvet Underground's 'All Tomorrow's Parties' – and she was there in front of me.

Fans of pounding dance tracks may find the bass slightly lacking as, in common with most standmount loudspeakers, the LS5/9s don't go down to sub-sonic levels.

But there is certainly plenty of low-end power on hand if the music demands it, with the 'speakers having a distinct thump to them.

The rumbling synth lines of Leftfield's 'Rhythm And Stealth' had plenty of attack. There was a slight sense of overhang at times – with a feeling that the bass was lagging just a little behind the rest of the music but nothing which detracted from the overall propulsive feel of the album.

But it's when you move up the frequency register that things really start to shine.

The polypropylene mid/bass driver has a deliciously creamy quality that makes all forms of music sound rich and appealing.

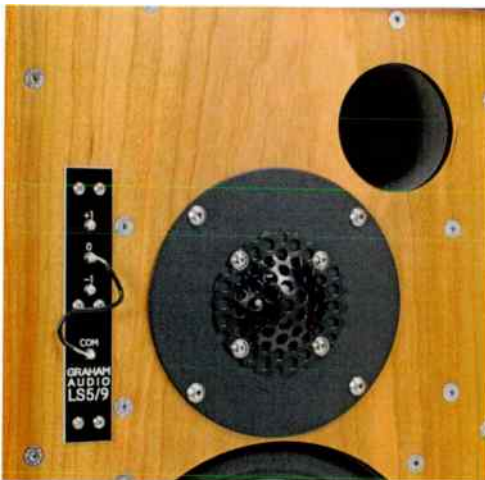
It is also extremely good at layering the sounds in complex pieces so you can hear into and around the musical parts.

Take John Coltrane's 'Ascension'. This is a squall of a free jazz sound that can sound hard and harsh on some modern loudspeakers – especially those that seem to throw the sound at you.

Via the Grahams it's a much more measured piece of music. The tonal balance is spot on while individual musicians are clearly definable in the mix. In other words it's doing just what a studio monitor should by letting you hear the sound without imposing too much of its own character.

Admittedly, there may be some people who find this presentation a little too safe and unexciting – relegating the LS5/9s to the realms of 'pipe and slippers' equipment fit only for those who crave a laid-back presentation.

But that would be a mistake. These 'speakers have enough detail



Upper treble rolls away above 10kHz - likely due to the protective grille while a factory-set adjustment plate (left) allows for high-frequency adjustment.

and drive to sound exciting when the music demands it. But they can also be extremely refined when that's what is required.

Play some modern, signal-compressed rock or pop and the Grahams will soon let you know all about it. But let them have well-recorded high-resolution music and

they'll reveal it in all its glory. In the end they just sound honest.

CONCLUSION

Graham Audio has done a fine job with its BBC-licensed LS5/9.

It's overall sound is well-balanced, smooth and even. There's no stinging treble to make your ears ring nor a thumping bass that overwhelms everything else.

Yes, some loudspeakers of a more modern vintage may sound superficially more exciting at first listen – but the LS5/9s are more likely to reward in the long-term as they let the music flow without firing it at you full bore.

The original BBC design proved popular 30 years ago – and I'd have a bet the latest Graham Audio iteration could well be giving listeners musical pleasure 30 years from now.

Just remember to partner them with a suitably powerful amplifier, sturdy stands and take care with positioning.

Then sit back and enjoy.

MEASURED PERFORMANCE

Our frequency response analysis shows a smooth response over most of the audio band. There was no dip between midrange and treble units to soften the sound, although a phase dip did appear as the microphone was moved up to the tweeter axis and above. Because the drivers are physically far apart this is inevitable.

Upper treble rolls away above 10kHz even on the tweeter axis,

likely due to the protective grill. There is also some lift in upper bass, just enough to ensure the Graham has body to its sound.

Lower bass peaks quite substantially around 70Hz our analysis shows, and this correlates with box overhangs visible in a 200mS decay analysis, so bass will be prominent and possibly a tad boxy or fulsome. The port, tuned to 45Hz extends bass down well, so in all the Graham will have strong bass, if not deep subsonics.

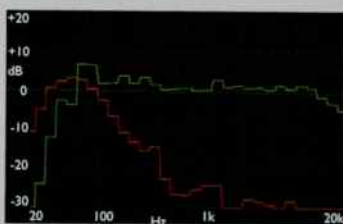
The bass unit has a high DCR of 7 Ohms – most are 4 Ohms these days – and this results in a high overall measured impedance value of 12 Ohms. This high value lowers voltage sensitivity, the Graham managing a reasonable 87dB from one nominal Watt of input (2.8V). It needs amplifiers of 60 Watts or more to go loud.

Although a 200mS decay analysis revealed bass overhang at low frequencies, across the midband the bass/midrange unit was clean in its output, suggesting low coloration.

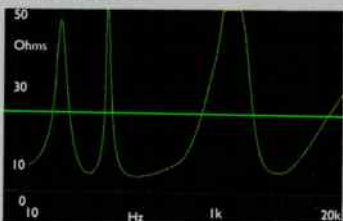
The Graham Audio LS 5/9 measures well, with distinctive characteristics. It will have an 'easy' sounding balance, with fulsome lower frequencies and strong bass. It needs power to go loud. NK.

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



GRAHAM AUDIO LS5/9 £3,450



OUTSTANDING - amongst the best

VERDICT

A well-engineered update of a classic loudspeaker design. Superbly musical and enjoyable

FOR

- smooth mid and treble
- detail
- timing

AGAINST

- needs a powerful amplifier
- slight bass emphasis

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Brilliant Bayan

Bayan Audio has built on the success of its Soundbook Bluetooth portable 'speaker with the new Soundbook X3 – a larger and more powerful version. Jon Myles takes a listen.

Standing out in the ever-expanding Bluetooth loud-speaker market is becoming increasingly difficult. With new models hitting the shelves of retailers on a seemingly weekly basis designers have to work hard to make their mark

with consumers.

Which is why we liked the Bayan Soundbook so much when we reviewed it last year. (Hi-Fi World September 2013).

Here was a portable Bluetooth speaker/radio that not only looked good with an innovative design but

also sounded better than most other units at the price.

Constructed from premium materials and small enough for portable use, its size meant it was the ideal speaker for slipping into a suitcase or bag for music on the move.



But of course small size means obvious limitations in sound quality. So now UK-based Bayan Audio has rolled out the Soundbook's bigger brother in the shape of the Soundbook X3.

Its larger size – 235mm wide by 40mm deep and 120mm high – means Bayan has managed to squeeze in larger speakers and more amplifier power.

Inside the solid aluminium casing and ballistic nylon cover are four 1.5-inch long-throw neodymium drivers allied to a passive 3.25-inch bass radiator all driven by a 20 Watt amplifier.

Like its smaller sibling the X3 features a clever hinged cover that flips under the base to form a firm stand, or it can be pulled back over the front to turn the unit off.

Connectivity comes via Bluetooth 4.0 with aptX as well as a built-in FM radio. There's also a 3.5mm audio-in jack on the rear, as well as a USB socket that allows you to charge mobile phones and



A clever fold-over sleeve acts as an on/off switch as well as providing a sturdy stand for the speaker. A handy USB socket allows for charging of mobile devices while a 3.5mm line-in socket gives extra adaptability.

"It's easily capable of filling a medium-sized room and could just as well serve musical duties at an outdoor barbecue or party"

other devices straight from the Bayan – which could be handy if you are out and about.

In addition there's NFC capability for suitably equipped devices which helps automate the pairing process. Users switch between Bluetooth, auxiliary and radio through the on/off button on the top of the unit. It sounds fiddly at first but is easily mastered after a little practice.

Out of the box, pairing the X3 with my iPhone 5, iPad and an Android device proved almost instantaneous and the connection stayed solid throughout the review period.

SOUND QUALITY

The original, smaller Soundbook had a nice, clear, articulate sound that was refreshingly gimmick-free with no attempt to boost either bass or

treble.

The X3 continues in that tradition – only with appreciably more power thanks to the extra speakers.

Pushing up the volume on the Jesus And Mary Chain's 'Psychocandy' produced no hint of strain. Bass was deep and true while trebles were well-defined. That aluminium casing means there's no hint of the rattle and hum you can get on cheaper Bluetooth loudspeakers.

There's real power and punch to the low frequencies – The Pet Shop Boys' cover of Bruce Springsteen's 'The Last To Die' in Apple Lossless bounding along with real verve. It's easily capable of filling a medium-sized room and could just as well serve musical duties at an outdoor barbecue or party.

Taking it outside and using the Bayan X3 to play Bjork's 'Debut' album proved just how capable it can be. The Icelandic singer's vocals were full of presence and strength with an emotional range not all Bluetooth speakers can bring to the party. OK, it's never going to rival your own hi-fi system for overall clarity but it does what it does very well.

Battery life was also impressive, the X3 running for a good 10 hours with the volume at a decent level.

Radio reception was crisp and clear, the internal FM aerial enabling good reception.

As an added bonus, the X3 switches to conference-call mode if anyone rings while you're listening to music from your phone.

CONCLUSION

Bayan have done it again with the X3. The original Soundbook was good but the X3's extra drive units and amplifier power take its sound quality to another level. Anyone looking for a decent Bluetooth speaker should really give it a try. It's not the cheapest option at £250 but its design, sound quality and construction make it worth the money.

BAYAN SOUNDBOOK X3 £250



OUTSTANDING - amongst the best

VERDICT

A superbly designed and great sounding Bluetooth speaker. Smooth, civilised musical presentation makes listening a pleasure

FOR

- great design
- good bass
- clean treble

AGAINST

- nothing

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World Radio History



Direct To Disc: Third man style

Jack White's Third Man Records is backing the Direct To Disc resurgence. Paul Rigby talks to the mastering engineer at the centre of it.

In analogue terms, Direct To Disc is a process where you perform a song in a studio, for example, and then, instead of that signal being recorded to tape, it is sent direct to a lathe where an acetate is cut, promising superior sound quality. The last commercial recording of this type was completed around forty years ago. Now, the process is making an intriguing return.

This month I am covering ex-White Stripes' lead singer Jack White's desire to integrate Direct To Disc within his own record

label Third Man, based in Nashville, Tennessee, USA.

George Ingram, owner and president of Nashville Record Productions (NRP) and mastering engineer of over forty years, was recently cleaning and rebuilding a circa 1955-1959 Scully lathe, a relic from King Records in Cincinnati (record label for such luminaries as James Brown) when White paid him a visit.

"Jack fell in love with the lathe" said Ingram. "He likes older, vintage equipment and we were putting together a tube, mono system to go



Third Man hold regular Direct To Disc live events.



During live event the audience can view the lathe in action.

with it. In fact, we were trying to put together a system very similar to that seen in the late fifties and early sixties”.

After being assured that a stereo cutting system could be added, if required, to the basic mono cutting system White proposed a unique partnership with NRP to create a live cutting room at a new facility within Third Man Records. That is, a set-up that would feature a Direct To Disc system with an adjacent studio for musicians to play, but with one important addition - space and seating for an invited audience. In effect, this cutting system would be recording live gigs.

Realising that he would have to expand his operation to accommodate such an enterprise, White bought an adjacent building and fitted it out for the task.

“I reminded Jack that he’d have to isolate the cutting room completely from the stage” said Ingram. “If there are any vibrations at all, if it’s transmitted through the

floor, it comes out in the record. This was done so that the final construction is isolated from the building but you can still see the lathe



An invited audience arrives to view the next Direct To Disc recording.

through glass windows. The audience, sitting in an adjacent space called the Blue Room, can actually look in and see the lathe turning and the record being cut. But that’s not all, there are also video monitors showing shots of



Third Man features its own atmospheric music store.

the lathe as it is cutting”.

The cutting systems include that same Scully lathe from the mid-50s with a stereo cutting system added to it (using a solid state 1974-era Westrax 3D2 AH) plus a tube mono cutting system (with a mid-fifties era Western Electric 2A cutter head). The latter has already been used to produce and release Third Man-backed Johnny Cash Sun recordings using a 15ips master of the original. Also in the room is a Neumann VMS-70 lathe with a SP-79 console, one of the last examples built, from 1979.

“Because the cutting room is somewhat limited in width, Jack had a new custom-built Neve 5088 console built to do all of the live recording. So, the stage is right outside of the room. The recording is performed and then mixed in the cutting room, the stereo feeds go straight to the cutting system and straight onto the

Third Man Records is owned and run by ex-White Stripes man Jack White.



disc. The audience is fully informed through each step of the process. The band is cued and they play for twenty minutes then they stop and a new lacquer is put on for the B-side and another twenty minute set is then recorded. The album is then cut and the band interacts with the audience and plays a few more songs”.

Quite apart from the promised technical enhancements there is also the human element to consider. For example, you have to remember that

WHY DIRECT TO DISC?

Why Direct To Disc at all? The last commercial Direct To Disc recordings done by the major labels were in the mid-seventies. The reason they were done at all was because the cutting systems that cut the grooves had a far superior transient response than the analogue tape at the time. "They wanted to get away from the tape that has its own sounds and tape saturation, which is a bit of a dulling on the high end" said Ingram. "In those early days, the tape's transient response was nowhere near the cutting head performance. The recordings, at that time, were done for audiophiles. Nowadays, tape quality has improved a lot. The sound quality differences are closer".



So is there a technical benefit recording direct to disc? Yes, according to Ingram. "There is still a bit better transient response. Vocals are tighter and there is an open end in the bass. On a master tape, you don't quite get that 'ting' on the cymbals. You lose that attack on the high end. On Direct To Disc it comes back fuller and richer. More detail on the extremities".

this is a one-take recording. There is no time for extra takes or later edits.

"It's not candy coated" confirmed Ingram. "The band performance tends to be sharper and heightened. The artists can be a little nervous during rehearsals about the whole thing. But they quickly lighten up and relax when the audience comes in and we do

a warm-up cut for levels".

"They love it. In fact, after the band has time to rehearse, they often come into the cutting room afterwards. We do a few test cuts and we play them a lacquer. We often get the jaw-drop response with "Holy s**t, that sounds great!" There's no surface noise, no grittiness. It sounds like the performance they gave".

THE WORLD'S FASTEST RECORD

Never mind Direct To Disc, Third Man has also tackled Direct To The Public as it holds the record for bringing vinyl to market, as George Ingram described, "We wanted to produce the fastest record release but we decided we wanted to do this as old school as possible. We took two tracks from Jack's new album, 'Lazarreto', cut them onto a 7" single on Record Store Day, sent them to the pressing plant, United Record Pressing, then plated it. We put it on a press, pressed it, put it in a sleeve with images made during a live concert at Third Man, took it back to the record store and sold a copy. That constituted a record release.

We recorded it, mixed it, mastered it, plated it, pressed it, sold it. Three hours, fifty-five minutes and twenty-one seconds!"



NEIL YOUNG & THE VOICE-O-GRAPH

Third Man's secret weapon and another form of Direct To Disc was, and now is, the Voice-O-Graph. The Voice-O-Graph was a tourist device created and used in the late forties and fifties but also, essentially, a cheap cutting machine. It was placed in popular locations where people were encouraged to make recordings. The Voice-O-Graph looked like a telephone booth. The idea was that you stepped into it, paid your 35c, then a series of lights would flash and the machine would ask you to start your recording. During the copy, it would warn you when you were half way through then, when you were finished, the machine would eject a record: a flexible paper disc coated with lacquer. You would then have the option of putting it into a mailing envelope to send, if you wished.

Third Man unveiled a 1947 vintage, restored version in 2013, during Record Store Day in their Nashville, USA store. Immediately, one customer used the booth's recording facility to ask his girlfriend to marry him! The booth was used for rather more serious reasons soon after.

"Neil Young came to town because they were celebrating Willie Nelson's birthday" said Ingram. Neil thought that it was the coolest thing in the world, it's old school and it's scratchy but it has a flavour all its own. At a later date, Neil said to Jack, "Hey man, why don't we do a whole album and cut it in the Voice-O-Graph booth and then transfer those records to analogue tape and master from the tape?" They hit me with the project.

The machine is quirky and fun but is limited in its frequency response. According to Ingram, a normal vinyl record, cut on a modern cutting system, ranges from 40Hz to 15kHz. The Voice-O-Graph booth reduces those figures to around 100Hz and 9.3kHz. There is an element of noise to contend with too. The team spent three days on the recording. In fact, Neil Young has a luxury box set version of the final album, 'A Letter Home', which includes a DVD showing the creation process.

"There's about two minutes of recording time on each disc. To record an album, we created. For those songs over two and a half minutes, we did them in pieces, editing the pieces together in the analogue tape. Neil did a number of takes on each song" said Ingram. "We took them up into the cutting room, cut them back on the cutting lathe and then transferred those to 1in analogue tape. From the tape was the source of the final mastering".

The Voice-O-Graph didn't use its original discs. That software had long since disappeared. "We worked with a company, Apollo Masters, in California" said Ingram, "and tried to coat some paper. We coated polyvinyl chloride with lacquer to cut on but the experiments didn't produce good results and they were pricey. Jack didn't want to charge \$30 per disc, which was what it was going to be".

So they turned to the UK and one Bill Bollman (a recognised expert on the Voice-O-Graph). He created a batch of Voice-O-Graph-friendly discs made from clear PVC. The discs themselves were not made specifically for the Voice-O-Graph but the hole and cut was. "They are made from a substrate that is similar to a CD" said Ingram.

Next month, I will look at how classical music is facing Direct to Disc.

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Arcam's new AV receiver offers comprehensive facilities and superb sound - but Noel Keywood discovers some flaws under the polished exterior.

Arcam & AV

Arcam's AVR750 is designed in the UK, with a user manual written in the UK, helping make it relatively easy to set up and use, which I see as a big plus point. And Arcam like to stress that the AVR750 offers real high-fidelity, where other AV receivers do not..

The AVR750 is quite a brute, weighing a hefty 13.5kgs (and much more packed). Width is 433mm, depth 425mm and height 171mm. It is solidly built, but sombrely finished. The green LED matrix display is bright and legible at a distance if not as slick looking as the common electroluminescent displays of rivals.

The AVR750 is a seven-channel receiver that, Arcam state, works in clean Class A mode up to 30 Watts per channel, and beyond this in Class G where power line volts are increased to pass transients of up to 100 Watts, all channels fully driven.

Most people will play in Class A

mode and our measurements showed the receiver was very clean indeed, critically at high frequencies where crossover distortion was effectively absent.

I prefer to switch off the centre channel of a receiver, since the Martin Logan Electromotion electrostatic loudspeakers I use create a better correlated centre image than a box below the TV screen (a Samsung 50in LED) and this was possible in the on-screen set-up menu.

There are no fewer than seven HDMI inputs and two HDMI outputs. Although there are both composite and component analogue video inputs, there are no analogue video outputs, only HDMI, with Audio Return Channel (ARC).

Arcam keep it simple-ish with audio. There are no faux "hall modes" nor Audyssey digital processing. There is a full suite of Dolby modes, however, including Dolby Volume, to equalise volume levels. Dolby TrueHD

as well as DTS HD Master Audio cope with HD Blu-ray soundtracks, whilst Dolby Digital Plus and DTS cope with lower resolution digital.

Stereo can be converted into surround-sound with Dolby PL IIX or DTS Neo 6. For a full and detailed list, download the AVR750 user manual available on the Arcam website. Loudspeaker auto-tuning is fitted, as well as room equalisation. I manually tune, but Arcam's system worked well enough in my lounge

On the digital side there are S/PDIF digital audio inputs, optical and electrical - and both work up to 192kHz sample rate our tests showed. There is no USB (B) for direct connection of a computer, but there is ethernet to allow network connection and the Arcam will play computer music files from any UPnP equipped computer, which means PCs, but not Macs unless a UPnP server is loaded. It also has an internet tuner (Vtuner).

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accuracy in sound



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All Quintet cartridges use the same ABS thermoplastic bodies and neodymium magnets, but each model in the range has its own sonic expression that reflects its status. From the well-rounded **Quintet Red**, through the smooth **Quintet Blue** and spacious yet dynamic **Quintet Bronze** up to the pure audio excellence of the **Quintet Black**, this series offers something for every discerning listener at a very attractive price.

The Quintet Series also includes a true-mono cartridge, for accurate reproduction of older mono recordings.



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World Radio History



There is a USB A socket for a memory stick, however, so high-resolution computer files can be played from this, the only drawback being it is rear panel mounted, making 'sneakernet' awkward. Lossless WAV and FLAC are supported, up to 192kHz sample rate I found, as well as MP3, WMA and AAC (iTunes).

Like other AV receivers the Arcam has a VHF/FM and DAB tuner, but not Medium wave. I suspect both are derived by a Software Defined Radio (SDR) tuner section because the VHF section wasn't so impressive under test, DAB/DAB+ appear to take precedence.

Whilst on analogue I should mention there is no Phono stage,

they do) when it won't react to an input command.

Like all AV receivers the AVR750 turns analogue inputs to digital, unless Direct is selected to bypass processing. A good 24/96 analogue-to-digital convertor (ADC) is fitted, but there is no digital output for recording purposes (e.g. using Audacity on a laptop).

IN USE

For £3999 the Arcam looks and feels a tad workmanlike. The remote was reasonably easy to use, however, with AMP, volume and mute fairly obvious.

Direct is also provided, and power on/off, as well as input selection of course, and set-up menu selection.

VHF transmitter, hiss wasn't obvious. However, during Radio 3 silences with volume set high a small background hiss could be heard.

Unfortunately, this wasn't the main issue. Sound quality was papery and a little coarse on VHF/FM and not very nice where Onkyo and Yamaha fit excellent analogue VHF sections and superb quality is possible. Internet radio and DAB commonly come in at 128kbps and quality isn't so good.

The Arcam saw my computer (a Mac running EyeConnect UPnP server) and its music files immediately. I was surprised that all my high-resolution files (24/96, 24/192) were flagged as Unsupported; the Arcam played up to 48kHz sample rate, WAV and FLAC etc, but no higher, and was similarly limited reading a USB memory stick. This is a surprising limitation at the price; less expensive rivals have no such problem.

In happy contrast, I hooked up my Astell&Kern AK100 MkII to one of the two optical digital audio inputs and played 24/192 high-resolution files without murmur – and with impressive results.

SOUND QUALITY

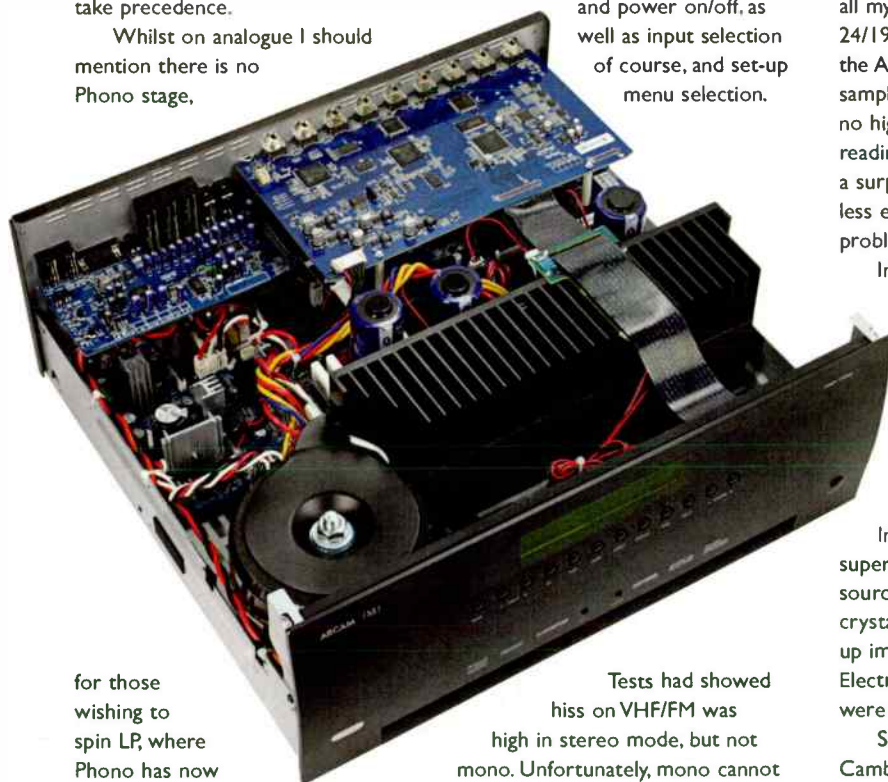
In a nutshell, the Arcam sounded superb when playing high-quality source material. The amplifier has a crystal clear quality about it, putting up images between my Martin Logan Electromotion electrostatics that were seemingly hewn in stone.

Spinning a 24/192 Blu-ray on a Cambridge 650BD Blu-ray player of the Trondheim Soloists playing 'Divertimenti', DTS HD Master Audio, Dolby TrueHD and uncompressed PCM all played fine, the big green display (as well as an OSD) flagging up the formats. Violins were a smidgen less hard and sharp than is common, and their strings better separated; the AVR750 delivered a

for those wishing to spin LP, where Phono has now been resurrected on other AV receivers.

An illuminated remote control is provided. I was disappointed to find it would not source select without AMP being selected first. This is not uncommon, but it is an irritation and you can for a moment believe the receiver has thrown a wobbly (as

Tests had showed hiss on VHF/FM was high in stereo mode, but not mono. Unfortunately, mono cannot be manually selected. The receiver switches to mono automatically when there is no 19kHz mp3 tone, and it also switches to mono at low signal levels, but it cannot be manually forced to mono. Using a large outdoor aerial providing well over 1mV for BBC stations coming into Central London from the Wrotham



Vinyl is black!



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The T-01MC moving coil phono stage has been designed to work with every moving coil cartridge from a DL-103 to a Clearaudio Goldfinger Statement. Two reviewers use the T-01MC for their reference system and another compared it favourably to a £9.5K stage noting it was almost as good and with a lower noise floor! In stock now at £995.00

TIMESTEP T-01MC PHONOSTAGE
£995



VERDICT

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FOR

- open and precise
- plenty of emotion
- plays old mono records well

AGAINST

- only available in black

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great sound here, about the best I have heard from this challenging test disc.

I found it easy to slightly tweak the balance, too, with the bass and treble controls.

Greig's 'Piano Concerto' (24/192) thundered through my lounge, played by the deft hands of Percy Grainger, and here I started to sense the Arcam's low-end push. Time for John Mayer's 'Vultures' from 'Where The Light Is' (24/96) and kick drum had real kick to it. This receiver has taut and fast bass that energised the slightly laconic bass bins below the electrostatics, bringing the Electromotions alive. That made for a great spin through of Carlos Santana's 'Supernatural' DVD-A (24/96) where 'Put Your Lights On' was blisteringly pacy, Latin American percussion picked out with force and sublime definition.

Things got better with high-resolution audio from my Astell&Kern AK100 MkII, Roberta Flack's 'No Tears (In the End)', 24/192 FLAC, again coming across as crystal clear, with no sign of fuzz or haze from

noise or jitter to stain the fine brushing of cymbals and cowbell strikes in the opening sequence, whilst the bass line strode along firmly.

This was clearly high-resolution digital; the AVR750 put up a sparkingly good performance here and I was left musing about how its apparent lack of noise and mush, its detail, grip and control complemented my witheringly critical Electromotions.

But with VHF/FM the Electromotions told a different story. I heard slight hiss during Radio 3 silences and a generally grey and edgy quality, even though signal was always 100% from my outdoor aerial. DAB offered

no better, Jimi Hendrix's 'Wind Cries Mary' at 64kbps from 'The Arrow' being sacrilegiously poor, mostly due to low data rate I must admit. But DAB offered no improvement across a wide range of stations, even at higher bitrates, excluding Radio 3 at 352kbps. The tuner section was unimpressive against what I expect from a good AV receiver.



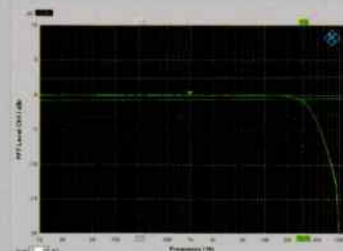
CONCLUSION

I loved listening to the AVR750; it worked beautifully with my Martin Logan Electromotion hybrid electrostatics, that critically revealed its fine treble, deep detailing and superb imaging. The bass bins suddenly started to produce punchy bass too. But happiness only existed whilst playing digital from CD, Blu-ray, or S/PDIF digital audio. I was underwhelmed by both Network and USB audio, as well as radio. Consequently, the high price seems difficult to justify unless its particular raft of strengths are those that appeal.

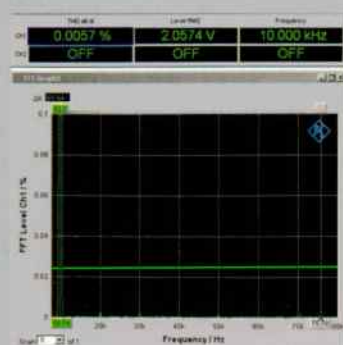
MEASURED PERFORMANCE

The AVR750 produced 153 Watts into 8 Ohms and 256 Watts into 4 Ohms, so there is plenty of power available for loud volumes, even in the biggest rooms. With a damping factor of 36 it will maintain good loudspeaker control and have quite dry bass quality. The amp ran

FREQUENCY RESPONSE



DISTORTION



cool under test.

Distortion was very low, the critical 10kHz value being just 0.004%, primarily third harmonic our analysis shows, a very good result. There was little change in the distortion pattern with level or frequency too, so harshness is unlikely. Frequency response of the amplifier was wide, measuring 2Hz-75kHz (-1dB) with Direct selected to bypass the input ADC.

The input ADC was linear, distortion measuring a low 0.04% and bandwidth reached 48kHz due to 96kHz sample rate. Noise through the ADC and DAC with input sensitivity set to maximum was a mediocre 80dB, always a limitation in AV receivers. However, the AVR's ADC still worked well enough to give good results

The S/PDIF digital inputs, both electrical and optical, accepted up to 192kHz sample rate, with up to 24bit resolution. Frequency response measured flat to 33kHz at 192kHz sample rate and distortion 0.1% at -60dB with 24bit, and Dynamic Range 106dB, good if not up with the best.

The VHF/FM tuner possessed flat frequency response to 10kHz (-1dB). Pilot tone filtering rolled upper output down fast above 15kHz. Distortion measured 0.18% at 50%, where 0.08% is possible. Noise (hiss) was high at -60dB on stereo

no matter how strong the aerial input, suggesting an SDR tuner. Mono was far quieter at -70dB but the tuner cannot be manually switched to mono.

The Arcam FMJ AVR750 measured well in most areas; the amplifier in particular is very high quality. Those wanting a quiet VHF tuner may detect hiss behind Radio 3 and 24bit digital didn't have the dynamic range possible.

NK

Power	150watts
CD/tuner/aux.	
Frequency response	2Hz-75Hz
Separation	87dB
Noise	-102dB
Distortion	0.004%
Sensitivity	110mV
Damping factor	36
S/PDIF (24/192)	
Frequency response	2Hz-33kHz
Distortion (-60dB)	0.1%
Noise	-105dB
Dynamic Range (EIAJ)	106dB
VHF/FM	
Frequency response	35Hz-11kHz
Separation	45dB
Noise	-60dB
Full quieting at	1mV
Distortion (50% mod)	0.14%

ARCAM AVR 750 AV RECEIVER
£3,999



GOOD - worth auditioning

VERDICT

Great sound quality from Blu-ray, DVD and CD, and from high-resolution digital via S/PDIF. Mediocre tuner and lack of hi-res from USB and ethernet are severe drawbacks at the price.

FOR

- high quality amplifiers
- easy to set up
- easy to use

AGAINST

- mediocre tuner sound
- no hi-res from USB or ethernet
- clunky

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www.arcam.co.uk

Top Technics

Technics RS-1500 series of open reel tape decks is surveyed by Tony Bolton.

Back in the 1970s there were two tape formats available to audio enthusiasts. The compact cassette, having originally been introduced as a dictation medium in the early 1960s, had been dramatically transformed by the likes of Tandberg and Nakamichi into a true high-fidelity recording and playback format. However, serious recordists were still wedded to open reel tape and in 1976 Technics introduced their RS-1500 series of machines which are, even today, regarded by aficionados as some of the finest tape recorders and players ever to have been created.

The range started with the three speed RS-1500U and 1506U models, the difference between the two being down to the choice of 2 or 4 track recording ability. Later on they were



Tape transport. The direct drive capstan mechanism is based on the quartz-controlled, phase-locked servo system originally developed for the SP-10 Mk.II turntable

joined by the RS-1520U (2 track with 4 track play and added eq/bias/oscillator panel) the RS-1700 (4 track auto reverse, also available in silver as the RS-1700US) and the RS-1800U (a

(called an Isolated Loop system) was unusual in having two large pinch rollers rotating against a single capstan at the top of the tape loop. The U in the deck's nomenclature is

“I felt that every groaned utterance of his distinctive vocal style was quite effortlessly put in front of me for my perusal.”

76cm/sec studio machine).

All of them shared the same big, direct drive DC motors for the reels and the capstan, these all being controlled by some very comprehensive solid state circuitry. This gave instantaneous switching between 9.5, 19 and 38 cm per sec (3 3/4, 7 1/2 and 15 ips.) and vanishingly low wow and flutter figures of 0.018% WRMS (+/- 0.035% DIN).

The tape tensioning mechanism

due to the shape the tape makes as it traverses this mechanism. At the bottom resides a 34mm reversing roller. All of this combines to feed the tape past the heads with minimal disturbance and a working tape tension of only 80g, which is considerably lower than most machines could manage, and contributed to the excellent speed stability figures and sonic performance.

At its top speed the claimed



Direct-Drive Reel Motor

Aluminum Diecast Chassis

Direct-Drive Capstan Motor

The direct drive reel and capstan motors and (centre) in place on the aluminium chassis. Since no drive belts or clutches are used, the brushless DC motors can get up to their top tape speed of 38 cm per sec. in 0.7 seconds.

frequency response was 30Hz-30kHz, at 19cm/s it was 20Hz-25kHz and at the slowest speed 20Hz-15kHz (all figures +/-3dB). Channel separation was better than 50dB.

With Mic and line-level inputs alongside headphone and line-level outputs and even the option of a dedicated battery power unit available should you wish to take your RS-1500 out and about (if you didn't mind lugging the 25kg weight around) the deck was fully equipped for most needs and eventualities.

Today good examples are becoming rarer - especially on this side of the Atlantic. Working examples that need a service can be bought for around £500 but a fully serviced and restored model such as the one used in the article, is available from Timestep (www.time-step.com) for around £2000, depending what work has been needed on it.

In use it feels surprisingly modern for a mid 1970s design. The switchgear is electronically controlled and the Isolated Loop tape system means that there are no undignified mechanical noises when operating the deck.

I tried the machine with some good condition pre-recorded tapes dating from the late 1960s and also with recordings made from vinyl, the former being recorded at 19 cm/s and the latter at 38 cm/s.

The sound of the 1960 recording of Bernstein conducting the New York Philharmonic playing Rachmaninoff's 'Piano Concerto No. 2' was excellent. The stability of the piano notes was exemplary and the presentation of the orchestra was detailed and spread across quite a wide area in front of me. The imaging was rock solid with the piano just to the left of centre.

I also listened to Bob Dylan's 'Bringing It All Back Home.' Side two starts off with 'Mr. Tambourine Man' and I felt that every groaned utterance of his distinctive vocal style was quite effortlessly put in front of me for my perusal.

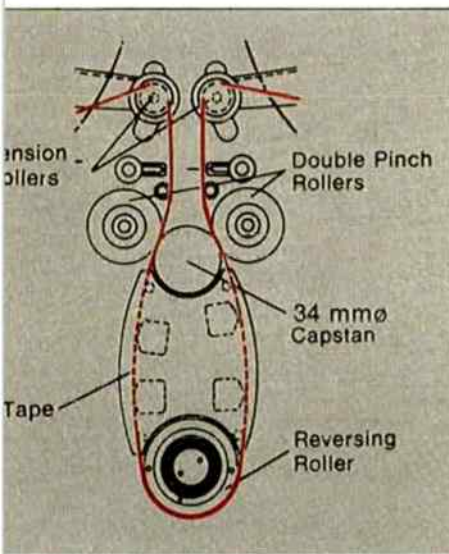
Later on, when switching between source and tape with the recordings made from vinyl at 38 cm/s I can honestly say I was hard pushed to tell the difference. This machine seems to be capable of making some of the most faithful copies of a recording that I have heard in over 25 years of using various high-end tape recorders.

If you are interested in first-class analogue reproduction that avoids the end of side distortion and surface noise issues that can affect vinyl then high-quality open reel tape is one of the best sounding options available, and the Technics RS-1500 is one of the best ways to explore this format.

It is beautifully made, seemingly without compromise, and sounds amazing with either pre-recorded or self-recorded material.



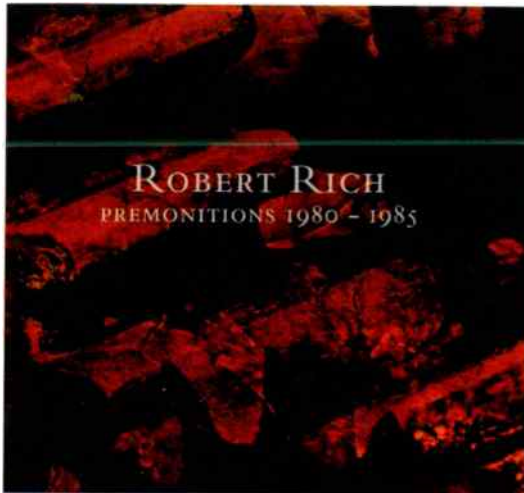
The transport mechanism switches are controlled by an IC logic control. This solid state transistorised switching arrangement ensures that there are no relays or mechanical switches employed in the mechanism.



The tape travels from left to right (downwards, round the reversing roller then up on the right side) around the head block. The diagram shows the heads in order following the direction of tape travel; 4 track playback, 2 track erase, on the left, and on the right are 2 track recording and 2 track playback



This is the cover shot from the original 1976 sales brochure. The RS-1500 boasts 2 track record and playback and 4 track playback, whereas the RS-1506 has 4 track record/playback and 2 track playback. Both are three-speed machines.



ROBERT RICH

Premonitions 1980-1985
Vinyl On Demand

A four-LP box set that examines Rich's early career, most of the included music is previously unreleased or only ever appeared in a very limited fashion on cassette tape via the Auric Label or Swedish Psychout Productions (aka Multimood).

In technical terms, the box set has been beautifully remastered to take advantage of its nightmarish frequencies.

The soundstage has been set up almost theatrically with a deep, 3D effect that spins away towards the perfectly mounted central stereo image. In fact, in purely technical terms, listening to this album on a quality reference is like the first time you may have tried a good quality pair of 3D glasses on a top notch flat screen TV.

The effects are quite arresting. Trekkies will love it, for example. It certainly has that cosmic singularity about it. In fact, there is a deep space flavour to the box set with

its vintage synths and swirling, rotational patterns that swoop and dip, spiral and spin uncontrollably into the atmosphere: which is maybe why Disc One, Side A, features the side-long track 'Selene & Ether'.

Disc Two has a sense of being rather more down to earth. It is quite meditative in a serious way. A work of concentration, in fact, that contrasts with Disc One's expansive view on the universe.

In fact, Disc Two's repetitive rhythms lend themselves to more introverted, introspective examinations. Disc Three reflects the natural world, the world around us and how we fit in it while the final disc takes us on a journey inside our mind. If anything, this is the biggest, most daunting piece of music of the entire box set. The expanse is limitless. A sequence of soundscapes without boundaries, in fact. Overall? This is quite an affecting symphony of electronica.



O.P.M.C.

Product Of Pisces And Capricorn
Wah Wah

A decidedly obscure album from an obscure duo. Released in 1971, O.P.M.C. (Oldest Professional Music Company – a nod to the Amsterdam Red Light district) was the product of two men, Scotsman Barrie Webb and Dutch artist Teun van der Slikke and their occasional drop-in chums.

Right from the first few seconds of the first track you get a real East Coast, folk rock vibe. That sunny combination of perfectly-formed vocal harmonies (there's some Crosby, Stills & Nash in there), a clarity in presentation that screams California and an unhurried tempo that exudes confidence that, hell, there's plenty of time to sing these songs and, well, if we end up with a 25LP box set instead of a single album then, hey, it was meant to be...man.

That said, there is more to this group than kicking back

and dropping out (although the rumours of their drug intake might prove otherwise). There is also a melancholy tone to their work. A feeling of loss and regret that adds a dark edge and a flavour of loneliness.

Fans of early period Bee Gees and mid-term Beatles will find an affiliation with this album. The melodies fall easily from each song and gentle hooks will have you humming after the second listen.

Technically, the album has a golden glow that anyone familiar with early seventies productions, will be familiar with. There is a distinct warmth that adds to the relaxed demeanour of the group. In this way, the upper mids could be sharper while the transients may have been more precise but, to be honest, if they were, then the magic of this LP would be lost. This is a perfect period piece that reflects a time and a place and way of life.

Depeche Mode fans can now dance around wildly, flailing their arms above their heads because Music On Vinyl has released the group's entire back catalogue on vinyl. That means, from their debut album 'Speak And Spell' to the most recent release 'Delta Machine'. All arriving in glossy gatefold sleeves and 180gm vinyl along with inserts and sleeve notes.

To provide a bit of focus, I chose to review the classic album, 'Violator' in a bit more depth.

This is the band's most impressive title, a consistent and perfectly-structured album with a suite of sublime songs that sit on the foundation of sympathetic and considerate production values. It is an astounding album and a career high - among a fair few catalogue 'highs', it has to be said.

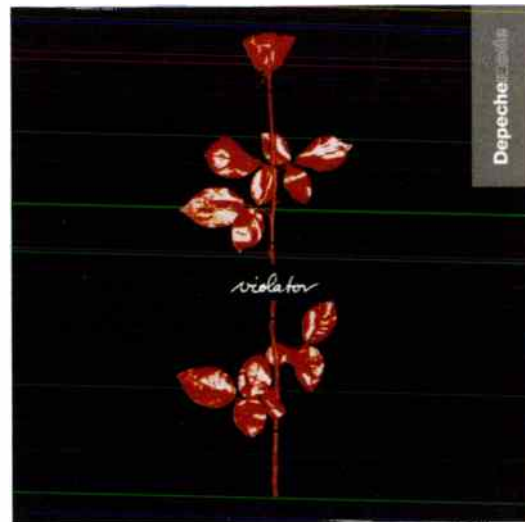
Dip into this album and pick out an impressive track. 'Enjoy The Silence' is a real sing-a-long track

that has a rolling, insistent pace. The track is a hook-laden fest on its own and never overstays its welcome.

The next track, 'Policy of Truth' is an ideal one to reflect on the technical aspects of this album and the other Depeche Mode LP releases from Music On Vinyl.

There is a real transparency to the overall presentation of this album. Every aspect of the studio recording is laid bare by the mastering. Even during high-energy, high-volume sequences, subtle secondary percussion is easily discernable.

Tambourines and subtle cymbal splashes wash across the soundstage with fragility without becoming swamped by the powerful, tight bass. Every Depeche Mode fan that values sound quality really needs to check out the entire Music On Vinyl reissue series. Unfortunately, its appearance has just made your current Depeche Mode vinyl collection redundant.



DEPECHE MODE

Violator
Music On Vinyl

AUDIOPHILE VINYL

A real rarity for Shadows fans is this twelve-track LP (with a free CD as part of the package) that was originally released by Columbia in Italy in 1964 and featured tracks from the group covering the period from 1961-1963.

More to the point, five of the included tracks are rare B-sides while the cover features the original Italian sleeve notes. Tracks include 'Shazam', 'Sleepwalk', 'My Resistance Is Low', 'That's My Desire' and 'I Want You To Want Me'.

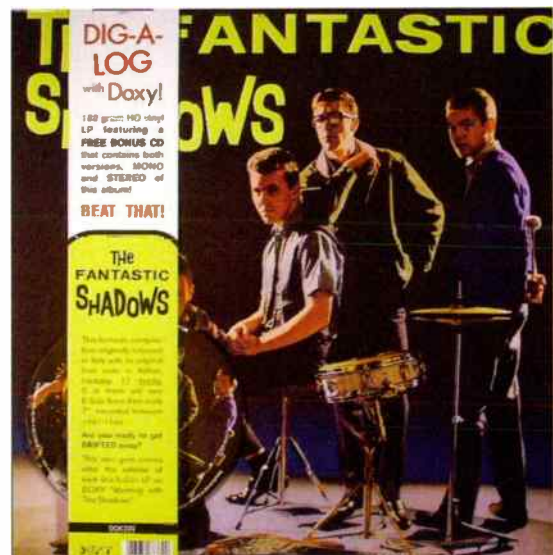
The easiest things to do when remastering old mono classics like this album is to not only ignore the inherent compression but push the effect to extremes and add a slice of excessive peak limiting too. To its credit, Doxy has not done this. On the contrary, the label has opened up the restricted mono soundstage to provide some very creditable instrumental separation which

means that Bruce Welch's acoustic rhythm guitar is beautifully light, airy and quite fragile during his Spanish style strumming on 'Geronimo'.

Similarly, Hank Marvin's lead guitar not only has immediate and bold presence as a lead 'voice' during the same track but the bass frequencies of his meaty lead guitar gives the track a solid strength and weight, adding a measure of gravitas. Again, on 'Shindig', a wholly lighter 'fun' track, the percussion is impressive with spacious cymbal work giving the track a new dimension.

On one of the rare vocal tracks, such as 'Baby My Heart', the voice is placed exactly in the heart of the stereo image and pushed a touch towards the listener to provide an essential stage effect.

This is an excellent release. In fact, I was surprised just how exciting this album sounded - I look forward to hearing more from Doxy.



THE SHADOWS

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Pro-Ject
AUDIO SYSTEMS

Titan cables

Based on the South coast of England, Titan Audio will be a new name to most of our readers. They have been making mains cables for two years and offer a choice of six different leads. Tony Bolton plugs in and takes a listen to the two most affordable of the range.



Titan Audio may be quite a new name to many readers – but the construction of their cables points to a company who put a premium on quality.

Both these mains leads are impressive to look at – with heavy braiding and a feeling of some substance when picked up in the hand.

The slimmer of the two is the Tyco, retailing at £75 for a 1.5m length. It features a copper Wattgate connector at one end and an MS 13 Amp plug at the other.

The £150 (1.5m) Helios lead is fitted with a Rhodium plated Wattgate connector and a MS 13 Amp plug at the other end. All of the plugs on both leads are cryogenically treated.

Internally they both feature Oxygen Free Copper conductors which are braided to reject the effects of EMI and RFI. Both have several layers of screening with drain leads inside the braiding.

Since the manufacturers are keen to protect the results of their research I have been unable to discover anymore about the construction or design of these

products.

It is worth noting, though, that these

are quite substantial cables

so at least six inches clearance is required behind equipment to allow them to gently curve into position. The

minimum lengths available are 1.5m with longer ones available on request.

I plugged them into the Leema Acoustics Tucana

II amp and Antilla 2 S Eco CD player and started listening. My first impressions were of a rather tight sound that is typical of new leads so I left them in situ for a few days to run in.

The sound started to relax and open up after about ten hours of usage and when I settled down to do some comparative listening after about three days of use I found quite a different sound to the one which I had first encountered.

Starting with the Tyco, this lead is primarily aimed at source components where I found it was well up to the standards set by the competition, offering a quite open sound with a sensation of quite fast and reasonably deep bass. Mid-range projection was good with soloists seeming to be placed a little ahead of their accompanists.

The heavier Helios lead was also tried on the Antilla CD player where it seemed to open up the soundstage more than its sibling and to provide a fuller presentation in the bass regions.

When used to feed the Tucana II amplifier it produced a very solid sound that got the Charlo Ursa Major loudspeakers subwoofers moving effectively.

Treble response from both leads was smooth, the Helios offering more detail in this area that allowed the sound of the recording venue to show through.

Both cables offer a performance that is good value for the money invested in buying them and are a very substantial improvement on those supplied by most manufacturers.

The Helios in particular seemed to let the music flow just that little bit more naturally.



TITAN AUDIO TYCO MAINS CABLE. £75 FOR 1.5M



EXCELLENT - extremely capable

VERDICT

Best suited to source components, this cable offers a smooth, detailed presentation of music

FOR

- good mid band and treble detail
- quite deep soundstage
- tight timing

AGAINST

- nothing at the price

TITAN AUDIO HELIOS MAINS CABLE. £150 FOR 1.5M



OUTSTANDING - amongst the best

VERDICT

A heavier cable that can be used with integrated and power amplifiers and offers a good, open sound

FOR

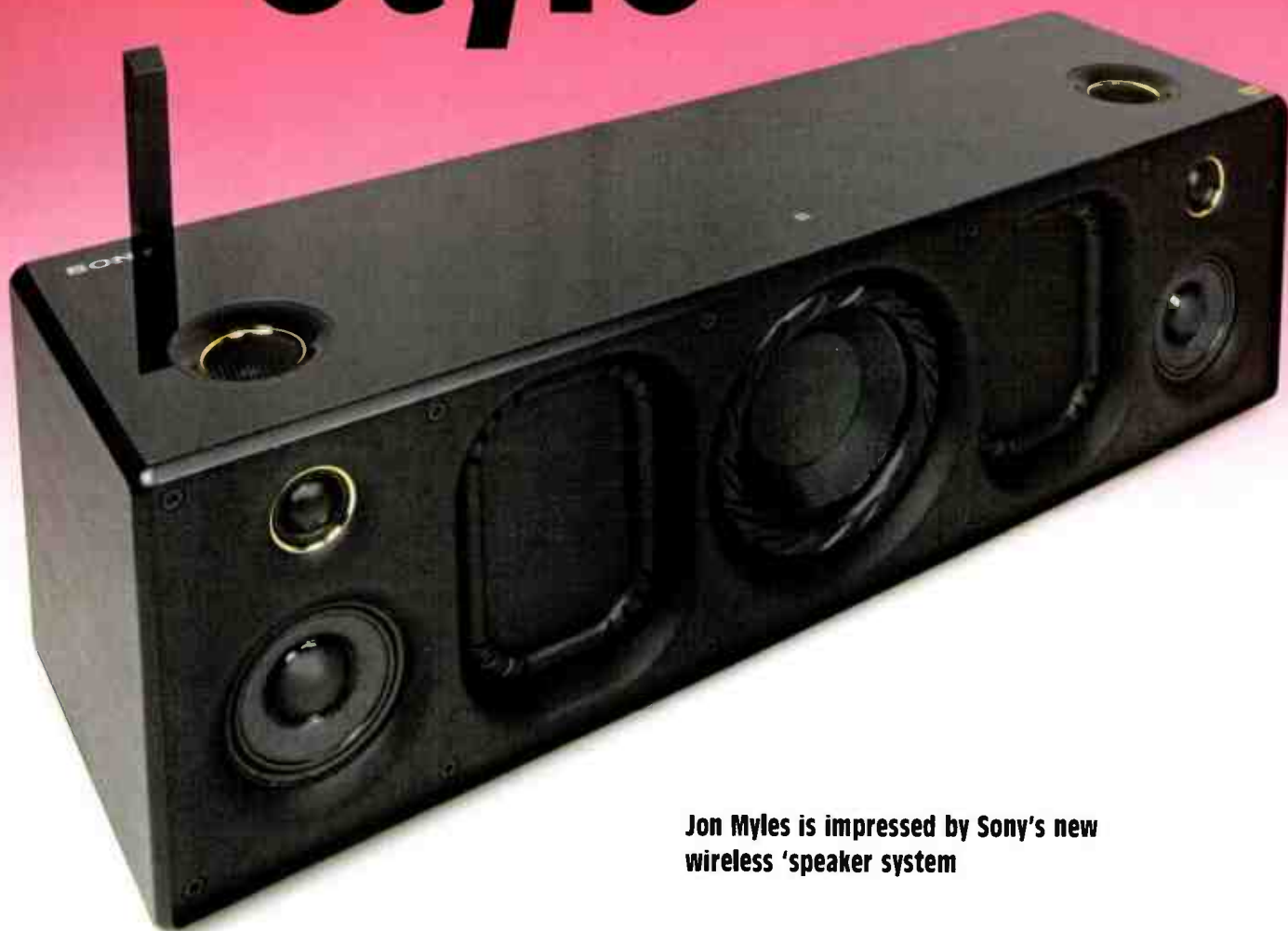
- well formed deep bass
- expansive soundstage
- detailed treble

AGAINST

- may be a tight fit behind some equipment racks

Distributed by Zepher Audio
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www.titanaudio.co.uk

Sony Style



Jon Myles is impressed by Sony's new wireless 'speaker system

Wireless speaker systems have come on apace in the past few years – both in terms of usability and sound quality.

And with more and more people storing high-resolution music collections on their desktop or laptop computers they're becoming an ever more popular choice in the marketplace.

So no surprise, then, to see Sony devoting some of its massive design

expertise to an upmarket wireless soundbar-style system.

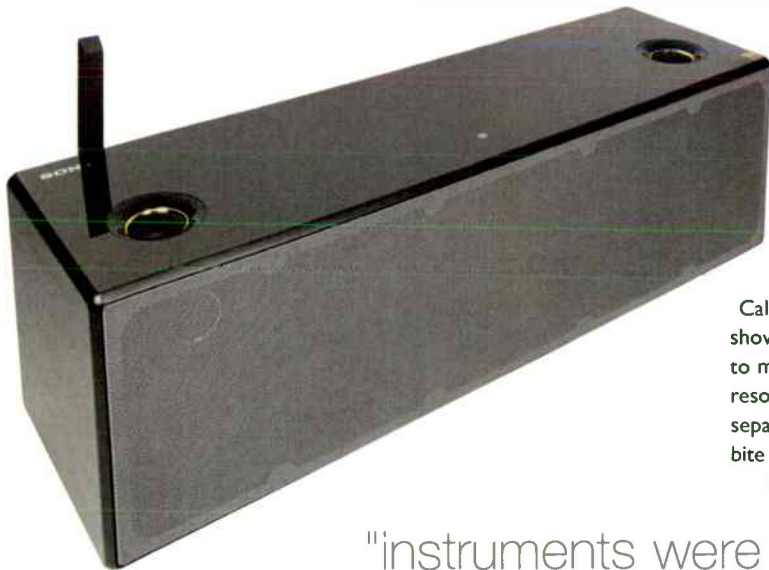
And make no mistake, the SRS-X9 is aimed firmly at the serious audiophile – coming in at a penny under £599 and featuring comprehensive connectivity options.

It's a typically sleek Sony design measuring 133 x 430 x 125mm (h/w/d) and weighing in at a sturdy 4.6kg with a black glass top, removable metallic grille and brushed metal sides.

Underneath that glass top are

touch sensitive controls for on/off, volume control and input selection while the unit itself sits on five rubber feet for effective isolation.

At the rear are USB A and B inputs, an Ethernet port, 3.5mm audio-in jack as well as a WPS button for connection to a router. The Sony also supports aptX Bluetooth and Apple's AirPlay for streaming from a smart device and is DLNA certified. A retractable aerial in the top right-hand corner of the unit helps boost wireless reception if needed.



A pair of tweeters on the top of the SRS-X9 help give a sense of scale to the sound. Beneath the front grille lie another five speakers as well as a pair of passive bass radiators.

All the major file formats are supported including AIFF, FLAC, WAV and ALAC up to 192kHz/24-bit as well as DSD.

A slim, basic but functional remote control is supplied but Sony's free SongPal app is more convenient and gives total control as well as access to Deezer, TuneIn and Sony's own Music Unlimited service.

Comprehensive input options mark the Sony out from many competitors. A neat foldable aerial also helps boost wireless reception for high-resolution streaming.



"instruments were well-separated with excellent clarity and bite to the top end too"

Inside the box is a 154 Watt digital amplifier supplying power to the seven speakers. Two tweeters sit on the top of the SRS-X9 to broaden the soundstage while behind the front grille is a central woofer flanked by two bass radiators along with a pair of mid-range drivers and two more tweeters.

All in all, the SRS-X9 is an impressive product that oozes quality. Set-up and ease of operation is exemplary and in use its wireless connection remained rock-solid. Sony's SongPal is also one of the better music apps out there, giving easy access to both computer and NAS-based music collections.

SOUND QUALITY

Fire the Sony up and you're immediately impressed by the scale of the sound it produces.

Those tweeters on the top help to give a wide and well-defined soundstage with music pushed well into the room. The Pixies 'Indie Cindy' comes over as big and bold with a good sense of punch to the bottom end.

Indeed, the Sony's bass performance is

better than I expected from a unit this size. It's taut and tuneful – and refreshingly free of that one-note thump you get from some lesser one-box units of this sort.

Moving up to some high-res material in the shape of The Clash's classic 'London Calling' in 24/96 and the Sony showed it has the resolving power to make the most of the increased resolution. Instruments were well-separated with excellent clarity and bite to the top end too.

Push it really hard and, inevitably,

the Sony does start to show its limitations. Turning the volume up on a 24/96 rip of Stravinsky's 'The Rite Of Spring' there was a touch of steeliness to the treble while the orchestral crescendos were devoid of the sheer physical power provided by a pair of good standmount loudspeakers.

But that's only to be expected in a relatively compact device such as this. Used it within its limits, however, the Sony is tremendously impressive.

CONCLUSION

The Sony SRS-X9 is one of the best one-box units out there at the moment.

It has a natural, detailed sound that is more than capable of filling a medium-sized room with music, so long as you're not looking for ear-splitting volume.

Add in the fact that it can handle almost any file format you care to throw at it and this little system begins to make a lot of sense.

Sony's remote control allows total system access. A free app is also available for those with smart 'phones.



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"Where was the disco version of 'Dark Side Of The Moon'?"



Paul Rigby

I must admit that I don't really watch too much TV. I'm too busy doing other things. What I do watch is normally your typical DVD box set or something off the back of recorded TV via my ITB Sky box.

When that begins to get a little full, I archive onto blank DVDs. I'll do this especially with old films – you see a lot of rarely aired movies on TV when you channel scan – plus music programmes.

In general terms, the BBC 4 channel is arguably the best media source in the UK at present. It not only features a host of excellent documentaries and drama but a wealth of superb music is regularly shown in either concert or documentary format.

A few archived goodies, recorded some time ago but only seen recently, was all about disco. I must admit that I do have a penchant for the genre: especially Chic and Sister Sledge. The programmes mixed documentary investigations alongside 'At The BBC' performances.

One thing that only recently hit me about disco was that here was a music genre that lasted from around 1972-ish to sometime around the very early eighties and at no time in those eight to ten years did anyone ever say to me, "Go listen to that superb album by this or that disco group". Not once.

What I did hear from a wide range of people and plenty of times through my very own ears, where heaps of top-notch, even classic, disco singles.

But where was the disco version of 'Dark Side Of The Moon'? Whoever did their best John Travolta impression while throwing a boogie to disco's version of 'Sgt. Pepper'? Boogied on down while drinking Dr Pepper, yes, maybe, but not one of my acquaintances ever, ever gurgled

a Babycham and talked, rather philosophically, about disco's version of 'Blood On The Tracks'.

All of those brilliant disco singles didn't arrive on their lonesome, oh no. They hitched a ride on an album on their way to the Top 10. But what of these albums? What happened to them? Where did they go and why don't you see many of them even in the second-hand bins at record fairs? They're there, but not in tremendous numbers.

For example, one of the best disco singles of all time was penned by one Tom Browne, even though Browne was a jazz-funk man – that's his piercing horn intro, at the beginning of 'Funkin' For Jamaica'.

A song that is designed to get you up off your chair. It's almost impossible to play this song, especially with a pair of speakers fitted with healthy sized bass bins, listen to the introductory bass guitar and sit still. But who ever bought 'Love Approach', the album that classic single derived from?

With a bee in my bonnet, I scanned the internet to see if anyone was pushing out these albums to the great musical populous and came across BBR (www.cherryred.co.uk/bigbreak.asp).

We've talked about this label before in Hi-Fi World but, I must admit, I'd lost touch with them so it was interesting to see how they were getting on.

Surprisingly, and gratifyingly, the label exists to do exactly what I've been highlighting. That is, its intention is to get those 'lost' disco albums (plus funk and soul LPs) out there for people to re-discover or, for most of us, discover and enjoy for the very first time.

They stock that Tom Browne effort, for example, plus many more... For example, you will know Chaka Khan's 'I'm Every Woman' but not

too many people will have bought her debut album, 'Chaka', from 1978, which highlighted her superb dynamic range.

A Taste Of Honey produced superb disco singles including 'Boogie Oogie Oogie'. Far from being powder puff producer's puppets, singers Janice Marle and Hazel Payne were, on their self-titled album from 1978, both versatile and expressive, featuring slices of funk and soul with their disco oeuvre.

One of the best disco outfits on what we medallion-wearing, quiff-quuffed, hip-thwacking cognoscenti liked to refer to as the 'scene', was Brooklyn Dreams which issued a superb duet with the great Donna Summer.

'Heaven Knows' was one of their best-known tracks which appeared as the last track on 'Sleepless Nights' (1979) but the outfit's self-titled debut in 1977 was one of the most consistent albums of the period.

You can also find stonewall classic albums that specifically reference and are influenced by disco: Shalamar's 1982 album release, 'Friends', to be specific. It packs in 'A Night To Remember' and 'I Can Make You Feel Good' as two massive hits but also the excellent production created by the label, Solar. With lush harmonies and slick aesthetics, this is an album to savour.

In short, there are plenty of undiscovered gems that lie behind the bright glare of the catchy-as-hell disco hits.

Maybe the conveyor belt of cool singles was just too fast for us to take a breath and notice their associated albums.

As time has now passed, I'd recommend partaking in a quick double-take. You might just find a surprise or two lurking in the groovy grooves. ●

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"do you ever have those moments on ebay when you know that you shouldn't, but..."



Tony Bolton

I am sure that some readers will understand me if I ask, do you ever have those moments on eBay when you know that you shouldn't, but....

Well, I had one of those moments recently, and I hold friends of mine entirely responsible.

It all started because of a remark made by these friends, who currently have custody of my Dynatron Berkeley while the windows of Bolton Towers are removed, repaired and replaced. They have decided that they like it as a piece of furniture, it fits into their sitting room style-wise and that it was in danger of not being allowed out of their flat!

Soon after this comment was made a Dynatron Ether Princess P84, dating from 1950, appeared on eBay, and it was reasonably close to my Devon home. I expected the price to go up way beyond my financial abilities but with only a couple of minutes to go on the auction the price was still affordable.

Now, when it is something that I don't regard as an essential purchase, I leave things to luck. I bid at 12 seconds before the end time, taking the view that if I am outbid then there is not time for me to get carried away and increase my bid to silly levels, thus luck decides if I win or not.

So at 12 seconds I put my bid in. Nothing happened. My internet connection had gone west. I tried a couple more times, then reloaded the page. By this time there was 5 seconds left. I hit the bid button again. It went through this time. I pressed the confirm button and the bid was accepted with a second to go.

I held my breath for a moment as the page reloaded, and I found that I had won, at £1 less than my maximum amount. The fates had obviously decided that this machine

was destined to pass through my life.

Over the next few days I discussed travel arrangements with the seller, who is based in mid-Cornwall. He very kindly offered to meet me halfway between our homes to deliver it, so a suitable spot at some services near the Cornish border was chosen with a date to be finalised.

In the meantime we had a discussion about the radiogram. It turns out that he is retired and occupies a fair amount of his time in dismantling and repairing both mechanical and electronic items for fun.

The power amp on the gram was fine after replacement of a dead Z77 valve, although the original KT61 valves had at sometime been replaced with a pair of EL33s. These are often regarded as a substitute for KT61s (along with 6P25s) although neither are actually a direct replacement, but they are close enough in performance that they will work.

The T47 tuner/ pre-amp was mostly working, just the tuner section needing a X79 valve which operates as the local oscillator. These are apparently not the most reliable valve that man has ever invented, but a few enquiries that I made elsewhere tracked down a known working example so I was not worried about that.

The record deck currently fitted seems to have been installed in the late 1960s, a Garrard 3000 fitted with a Sonotone crystal cartridge that is now defunct. A Garrard RC75 from the mid 1950s was also included in the sale. This has a Cosmocord GP39-1 crystal cartridge fitted. Since, to the best of my knowledge, all Dynatrons of this era originally had magnetic heads, both cartridges would overload the pick-up input on the pre-amp.

Although the input is tolerant enough to cope with this, it is not ideal, so I will be looking into more suitable replacements both deck and cartridge-wise.

A mutually convenient date of this last Sunday was agreed for the handover of this machine, and so I set off with a friend to collect it. All went well and I am very pleased to report that my 1997 Nissan Micra's Tardis-like ability to swallow large loads proved up to the task (the Ether Princess is 35" wide, 36" tall, 18" deep and weighs about 12 stone).

It was swaddled in duvets to protect it during the journey and is now occupying the space by our breakfast bar, where there is plenty of room and good light, so that I can work on it easily (domestic negotiations agreed that breakfast would be served in bed to other household members, while the breakfast bar area is out of use! A fair agreement, I feel).

I had one disappointment. The advert said that there was no woodworm but a close examination revealed 13 holes in the cabinet on the left-hand side. Admittedly there is no sign of any recent activity. The holes are discoloured by age and there is no sign of any of the little piles of whitish dust that are the tell-tale sign of worm activity but I am spraying it with a suitably noxious substance just to make sure.

My friends, whose comments regarding my Berkeley started this escapade, have expressed an interest in having the P84 so I am looking into suitable record deck and cartridge options that would be kind to, and safe with, their record collection.

In the meantime the cabinet will be fed with a good beeswax polish to restore the shine to the light walnut veneers, while I procure replacement valves and decks. I'll keep you updated, as always. ●

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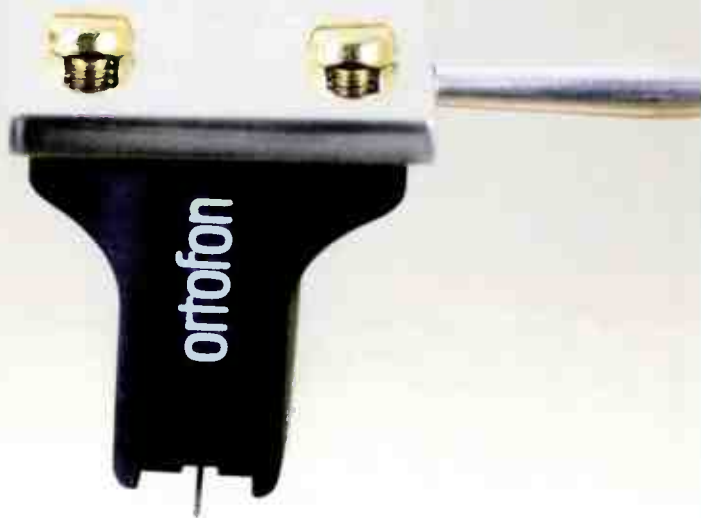
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"these LPs ... are as authentic as an analogue CD"



Noel Keywood

As our deadline for securing The Beatles in Mono box set loomed I became desperate. The review was scheduled for this issue but we had no LPs. Perhaps, I thought, Amazon would take precedence over Hi-Fi World (!) and I could buy a set from them faster than get review samples from Apple Corps. So I did what we all do now, resorted to Google.

What I saw took me aback. Retailers were clearing all sorts of Beatles box sets on the internet. And this makes a confusing situation even more confusing. The only company to genuinely offer the new The Beatles in Mono LP box set I am talking about was Amazon, at exactly the £288 price set by Apple Corps, with a clear notice that the LPs are unavailable until 1st September 2014. But what you get in a Google search depends upon what you type in - and potential buyers won't necessarily see this particular advert.

The range of albums on offer was extraordinary. Here's what I found in response to a UK Google search.

First I typed in 'The Beatles in Mono box set', as well you may, most people entering as little data as possible into search engine boxes. This came up with a picture of just what I was looking for. Even better, Amazon were offering it for £160.66.

£160.66? That's a suspicious bargain, because it is officially priced at £288. Reason - I didn't enter the vital piece of information 'LP'. Yes, there has been another The Beatles in Mono box set and this one refers to the CD issue from 2009. So you have to know and specify the physical format or end up with something a lot different to that expected. Only in the small text is this identified as a CD set.

Why not save £127.34 for a set of CDs, buyers may be tempted to

think? You can, after all, rip them to your portable, as well as play them at home on the CD player you already own.

There are two reasons. First is that LP was the original medium, so CD does not offer authenticity. Digital still does not sound like analogue and the CDs do not sound like the LPs.

Non-savvy buyers are unlikely to know the second reason for not buying the CDs. They were mastered from a 2005 24/192kHz digital copy master of the analogue tapes that has been condemned on-line as imposing hardness and glare that wasn't in the original LPs. The new LPs remedy that criticism by being derived direct from the master tapes, making them a different animal altogether.

So much for paying less for the CDs. But what else is on offer? Well, at the top of Google page 1 was a The Beatles in Mono box set 13 CD collection for \$680 with free shipping to the UK, supplied by Drive of Life, situated in mainland China. Just contact Mary Wang with your credit card. I don't think I will be doing this. MusicDirect in the USA are offering the same set for \$219 which sounds more like it.

After page 1 of Google I started to encounter the rarities. How about this one, at <http://eil.com/products/The+Beatles/Singles+Box>. It is The Beatles with Tony Sheridan, an early collaboration in Hamburg, pre-fame. This is a Japanese CD and may well be a valuable rarity, but you have to remember here that although Japan had its own high quality Beatles CD issues, they are easily copied (i.e. faked). I wouldn't price it like an early mono Parlophone mono LP, that may reach hundred of pounds, or a Sheridan/Beat Boys 1962 demo single that reached \$15000.

Then there is the Stereo vinyl LP box set, released 2012. It's selling

for around £300 from Amazon and plenty of other retailers around the world, and contains the lovely - and last - Abbey Road album. The mono collection lacks this classic album. Surely then, it's best to buy the stereos and get all the albums in one set, and if you want mono just flick a mono switch.

Er, yes!

Not many amplifiers have mono switches and the mixing of the stereo LPs is considered inferior to that of the monos; less time was spent on stereo mix-downs in the early days.

Worse, the stereos are again derived from that digital master tape made in 2005. It is top resolution 24/192, granted, but as digital goes 2005 is when Barney Rubble was at the controls. These LPs have a low sonic credibility rating, and are as authentic as an analogue CD.

My trawl of the internet's Beatles offerings leads to a few simple conclusions.

Firstly, Apple Corps and Abbey Road Studios have genuinely sought to offer a definitive product in this new mono box set; there's little to compare with it. I think it will be accepted as such, because there's no more you can do to get closer to the original performance.

However, that does throw into light the mistakes of the past. What now of the stereo LPs? Will these ever be re-issued from the new analogue copy masters that have been made, I'm told, to preserve the original tapes that are shedding oxide? And I haven't mentioned the U.S. albums that Americans better recognise. There's more to go...

My internet foray showed buying The Beatles isn't as easy and straightforward as I had imagined. It's a massive market, one in which LP cannot be challenged. And there was nothing I could buy to save the day. Oh shame. ●

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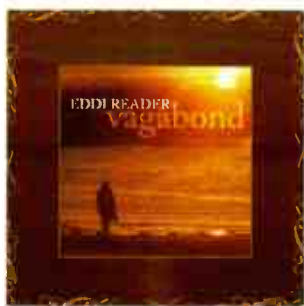
THORENS TD209 83

Tony Bolton reviews a great new turntable from Thorens

ACCESSORIES 89

Vital vinyl accessories reviewed by Tony Bolton

news



EDDI READER

Eddi Reader's new album, 'Vagabond' (Diverse Records; diverserecords.com) is possibly her most accessible LP to date and certainly her most mature and insightful. A folk/jazz triumph.

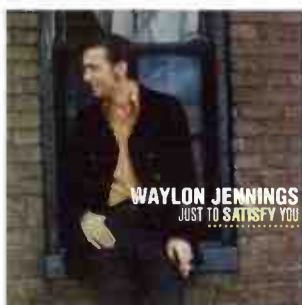
I'LL BE BACK

One nice little addendum to my Record Store Day piece in last month's issue is this 7" EP of Brad Fiedel's Terminator 2 Theme from Silva Screen (www.silvascreen.com). Featuring a silver foil-embossed cover it includes: 'Main Title (Terminator 2 Theme)', 'Escape From The Hospital (And T1000)', 'Trust Me' and 'I'll Be Back'.



WAYLON JENNINGS

From Bear Family (www.bear-family.com) 'Just To Satisfy You' isn't a rehash of the so-so 1969 Waylon Jennings album but a reissue of his excellent 1970 A&M early rarities collection with the first ever version of that title song, plus five bonus tracks not on that album: 'Love Denied', 'Rave On', 'I'm Coming Home', 'Big Mamou' and 'Sing the Girls A Song, Bill'.



MOV

Starting with a couple of rarities from Music On Vinyl (www.musiconvinyl.com) is 'Screamin' For My Supper', Beth Hart's excellent, rough-hewn 1999 release. This 2LP edition has an etching on side D.

Elvis Presley's 'Elvis '56: Collector's Edition' features a sparse, earlier take of 'Heartbreak Hotel', full recording data and rare photos.

More standard releases include Beverley Martin's new LP 'The Phoenix and The Turtle'. Emotive and luxurious, Martyn's delivery is both sensitive and vital.

Amos Lee's self-titled LP (2005) recalls a more organic Bill Withers/James Taylor release while Suzanne Vega's 'Solitude Standing' (1987) is a brave (and successful) attempt to utilise 'historical' works for a new album project.

Can't say I've ever seen 'Rufus And Chaka Khan Live: Stompin At The Savoy' (1983) too often on vinyl but this 2LP set (three sides live plus a studio side of songs) recaptures the band's energy.

Roger McGuinn's 'Cardiff Rose' (1976) sees the ex-Byrd man paired with David Bowie chum Mick Ronson. Arguably McGuinn's best solo effort, it certainly rocks.

Also look out for: Blue Oyster Cult and 'Agents Of Fortune' (1976) featuring '(Don't Fear) The Reaper', a solid, pop rock-infused outing and the Lemonheads' 'It's A Shame About Ray' (1992) the punk/indie rock band's best album packed with hooky, sunny melodies.



AND THAT'S JAZZ...



Making its first appearance in this column is the Black Saint label (www.goodfellas.it) and improv sax player Julius Hemphill's 'Raw Material And Residuals' (1977), a major modern jazz LP of improv and hard bop, combining clever writing with unadulterated rage.

Art Ensemble Of Chicago's Joseph Jarman & Don Moye's original external project 'Black Paladins' (1979) is both jubilant, infectious and upbeat.

Also look out for Bill Evans/Jim Hall's 'Undercurrent' (1963; Doxy, www.goodfellas.it). It's a great album and notable for being on clear vinyl, which removes damaging magnetic influences from the carbon black of the common vinyl platter.

Two from Waxtime (www.discovery-records.com) now. Oscar Peterson Trio's 'On The Town' (1958), a live Toronto recording with Herb Ellis and Ray Brown. Peterson offers complexity with melody but always swings.

Also look out for Kenny Burrell's 'Weaver Of Dreams' (1961) which shows the man's vocal as well as his guitar talents. Burrell always had a light touch on the strings – a smooth guitar player.



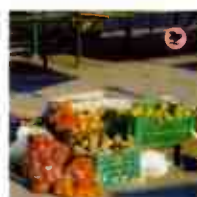
SUNDAZED QUARTET

Four from reissue specialists Sundazed (www.sundazed.com). The See See are a contemporary psychedelic outfit and 'The Bright New Light' shows the band's East Coast, free and easy, harmonically-rich, loping style.

Paper Garden are from 1968, offering smiley, happy, sunshine pop with Sgt Pepper-esque layers with an almost Lennon-like delivery.

Onto Condello's 'Phase I' (1968) starts with San Francisco rock, Grateful Dead harmonies and George Harrison sensibilities and ends up sounding like late-period Byrds.

Finally, Joseph's 'Stone Age Man' (1969) is a Hammond organ-based, blues rock, outing with a coarse lead vocal and a passionate delivery.



PASCAL COMELADE

Entitled 'My Degeneration: Electronics 1974-1983' (Vinyl On Demand; www.vinyl-on-demand.com) and focusing on Pascal Comelade's early works, this 5LP box set features a range of electronica textures relying on repetitive and developing loops. The relatively primitive nature of the presentation does provide a welcome immediacy and rawness to the works.

PASCAL COMELADE

MY DEGENERATION
ELECTRONICS 1974-1983

...AND FINALLY

Two from the Thirty Tigers label (thirtytigers.com), Elephant Revival's 'These Changing Skies' is the 2013 release for these folkies that utilise a light, contemporary touch and a maturing sound. Nicole Atkins' new release, 'Slow Phaser', meanwhile provides late-night pop with a grand outlook and big melodies.

From Head Spin (www.clearspot.nl) is one-man band Astral Son's new album 'Gurumaya' that harks back to seventies', layered psychedelia. Very Hawkwind in tone.

Garotas Suecas' 'Feras Míticas' (Vampi Soul; www.munster-records.com) combines freakbeat and tropicalia, with a laidback, easy soul/funk attitude.

Former frontwoman for the Brazilian Girls, New York-based dance-pop outfit Sabina's 'Toujours' (Naim, www.naimedge.com) offers a Nico-esque, sixties French pop and indie pop combo.

Belgium-based guitarist Stein Urheim's new self-titled album (Hubro; www.hubromusic.com), offers a superb conglomeration of guitar styles and techniques. Show off...a worthy one, though.

Finally, new from Rookie is 'The Trouble With Templeton' (Bella Union; www.bellaunion.com) a smoothly, insinuating indie force that oozes over your consciousness like rhythmic syrup. Like a snoozy Radiohead.





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Typically Thorens

Tony Bolton gets in a spin with Thorens strikingly styled new TD-209 turntable.

Thorens is a name that has been synonymous with good-quality turntables for many decades. Rather than resting on their laurels, the company have been developing new designs, of which the TD-209, launched at the Munich High End Show and under review here, is one.

Available in black, white or the red of this example, the TD-209 shares all of its mechanical specification with the more conventionally

shaped TD-206 but takes its styling cues from the enthusiastically reviewed and award-winning TD-309.

Priced at £850, the '209 includes a pre-fitted and aligned cartridge so the deck merely requires the platter, drive belt and counterweight to be fitted, and it's ready to use. A full complement of accessories is provided with a basic but reasonably accurate stylus balance, a bubble level, 45rpm centre adaptor and an Allen key to adjust the feet to level the deck. These are substantial,

multi-component affairs that seemed effective in decoupling the deck from whatever it was placed upon. Adjustment is accessed through holes above the feet in the top of the plinth. This is made of MDF and coated in a high-gloss lacquer finish that was well executed and thick enough to be durable.

The drive mechanism is borrowed from the TD-309 and uses a servo controlled DC motor to drive the subplatter via a flat drive belt. The top platter is a two-part

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aluminium and acrylic design that seemed to control resonance issues quite well. I was initially a bit sceptical about the record gripping capabilities of the polished platter mat but my usual test record of Chopin's 'Nocturnes' showed no signs of wow during long-held piano notes so I accepted that it worked satisfactorily.

The TP-90 tonearm uses the same ultra-low friction, high-performance bearings as the TP-92 arm upon which it is based. The arm tube is made of rolled aluminium and damped using RMR technology (Reduced Modal Resonance). The metal ring on the arm is part of the damping mechanism and should not be touched. Although the arm is supplied already set up for the provided cartridge, spacers are included in the package so that the arm height (VTA) can be adjusted should the need arise.

The headshell can be adjusted for overhang to accommodate different cartridges and the azimuth of the arm can be adjusted by loosening a screw in the bearing housing. Anti-skate settings are increased by turning the knurled nut on the right of the arm mounting anti-clockwise. No calibration is provided so I set this by ear.

The signal leads plug into RCA sockets provided at the back of the underside of the arm mounting, where they are situated alongside a substantial earth binding post and the power socket for the provided AC/DC adaptor. The signal lead provided gives adequate sound quality but I would recommend upgrading it for the best available performance. I used my reference pair of Atlas Elektra interconnects for most of my listening. A separate earth lead is provided.

The TP-90 tonearm is a development of the TP-92 arm fitted to the company's more expensive decks.

Finally, a 12inch diameter cardboard alignment protractor is supplied. Once set-up is completed, this must be placed under the acrylic platter mat to decouple the mat from the platter. An optional dust cover is available for £35.

I set the deck up in place of my Linn Sondek on the upstairs system where it fed into a Luxman E200 phono stage. Since the Thorens-badged Audio Technica AT-95B cartridge (the A.T. version retails at £36.11 in the UK) was new, I gave it about 20 hours of playing as a background music source before sitting down to more judgmental listening.

I was working my way through my collection of electronica at the time and found Banco De Gaia's 12" single 'Heliopolis' particularly engaging. This 'down tempo/ trance' infused series of mixes based around the track 'Heliopolis' present the main themes in a variety of forms and rhythms (not unlike the 'variations on a theme of...' found within the classical repertoire). Although I felt that the bass was a little lacking in weight and incisiveness, which I attributed to the limitations of the cartridge's performance, it was very tuneful and quite reasonably fast, with little perceivable overhang. The soundstage was of quite wide proportions, although not as deep as I would ideally like, and the presentation of the sounds filled it in a convincing manner.

The following evening I settled into a more jazzy mood and listened to Julie London slinking her way through 'Black Coffee'. Although more closely associated with Peggy Lee, London treats it as a classic torch song and makes it her own. This American first pressing is in near mint condition and I found myself

getting thoroughly drawn into the sonic picture being painted before me. I found the tonal balance of most of the instruments to be generally quite good, although the strings had a tendency to a slightly glossy, almost synthesized sound that was definitely not accurate.

Later on I moved onto an early stereo Canadian pressing of 'Die Fledermaus' which confirmed my worst fears regarding the



The Thorens-badged cartridge is an Audio Technica AT-95 moving magnet design.

reproduction of strings.

The violins of the Philharmonia Orchestra definitely sounded artificial so I changed the cartridge for my Goldring 1022GX (£274.99) and was rewarded for my trouble with a far more accurate reproduction of them. This also confirmed a couple of other thoughts that I had had regarding the weight of the bass. The Goldring 1000 series of cartridges are not shy in this area and made a very good contrast to the more open and vivid high frequency definition of the Thorens AT-95B cartridge.

The supplied cartridge works well on the deck, but the arm and deck are capable of handling far more expensive cartridges than the one supplied. If I were to buy this deck, and classical music was my particular musical flavour, then I would budget for a replacement cartridge either further up the Audio Technica





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The thread of the counterweight mounting is fine enough to allow very small alterations to the tracking weight (VTF) to be made. The anti-skate control is the knurled nut protruding from the arm mounting..

range or from another manufacturer. Otherwise I would use the supplied cartridge until it was worn and then replace it with a more expensive unit. After some further listening with the Goldring fitted, I returned the deck back to standard specification with the AT-95B and listened to The Man In Black singing a cover of Bob Dylan's 'It Ain't Me Babe'. Cash gives his version more of a country music flavour than the Dylan original and I found myself appreciating the full-bodied textures of his voice as well as the easily flowing timing, driven by string bass and guitar. It sounded relaxed and easy, just as it was intended to. Cash's distinctive vocal style was well described with just enough depth in the lower reaches of his voice to sound realistic.

I find this deck very easy to get on with. It plays music in an unpretentious but pretty honest manner. The only real shortcoming that I could find is the sonic limitation of the supplied cartridge for classical music; it would not be my first choice of transducer for this genre. Otherwise, the whole package gave a very good account of itself.



There is provision to adjust both the rotational speed of the motor and the drive belt tension should this be needed. This example ran at exactly the correct speed.

Given the multitude of adjustments available to the arm, upgrading the cartridge at a later date in not a problem, so that this is a deck that can grow with you. Otherwise the performance is good for the price point, especially as a complete plug in and play package. The finish is good and the build quality is what you would expect from a company of Thorens' standing and longevity. This is a record player

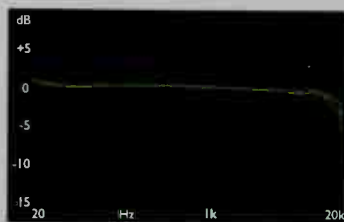
that has striking looks, good sound and will provide many hours of listening pleasure to its owner.

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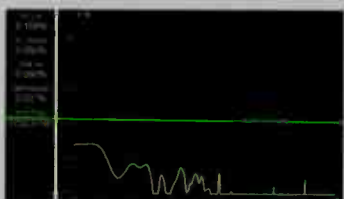
Goldring 1022GX cartridge
Luxman E200 phono stage
Townshend Allegri pre-amp
2 x Quad 303 power amps
Kelly KT3 loudspeakers
Townshend Supertweeters

MEASURED PERFORMANCE

FREQUENCY RESPONSE



WOW & FLUTTER



The TD-209 ran at absolutely the right speed, our analysis shows. The AVG Freq in our analysis should be 3150Hz but 2.27Hz above this is of no consequence and in fact the platter varied speed very slightly around 3150Hz, being more stable than most. Because of this low basic rate of variation of speed, wow was low, measuring typically 0.16% as shown in our analysis. With weighting applied this fell to a very low 0.06%, up with the best turntables available – a great result from a budget player. So although simple and basic looking, the TD 209 uses a good motor, belt and platter to produce impressive results.

The cartridge tracked very well,

clearing all lateral and vertical test tracks on CBS STR 112 test disc, including the top torture track, VTF being 2gms. Frequency response was flat to past 10kHz with a 200pF load and fell slightly with OpF, so the cartridge has no midrange droop and detailing will be good-to-strong. Inner groove tracing loss (red trace) was minimal. The AT-95B produced good results, complementing the turntable well. NK

Speed accuracy	+0.1%
Wow	0.16%
Flutter	0.06%
Total W&F, weighted	0.06%

THORENS TD-209 TURNTABLE £850



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- precise timing
- relaxed sound looks
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**ORTOFONS SUPERB
QUINTET BRONZE
CARTRIDGE IN THIS
MONTH'S GREAT
GIVEAWAY!**

Here's your chance to win the superb Ortofon Quintet Bronze moving coil cartridge we reviewed last month. Read the review excerpt below and answer the questions.

"Following on from my review of the new £649 Ortofon Quintet Black cartridge (Hi-Fi World, May 2014) I have managed to get hold of its £499 sibling, the Quintet Bronze. It is housed within a similar ABS (Acrylonitrile/ Butadiene/ Styrene)

thermoplastic body as the Black model, but in a colour that looked more orange than bronze to my eyes. Internal specification includes neodymium magnets and coils of 99.99% pure copper.

Apart from the colour, the main difference between the cartridges is the stylus profile, the Bronze using a nude Fine Line profile while the black is graced with a nude Shibata diamond.

The straight lines of the body and the good visibility around the stylus and cantilever made setting up the cartridge on my Linn Ittok

LVII very easy. Tracking force is a not insubstantial 2.3g – but since this is spread over a large contact area between the stylus and groove wall record wear should be minimal. As with all cartridges the first few hours of playing allowed the sound to loosen up and expand so that the rather tight and bassless presentation of music was replaced after about 25 hours of use with a more open and lucid sound."

For a chance to win this great prize, just answer the four easy questions at right. Send your entries, on a postcard only, by September 5th to:

**September 2014
Competition,
Hi-Fi World magazine,
Studio 204,
Buspace Studio,
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QUESTIONS

[1] What is it housed in?

- [a] putty
- [b] gold
- [c] ABS
- [d] wood

[2] What is the magnet material?

- [a] ceramic
- [b] ferrite
- [c] wrought iron
- [d] neodymium

[3] What is the tracking force?

- [a] 2.3 gms
- [b] 2.3 kgs
- [c] 3.2 lbs
- [d] 4.2 tons

[4] The stylus profile is?

- [a] Fine Line
- [b] elliptical
- [c] spherical
- [d] wiggly

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ION SYSTEMS X-Pak2 power supply, SP1 pre-amp, MA600 monoblock amps, £850. Roksan Xerxes turntable, Artemis tonearm, TMS1 power supply board, black ash, £850. Original boxes. Tel: 01562 753 662

TOWNSHEND GLASTONBURY, very good condition, boxes, £500 ono. Naim 82 preamp, HiCap pair 135 mon amps, very good condition, boxes, offers. Tel: 01446 418207 or 07792 221917

LINN LINGO, unused since recent £90 service, Class A, boxed, £495. Linn Ittok VII, black, immaculate, £500. Denon DL110 cartridge, 5 hours use, £85. Tel: 01323 728 118

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ART SKIBO floor standing speakers. Light wood finish. Slight damage to one cabinet. Full working order. £425 ovno. Collect only. No boxes. Will demo. Tel: 01745 822 992

ARCAM SOLO 5.1 AV amplifier DAB/FM. Arcam service this month. (New £2000) £475. Denon PMA520 amplifier, 70wpc, £65. Sony TCK611S cassette deck, £50. Tel: 01708 457 691

MBL 121 Radialstrahler compact speaker stands carton mint. MBL 2008 integrated amplifier, mint, boxed. Music First passive pre (copper) mint. For details ring: 07770 772647 (Wigan)

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FOR SALE: Two books by Morgan Jones, Vavales Books. Book one: Vavale Amplifiers, third edition. Book two: Building Vavale Amplifiers. New books, £15 each. Tel: 07535 596822

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3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not? Can it be repaired and if so is it worth it?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.

FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!

NEXT MONTH OCTOBER 2014 ISSUE

EKCO EV55SE VALVE AMPLIFIER

iAG have revived the Ekco brand name for an amplifier designed and built by their factory in China. It promises high quality at a low price. But just how good will it be? Find out in our forthcoming October issue.

Also, we hope to bring you –

ANTELOPE ISOCHRONE 10M RUBIDIUM MASTER CLOCK/ANTELOPE ISOCHRONE TRINITY MASTER CLOCK

ROBSON ACOUSTICS VOLTAIRE ZERO LOUDSPEAKERS

ACOUSTIC ENERGY 103 LOUDSPEAKERS

SONY STR-DN1050 AV RECEIVER

SIMPLE AUDIO STREAMER

ARCAM R DAC

...and much more.

THE BEATLES IN MONO LP BOX SET REVIEW ORTOFON 2M SE MONO CARTRIDGE

Right now we are still awaiting this box set for review. It may well be with us soon, in which case a full review will appear in the October issue too. Our apologies to all readers expecting a review in this issue.

This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, such as failure under review, we cannot guarantee that all products listed above will appear.



PICK UP THE OCTOBER 2014 ISSUE OF *HI-FI WORLD* ON SALE AUGUST 29TH 2014
OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: SEE PAGE 44

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THE IMPRESSIONS

THE IMPRESSIONS
1963



"the group recorded some of the best and most distinctive R&B the world had ever heard"

This stylish soul group from Chicago could have done nothing but stand around drinking coffee, nibbling cake, keeping quiet and merely existing and they still would have been famous and lauded amongst music fans. Why?

Because the outfit launched the careers of two of soul's legends: Jerry Butler and Curtis Mayfield.

But the group didn't frequent the American version of the Kardomah or Lyons Tea House. In fact, they recorded some of the best and most distinctive vocal group R&B that the world had ever heard - either then or now, to be frank. It's affected by the delightful touch of Mayfield and his guitar work, plus a three-part harmony that was rare in the R&B field at the time. The Impressions inserted subtle spiritual themes into their work that gradually evolved into a social consciousness, egged on by Mayfield's awareness of his surroundings and the direction of the political wind.

Initially called The Roosters, from Chattanooga, the group began with Sam Gooden plus brothers Richard and Arthur Brooks. Soon after, the group's lead singer Jerry Butler signed up, bringing his friend Curtis Mayfield in on the act. Renamed The Impressions by their manager, the group had a hit in 1958 with 'For Your Precious Love'. Butler then left for a successful solo career to be replaced by Fred Cash while Mayfield took a tenor role and became the principal creator in the outfit.

It was when Mayfield brought the group to New York that The Impressions hit new heights, especially after the release, in 1961, of the Latin-tinged single, 'Gypsy Woman', which Cash almost missed entirely.

As he recalled, "Well, just as 'Gypsy Woman' was about to be released, I received my papers to go into the armed forces. So, of course I was scared to death! I was like 'Oh my God, I'm gonna miss out on this'. But what happened, when I went down to take my physical, was that they were taking every other one and letting the other one go, taking every other one and letting the other one go... and thank God, I was one of the guys they let go".

"And then, with 'Gypsy Woman' being such a big record, it all turned out to be just a great

time for me and the other guys in the group".

The Brooks brothers soon left, leaving the classic trio format to build on a very promising career culminating in their first R&B No 1 and biggest pop hit 'It's All Right' which was released in 1963.

But why did they drop from five members to three? Cash explained, "We were actually in Chicago at the home of our manager Eddie Thomas. ABC/Paramount Records had just released a song of ours called 'I'm The One Who Loves You' (which is also on the debut album, incidentally) and basically the Brooks brothers had a fit! Because they were wanting to do stuff like Little Richard was doing, whereas we kept telling them that we needed to have our own identity and that we couldn't just be doing what everyone else was doing".

"So they got really mad, took the record, threw it on the garbage and said 'We're quitting! We're gonna sign to End Records instead!' because at the time the group Little Anthony & The Imperials were really hot on End Records".

"So yeah, that's how that break-up came about. And from there Sam, Curtis and myself just decided to keep rehearsing and just carry on as a trio".

And the trio were on the up. A fact that was sign posted by this self-titled album debut, one of the best by any of the sixties soul acts.

This album was a real gem as it already featured five chart singles (including 'Gypsy Woman', 'Little Young Lover', 'Grow Closer Together', 'I'm the One Who Loves You' and 'Minstrel and Queen').

'It's All Right', the best song on the album, was quickly added to the original program. Featuring beautiful harmonic vocals and some superb guitar work from Mayfield, it also included some surprisingly swinging horn work via Johnny Pate.

The quality of the songs lifted the album to a top-notch standard, but it was Mayfield's arrangements coupled with those dazzling vocals that elevated the LP to pure greatness.

If you want to grab a copy of the album, the best current source is a CD version via the Kent label (www.acerecords.co.uk) as part of a 'two-fer' alongside 'The Never Ending...'; the group's 1964 follow-up.

PR

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The USHER Dancer Diamond Series features the world's first amorphous DLC (diamond-like carbon) diaphragm tweeter. This is a tweeter which is second to none in the current market. To find out more, visit www.usheraudio.com or your nearest USHER dealer...



"2012 Editor's Choice" Awards --- AUDIO ART

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Behind the scenes

Dr. Joseph D'Appolito a world renowned authority in audio and acoustics designs the crossover and performs prototype testing/final fine tuning for Usher Audio. Consulting to a couple of famous audio companies, Joe always finds the tremendous value Usher Audio products represent a delightful surprise in today's high end audio world.

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For more than a quarter-century, Sonus faber has represented the pinnacle of loudspeaker aesthetics. From its earliest models, incorporating real wood, furniture-grade finishing, seductive curves and even grilles that reveal style and inventiveness, this repository of Italian artisan skills and artistry has achieved what was once deemed impossible: creating speakers that sound as beautiful as they look.

Along with a series of models paying homage to the great luthiers of Cremona, the company has since been inspired by the Teatro Olimpica in Vicenza. It is appropriate that this new family of speakers considered the standards of a famed venue as the ne plus ultra of the reproduction of music with vivacity and power... exactly what defines music from opera to orchestral to rock music to soul to jazz. To achieve this, Sonus faber has exploited all that it has learned since its inception.

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