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AUGUST 2018

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loudspeakers



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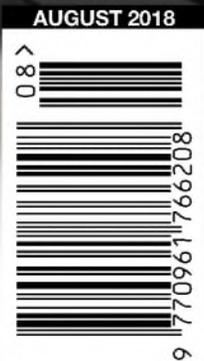
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David Tutt



It was flown over as early as possible from Japan specially for us; even the packing and instructions were not ready. So we were honoured by Technic's commitment in getting us their new SP-10R professional turntable for review – see p85.

I will explain that a joint approach worked best here. Both Dave Cawley of Timestep and I share a profound interest in turntables and the measurement and evaluation thereof, as well as history, the technology – and all else. We spoke to Technics from different angles,

as it were. You have to understand that they put massive amounts of engineering effort into a prestige turntable like the SP-10R and we have to convince them we are fit to understand it, in order to be able to review it. Looks like it worked!

I've seen some daft things said about turntables, which are a whole blend of differing technologies, and Technics wish to avoid some of the whirling fantasies that derive from over active minds on the internet. You won't find fantasy in our review, just hard fact.

Yes, turntables do sound different, and arms even distressingly different, but there are obvious underlying reasons. The notion that turntables and arms are inert and make no contribution died long ago; we know better now. But such complex and multi-dimensional systems in engineering terms baffle a lot of 'experts'. A mechanical engineer may understand an arm ringing like a tuning fork, but won't understand why an electronically commutated low speed servo motor eliminates FM modulation from music. The SP-10R overcomes all this: it's one special turntable.

NAD have long delivered technologically sensible yet sophisticated products at budget prices and do it again with their C338 amplifier-streamer on p12. As always you should put NAD on any demo list – they always do an impressive job.

High fidelity may look simple and analogue on its outer face; inside it can be a whole different ball game. I hope you like our insight into modern products in this great issue.

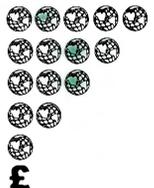
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verdicts



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EXCELLENT extremely capable
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To ensure the upmost accuracy in our product reviews, *Hi-FiWorld* 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-FiWorld* reviews



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A classic even though the band thought not, says Paul Rigby

"Tellurium Q Statements are no usual cable affair and if I've called the Silver Diamonds an Emotional Tour de Force what are then the Tellurium Q Statements!? Well, they certainly transcend any typical labeling and this time I'm elevating them on the throne, that they clearly deserve. Their stand out, extraordinary performance can only be recognized with the 2018 Editor Choice Award!"

-Matej Isak, Mono & Stereo

"...you have managed to surpass them [Silver Diamonds] in a truly grand way."



Tellurium Q[®] Statement



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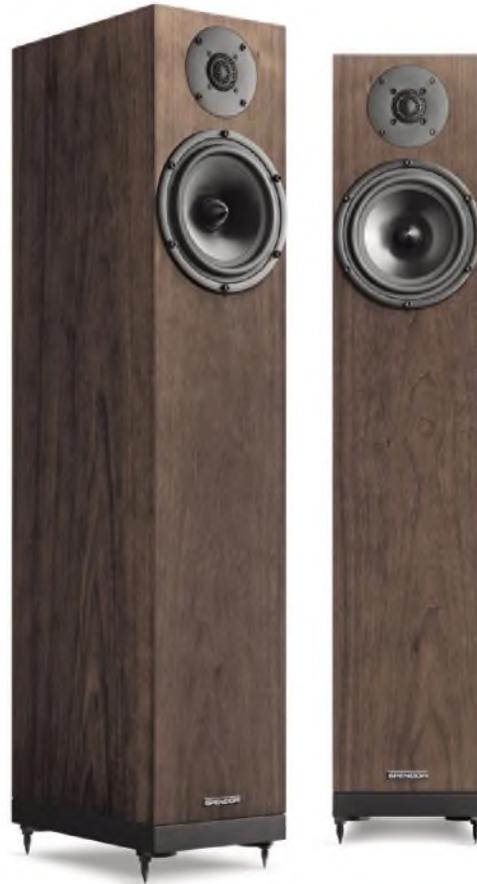
NEW SPENDOR

Acclaimed British loudspeaker manufacturer Spendor has announced a new model.

The A7 is a major revision of the well-regarded A6R floorstander, featuring a slim cabinet with a new Spendor-designed and engineered 180mm bass/mid-driver allied to a 22mm wide-surround tweeter.

The company's fourth-generation linear flow port means positioning close to a wall is possible, so you get the Spendor sound from a room friendly cabinet.

The A7 is available now priced at £2995 a pair. More information is available at www.spendoraudio.com.



CD LIVES

The demise of the CD player may have been long predicted over the past few years - but don't tell that to NAD.

For they're latest model is the budget C538 costing just £249. It's built around a Wolfson DAC and has both analogue and digital outputs. A high-precision clock reduces jitter. So perhaps there's still life in the silver disc yet. More information at www.nadelectronics.com.

OPPO UPDATES

Despite Oppo announcing earlier this year it was to end production of hi-fi and AV products it has stayed true to its promise to keep releasing regular software updates.

Owners of the UDP-203 and UDP-205 4K Blu-ray players will soon get the Dolby Vision update, enabling them to get the most out of Sony Vision TVs.

It gives access to high-quality Dolby Vision HDR on certain discs that feature it. Expect the update to be released soon.



Q HERE

Q Acoustics has announced a new 3000i loudspeaker range building on the success of its original 3000 series.

It includes the 3050i large floorstander, compact 3010i and mid-sized 3020i bookshelf speakers, with a matching 3090Ci centre-channel speaker and the slimline 3060Si active sub-woofer.

As ever with Q Acoustics prices are reasonable – with the 3010i available at £199, the 3020i at £249 and the 3050i floorstander at £649.

More information at www.qacoustics.co.uk For our review of the 3050i see page 40.



WILSON AUDIO'S TOTS

America's Wilson Audio are not exactly renowned for making small – or indeed cheap – loudspeakers.

But now meet its new Tune Tot – the smallest 'speaker it has ever made. The company says the Tune Tot is designed to bring the company's exemplary sonic standards to tight, awkward, acoustically hostile spaces around the home. It is purposed to sit on desk, table, shelf or sideboard.

Drive units are a 5.75in mid/bass unit with a 1in tweeter. Priced at £10,998 they are also rather economical by Wilson Audio standards.

For more information go to Wilson Audio's exclusive UK distributors at www.absolutesounds.com.



FINK BIG

Legendary acoustic designer Karl-Heinz Fink has released a highly unusual loudspeaker from his Germany-based Fink Team consultancy.

The Borg is a two-way floorstander that mates a large 10.25in mid/bass driver with an Air Motion Transformer said to reach up to 30kHz. As ever with Fink, extensive work has gone into the cabinet to reduce colouration. Controls at the back also allow the sound to be tailored to suit individual rooms. Price? €24,000. There's more information at www.finkteam.com.

LINN GETS ROON

Linn's DS music streamers – Majik, Klimax and Akurate – are to get support for the music cataloguing software system Roon.

Subscribers to Roon will be able to collate their music in one place for easy and direct playback to their Linn.

The update is expected to roll out in the next few months. Watch this space for more details.



DIGITAL RADIO RISES

Digital radio listening has overtaken analogue for the first time. Industry body Rajar revealed 50.9% of all radio listening in the first three months of this year was digital. That's an increase of 8% over the past year.

The figures raise fears the government may revive plans to scrap the FM service – first scheduled in 2015 but then shelved.

However critics warn such a move would mean the scrapping of millions of radios, bringing the attendant problem of their disposal. So switching off FM may still be a long way off.



AUDIOLAB IN-EARS

Audiolab has joined the ever-burgeoning in-ear monitor market with M-Ear 2D and M-Ear 4D.

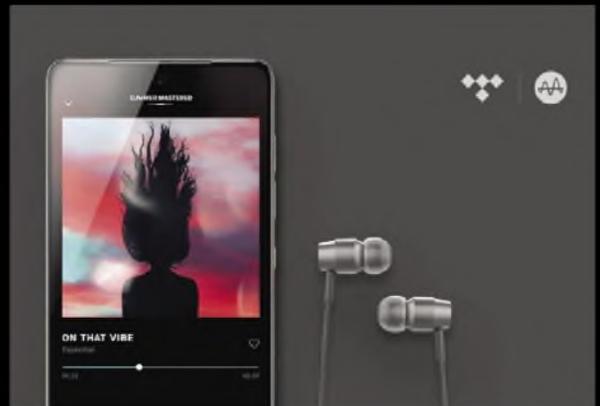
The M-Ear 2D (£429.95) is a two-way, two-driver design, with one driver handling mid/high frequencies and the other dedicated to bass. The M-Ear 4D (£699.95) is a three-way design sporting four drivers – one for high frequencies, another for midrange and two for bass. Both models use balanced armature drivers and are supplied with a detachable cable and six pairs of eartips for a comfortable fit, as well as a zip-up carrying case. For more information go to www.audiolab.co.uk.

ESSENTIAL MQA

Essential Products – started by Android co-founder Andy Rubin – has announced it is bringing MQA studio quality sound to its Essential Phone.

This will allow users to stream high-quality tracks from the Tidal service to their 'phone by installing an Android app from Google Play.

Mike Jbara, MQA's CEO, stated: "This partnership sees MQA working with a truly innovative tech team. Our goal is to deliver the best audio quality to as many music fans as possible and this collaboration with Essential represents a further step towards this ambition".



SUPERFANS BOOST VINYL SALES

How much do you spend on LP records a year? Well, it seems a hardcore of 'superfans' are prepared to spend £400 or more on their favourite format – and they are driving sales of vinyl, according to new data from the Entertainment Retailers Association (ERA). More than two thirds LP sales are accounted for by such buyers.

The new data emerges from ERA's quarterly tracking study that measures the entertainment consumption behaviour of UK adults. Participants were asked how much they spend on different entertainment formats – the highest category claiming £400 or more a year.

Vinyl sales totalled £87.7 million, 157,000 people spending £400 each to give a total of £62.8 million – 72% of the market.

PIONEERING AMPLIFIER

Pioneer has announced a new feature-packed integrated amplifier that promises much at a reasonable price.

Pioneer had a lot of hi-fi to flaunt in its showroom at Munich's High End Show this year, amongst which was something that's not very 'high end' at all: their new A-40AE integrated amplifier.

The A-40AE delivers 76 Watts per channel into 4 Ohms, has tone and balance controls – and eight inputs.

A Wolfson DAC accepts optical and coaxial digital inputs – both capable of 24-bit/192kHz playback. They are joined by five line-level analogue inputs, plus a Phono input for turntables with moving magnet cartridges. All this for just £400. If the sound matches the specifications it could be a very interesting proposition.



Trade up to 800 Series Diamond

This spring, upgrade to any one of the 800 Series Diamond range and your retailer will buy your existing loudspeakers, regardless of their age, condition or brand. 800 Series Diamond represents the pinnacle of performance with Continuum drivers and iconic Diamond Dome Tweeters that deliver sound quality that will leave you speechless. **Contact your local retailer to find out about upgrade options or visit bowers-wilkins.co.uk**

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*The 800 Series Diamond trade-up promotion runs from 1st May 2018 to 31st July 2018. Participating retailers only. Buy back value is at participating retailers' discretion. Offer valid on the following models in the 800 Series Diamond range: 805 D3, 804 D3, 803 D3, 802 D3 and 800 D3.



800 D3



802 D3



803 D3



804 D3



805 D3



Box Of Tricks



Amplifier, DAC, streaming device – NAD's C338 is all three. Jon Myles tries it out.

Integrated amplifiers at around the £600 mark come in many guises. Some have an MM phono input, others a digital section while a good few do without to concentrate on their basic job. With the C338 NAD have packed in as much as possible, with seemingly little compromise since, on paper at least, this unit has a performance few rivals can match.

Described by the company as its most versatile amplifier yet, it is also one of the most feature-packed and flexible I've come across at the price. Alongside the three analogue inputs (including an MM phono stage) there are coaxial and optical digital connections, plus Bluetooth and wi-fi via supplied screw-in antennae.

But that's not all. It can also stream Spotify, Tidal and even Google Play with a simple tap from your smart device.

That's a lot to pack in to a unit measuring a slim 70mm x 435mm 285mm (H/W/D) and weighing a lift-friendly 4.86kgm (10.7lb). The rear is a bit tightly packed, but not so much as to make connecting everything too fiddly.

The front panel though is a model of simplicity – supporting

a 6.3mm headphone jack, source selection buttons, a small display screen and the volume control.

Those slim dimensions are explained by the fact that the C338 uses Class D amplification based around a proprietary design dubbed HybridDigital which uses a customised Hypex UCD module at its heart (see Measured Performance).

The many functions are accessed via the front panel or a rather plasticky remote control that doesn't do justice to how smart the amplifier looks. The best option – as with most products like this – is the free NAD Remote app (available for iOS and Android smartphones and tablets) that will switch sources and control volume in an intuitive and easy-to-navigate fashion.

Build quality of the amplifier is good – it has a purposeful look without being overly flashy. The only criticism is that the screen can be a little hard to read from across the room but this is a minor issue if you use the NAD app.

SOUND QUALITY

The C338 looks unfussy and that's reflected in a sound that is smooth

and eminently listenable.

PJ Harvey's 'Let England Shake' CD delivered her vocals with a silky quality free of harshness. Guitar work was pristine, notes ringing with clarity, yet without edginess. The C338 was capable of pushing out an all-round entertaining performance with a nicely-balanced presentation here.

Philip Glass's 'Heroes Symphony' performed by the Bournemouth Symphony Orchestra (24/96, coaxial input) had a good sense of scale, giving it grandeur. There was height and depth to the orchestra through a pair of Q Acoustic 3050i floorstanders (see review in this issue), individual musicians coming through with defined power. The NAD never flinched when I turned volume way up, retaining its poise and overall control.

Sticking with interpretations of David Bowie's music, but this time via the slightly gentler tones of jazz drummer Dylan Howe's 'Subterranean', the twin saxophones of Brandon Allen and Julian Siegal soared, having a natural timbre. When more swinging tracks kicked in the



NAD handled the change of pace expertly.

I would, ideally, have liked a little more bite to the saxophones: its top end sounded a little rolled off at times. There was an element of restraint that might not suit people who like their music to have bite.

But, conversely, this presentation had advantages. With Definitely Maybe I've found the guitars a little too searing through other amplifiers but the C338 ameliorated this tendency without losing any of the energy within the music.

And then there's the C338's streaming abilities. Playing The Clash's 'Time Is Tight' via Tidal, Topper



The rear panel has analogue and digital inputs, aerials for wi-fi and Bluetooth, as well as solid 'speaker binding posts. It's tightly packed but all connections are easy to access.

Headon's metronomic drumming was locked in time with Joe Strummer and Mick Jones chopping guitars, giving a good rhythmic push to this reggae-inflected cover.

There wasn't the same musical detail trying the same track on Spotify – but then I've always heard

the same difference between the two services. The C338 made this perfectly clear.

Ultimately this unit doesn't have the same thrust or excitement of my resident Naim Supernait 2 integrated amplifier – but since the latter costs more than four times the price I wasn't really expecting it.

NAD's C338 will delight those who cherish a smooth, sophisticated sound with plenty of power behind it, as well as the ability to stream songs with ease. I'm struggling to think of another unit that can do all this at just £600 – and play LP!

CONCLUSION

The C338 combines a powerful amplifier, top quality DAC and comprehensive streaming that includes Tidal, Spotify and Google Chromecast, all into a compact package. Having a smooth sound with plenty of punch, little can match it at the price., so well worth checking out. It's a classic example of NAD value.



The C338 has a custom Class D amplifier built around the well-regarded Hypex module. At right sits a compact switch-mode power supply. There's a lot in a small case.

MEASURED PERFORMANCE

The NAD C338 produced 80 Watts into 8 Ohms and 110 Watts into 4 Ohms, so it's a nominally 100 Watt amplifier.

Frequency response via the analogue 'Streaming' line input measured flat to 45kHz (-1dB) our analysis shows.

Crossover distortion is absent, resulting in an ultra-low 0.004% distortion value at 10kHz. At 1kHz this figure fell to 0.0008% – so low it's unmatched.

Via the Optical 1 digital (S/PDIF) input frequency response had a similar upper limit of 43kHz, with a slow roll-down to 96kHz upper theoretical limit using 192kHz sample rate PCM – a normal result. NAD's optical receiver accepted 192k unlike many (QED glass optical cable). Budget plastic optical cables may curtail this. There are no filters to tailor frequency response.

Digital distortion was low, measuring 0.03% (-60dB, 24bit) with hi-res. Dynamic range (EIAJ) was consequently high at 118dB – excellent.

The phono stage (MM only) had normal sensitivity of 5mV, low noise and

flat frequency response (accurate RIAA equalisation). There's no warp filter, but gain rolls down a little below 10Hz.

The C338 measured very well in all areas, with a particularly low distortion amplifier and a high dynamic range DAC. NK

AMPLIFIER

Frequency response (-1dB)	5Hz-45kHz
Distortion (10kHz, 1W)	0.004%
Separation (1kHz)	95dB
Noise (IEC A)	-105dB
Sensitivity	370mV

DIGITAL

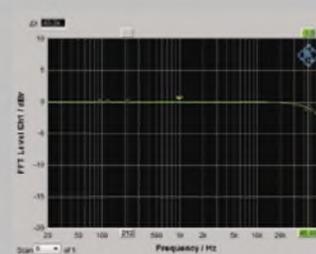
Frequency response (-1dB)	5Hz-43kHz
Distortion (-60dB, 24bit)	0.03%
Dynamic range	118dB

PHONO

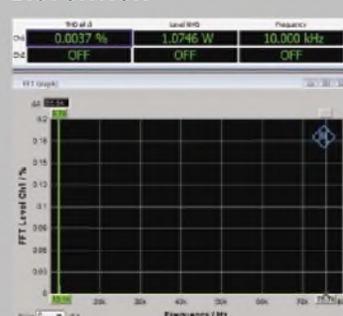
Frequency response (-1dB)	10Hz-20kHz
Distortion (-60dB, 24bit)	0.08%
Sensitivity	5.5mV

Overload Noise **82mV -82dB**

FREQUENCY RESPONSE



DISTORTION



NAD C338 £600



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Smooth sound, streaming, a great DAC and even a phono stage. Impressive all-round.

FOR

- well-equipped
- versatile
- smooth, natural sound
- Google Play

AGAINST

- others can sound more dynamic
- cheap remote

NAD Electronics
www.nadelectronics.com

ortofon

accuracy in sound



2M

The 2M Series, named after the abbreviation of Moving Magnet (MM) technology, is an affordable range of pick-up cartridges with first-class audio design principles throughout. Featuring Ortofon's trademarked split-pole pin technology for a flat frequency response, all 2M cartridges have a high output for easy integration into any turntable system.

Designed in conjunction with celebrated design house Møller-Jensen Innovation Design, the 2M Series body represents the shape of a diamond, whose contours gracefully trace the grooves on a record's surface.



Red Cartridges

A hugely popular all-purpose cartridge with a Tipped Elliptical stylus that delivers an open, dynamic sound with a slight touch of warmth.



Blue Cartridges

An affordable step up in the range, which adds greater dynamics, resolution and detailed sound thanks to the Nude Elliptical stylus.



Bronze Cartridges

Featuring a superior body, the Bronze picks up even the highest frequency information for a rich, detailed and deep soundstage, and can be further upgraded with ease.



Black Cartridges

The musician's choice and flagship of the range, the 2M Black features a Nude Shibata stylus which guarantees a true-to-life sound performance.



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M Power

Big power at a small, small price. FiiO's new M7 high resolution portable digital player is an impressive package, thinks Noel Keywood.

FiiO's new M7 hi-resolution digital audio player is small and pocketable – and costs around £159. It's a budget design then, capitalising on the company's success in this market sector. On offer is superb build quality with a sharply machined and strong alloy case, backed by a broad range of features that include

wi-fi connectivity and Bluetooth, plus old fashioned FM radio, no less! Quite a package then.

All this will almost fit a shirt pocket, since the M7 is compact at 54 mm wide, 110 mm high and 14 mm deep. Weighing just 120 gms on our scales it is light too. Physically, the M7 scores in appearance, feel and build quality – it comes over well.

The player's specification is impressive too. It will play just about any high resolution digital file, including DSD64 (.dff or .dsf). All the usual digital (PCM) formats are included, including WAV, FLAC, MP3, WMA, Apple formats such as AAC and ALAC, as well as APE and OGG, up to 24/192. A relatively small 2GB of memory is included on-board – enough for compressed files like MP3 and WMA that typically come in at 3MB, allowing 500 files or so to be stored. For WAV and DSD that can up this figure to 500MB, a single microSD card slot will address a card up to 512GB – good for a few hundred hi-res tracks.

For sending music to a Bluetooth equipped hi-fi system there's the latest Bluetooth 4.2 standard with aptX and aptX-HD, as well as Sony's LDAC compression system that offers better quality, but as always your hi-fi must be able to receive and decode aptX-HD and LDAC to benefit from them.

Alternatively, you can make a wired connection to avoid compression and retain quality, via USB using the new USB C socket. This relates to WAV and DSD in particular, both of which have high data rates. The M7 can send DSD over USB cable using DoP, that packages the code into PCM, something a PC will understand when using an updated audio driver; Macs cannot handle DoP. FiiO make the point that the M7 connects to a wide range of external DACs, computers and hi-fis, enabling it to act as an external digital file provider (transport), as well as a portable player – and it can be powered from an external 5V charger whilst playing, to avoid the inconvenience of waning battery power.

FiiO's published descriptions make for impressive reading. It uses Samsung's Exynos 720 SOC (system-on-chip) and latest multi-layer boards to cram in massive processing power, with low current consumption from



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#chordpoly

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Brilliantly portable, Mojo is a compact headphone amplifier and digital audio convertor (DAC) with 500x the processing power and 30x the output power of your smartphone. Use at home or on the move and now add wireless music streaming with Poly



Poly

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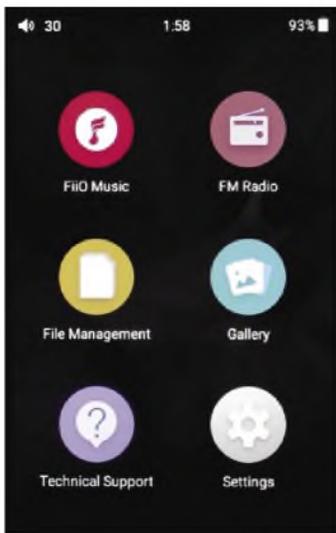
BEGIN YOUR JOURNEY.

discover more: chordmojo.com

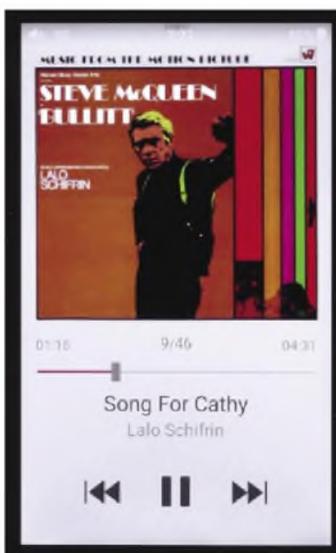
WI-FI | BLUETOOTH | AIRPLAY | DLNA | MICRO SD CARD STORAGE | ROOM READY | GOFIGURE APP CONFIGURATION



A nice spin-wheel analogue-feel volume control, track skip and play/pause buttons, plus an on/off button at top and single 3.5mm stereo jack at left, for Phones or Line.



The main Home screen, with Music files and FM Radio at top. There are two Settings menus – this is one of them.



The main Play screen is simple, providing minimal track info.

the on-board re-chargeable 1800 mAh Li-polymer battery that gives 20 hours life

they say. The operating system is a customised Android and input is via a small 480x800 TFT touch screen that worked, but its active areas are small and needed a precise touch that I found difficult at times. Start up time was long at 42 seconds, 30 secs being common, so Exynos didn't look so good here.

A criticism of the user interface is that it has two Settings areas, one at Home and one when in music play mode – confusing. There were too many alternative views as well, carrying little useful extra info; FiiO's budget players have fewer screens and more focus. The options are basic, including a graphic equaliser and Headphone Output (PO) or Line Output (LO) from the sole 3.5mm stereo headphone jack. There's no optical S/PDIF digital output in there, or elsewhere.

The M7 uses a new (2015) ESS ES9018Q2C DAC that's an all-in-one (SOC) with headphone amplifier that I'd expect to give a good result, but

zip, that don't accord to the manifest expected by the Android OS – hence rejection. This time only my Windows 10 PC fully read and included the file name.

Prosaic issues, but as always ones that show FiiO haven't purposed for firmware download by Mac; it has to be carried out with a PC.

However, my Mac's Android



USB C digital connector on the bottom face and single 512GB microSD card slot at right.

app loaded music files onto the player with no problem, so I could use the player with Mac – and did.

SOUND QUALITY

Getting straight into Rock – Fleetwood Mac's pacy and punchy Dreams (24/96) came across as just that – exciting in its dynamics. It charged along and was razor sharp in timing, as if the whole band had

"great build quality and a touch screen make for a compelling package."

our measured performance figures for two samples were poor in terms of distortion and dynamic range – substantially below the figures quoted by ESS for this chip. When I looked closely at FiiO's published specifications for the M7 there were few figures of consequence listed, specifically no figure for EIAJ (Electrical Industries Association of Japan) Dynamic Range, even though they talk about acceptance by the Japanese Audio Society. There's more about all this in Measured Performance.

I tested two samples. The first was early and needed update to latest firmware that failed with Mac but was successful with PC – a not uncommon scenario. This usually revolves around a Mac auto-unzipping Zipped files and adding .V100 Spotlight and .Trashes files before re-



Tapping the main play screen brings up a secondary track data screen shown here.

GutWire Audio Grounding Cables



An extremely effective and simple way to improve the sound of any audio system. A single cable to enable the proper grounding of electronic components.

Simply attach the RCA (or XLR) connector end to any spare input socket on your integrated amplifier or pre-amplifier. The mains plug end goes into any spare wall socket, or into a mains distributor. This creates the shortest route to ground from the circuit boards and introduces a different ground potential into the system.

It takes moments to hear the sound stage increase in size, both depth and width, that the tonal balance has more weight to it and the sound is more natural, less "hifi". Increased transparency provides more resolution of detail and a sharper focus of images.

GutWire Audio Cables hand made in Canada
UK Distribution by Epicurean Audio

Far more effective than passive grounding boxes, wooden or metal, which also require the use of multiple additional cables. No compression of dynamics, or added colouration, which can occur with alternative systems.

An elegant and simple solution; a single cable does it all.

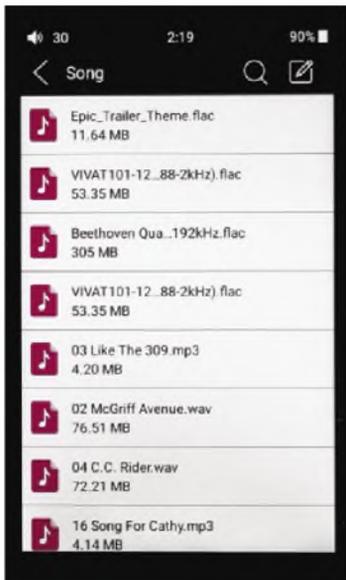
These ground cables only use the earth pin within the mains plug. The live and neutral pins are not used and are safely insulated inside the plug.

Two models available:

Perfect Ground – UK or Schuko plug	£399
Ultimate Ground – Schuko plug	£650
Ultimate Ground – Furutech UK plug	£699

Audition a cable in your own system; full refund if not completely satisfied.

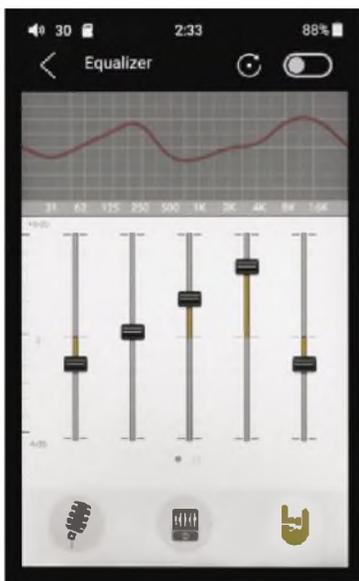
UK exclusive from The Audio Consultants.



One of the song listing screens with MP3s at 4MB and 192k FLAC at 300MB. DSDs are even larger.

been told to tighten up – and did so. The player has a clear mid-band and – helping toward subjective speed – obvious yet sweet treble. I fancy this low power ESS SOC chip is less laid back than its bigger big mains powered brethren that I'm so used to in our Audiolab M-DAC+ and Oppo UDP-205D (RIP!). ESS know what they doing however, having a world wide hit with the 9018 and 9038Pro that everyone uses, so I expected something good here.

As I worked my way through hi-res Rock tracks from The Pink Floyd, Queen et al the M7 showed it was very capable, if not as couth as more expensive FiiOs or others, lacking the

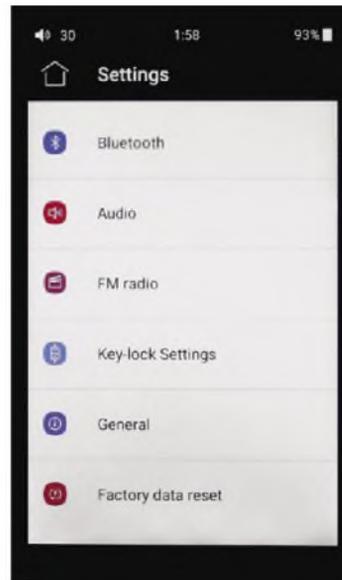


There's a graphic equaliser for those who want to change the sound balance.

sense of stage depth and atmosphere in particular of the more expensive ESS chips. Bass was big if a tad fat in Queen's Radio Ga Ga (24/96) but the spirit of the track came over well.

With DSD64 the M7 also did a fine job, retaining the easy analogue quality of this format, if again with not quite the sense of lucid depth I know from tracks like Bob Dylan's Tombstone Blues (DSD64 .dsf). The Budapest Festival Orchestra playing Brahms Symphony No1 filled the sound stage with lush strings that came over as mellow and smooth – a fulsome sound that was beguiling. Whilst .dff and .dsf DSD64 tracks played as claimed I got a Format Unsupported message with DSD128.

FM Radio was a lot of fun – whilst the signal was strong enough to suppress noise. The user interface is well crafted, with pre-sets, auto-tuning and a wonderful tuning scale that can be manually searched. The aerial is the headphone lead, so a long lead helps – and a transmitter not too far away preferably. I got Wrotham from Central London (24miles away) but not much more than the main BBC stations. Sound quality was warm and bass strong – muscular. It was surprisingly easy and enjoyable to listen to live talk from a portable. VHF/FM is still a fine experience, broadening the appeal of this player.



The primary Settings screen; there is another one.

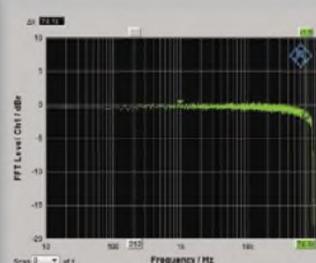
CONCLUSION

The M7 is a budget player with a broad specification of appeal to general users rather than die hard audiophiles; FiiO have plenty more models for such an audience. Although you don't get S/PDIF digital output, USB carries it all, including DSD. The user interface could well be simplified I feel but on balance small size, great build quality and a touch screen make for a compelling package – quite amazing at the price.

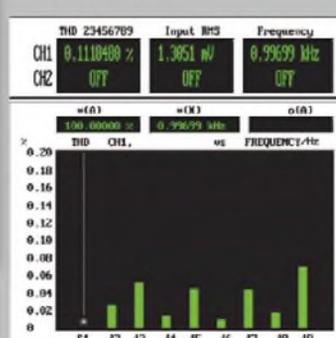
MEASURED PERFORMANCE

Frequency response of the FiiO M7 measured flat to 86kHz with a 192kHz sample rate digital signal (PCM) – very

FREQUENCY RESPONSE



DISTORTION



wide. There are no filter options to change this.

Output was low by current standards, measuring 1.3V, where 2V–3V is common, but this is what ESS quote (49mW / 32 Ohms) from the SOC headphone amp. The M7 will still go very loud, if not shatteringly loud with insensitive 'phones. FiiO quote 3.55V p-p, but that is 1.25V rms.

Distortion values were worse than expected, measuring 0.11% (-60dB, 24bit) where 0.05% or so is common. As a result dynamic range (EIAJ) was poor at 104dB (both samples) – well below the average at 115dB, let alone the best at 123dB. ESS quote 121dB for this chip and our figures usually match theirs, so I suspect a problem here. NK

Output	1.3V
Frequency response (-1dB)	5Hz-86kHz
Distortion (-60dB, 24bit)	0.11%
Dynamic range	104dB
Noise	-103dB
Separation	98dB

FiiO M7 £159.00



EXCELLENT - extremely capable

VALUE - keenly priced

VERDICT

A budget player of broad ability and good sound, if not top notch.

FOR

- small and light
- long battery life
- can be used in the hi-fi

AGAINST

- firmware upgrade PC only
- no DSD128
- no S/PDIF digital out

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from McIntosh



Hi-Fi World, July 2018 Issue
Awarded 5 Globes

OUTSTANDING amongst the best

"Easy going silky smooth sound, richly detailed
and dynamically awesome."



FRONT

The monoblock MC611 Quad Balanced Power Amplifier produces 600 Watts of power – enough to satisfy nearly any loudspeaker. Filter capacity has also been doubled compared to the previous model, which has resulted in a dramatic 55% increase in dynamic headroom.



TOP

The audio Autoformer and power transformer remain seated just behind the front panel, but are now contained in new glass topped enclosures. Behind them are 2 Monogrammed Heatsinks™, which connect to advanced high current output transistors that help eliminate thermal equilibrium lag time.

BACK

On the back, there continues to be 3 sets of Solid Cinch™ speaker binding posts (1 set for each speaker impedance), but more space has been added between each set to allow for easier speaker cable management.



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Version excursion



Martin Pipe checks out the revised CXN streamer from Cambridge. Is it still a contender?

Three or so years ago, I first became acquainted with the popular Cambridge CXN – a networked streamer designed to complement the brand's CX range of affordable high-tech hi-fi. It's compatible with a majority of audio formats, can pull music off USB media or network (DLNA or Apple Airplay) servers and throws Internet radio (with user-definable presets) into the bargain. The CXN can also be used as a digital preamp, is very well thought out and easy to drive – especially if you use Cambridge's free 'Connect' app. Oh, and it sounds good – whether you're listening to radio, CD-derived material or hi-res (DSD or PCM). This mix of usability and performance won the CXN numerous plaudits, and many now rely on it as a comprehensive and versatile digital source; speaking personally, I use a CXN daily both for listening and testing.

But in the world of digital technology, three years is a long

time. The CXN cannot handle some audio formats (notably MQA, lossless Monkeys Audio .ape files and DSD streams higher than 2.8MHz i.e. DSD128/256). Higher-quality BBC radio streams (with the exception of Radio 3) proved out of reach, as did newer subscription streaming services and audio from Bluetooth sources unless you were prepared to shell out £70 for a USB dongle. Bluetooth is now 'standard' in practically everything audio! Finally, the unit's front-panel user interface – built around a colour screen that is vulnerable to 'logo burn' – could be rather sluggish on occasions.

A free upgrade for the CXN, introduced this spring, added many new goodies. Spotify support is improved, and TIDAL's lossless outpourings are now game. WMA Pro and Lossless have been added to the CXN's roster of audio codecs, although .ape files remain unplayable. DASH/HLS support now means that you can access all of the BBC's national networks as 320kbps AAC

streams. Other tweaks were made to the firmware – including screen protection, playback-peek support and the ability to treat as presets the digital inputs.

And now it's here – the Mark 2 version of the CXN, or CXN v2. Not that you could easily tell it apart from the original. The two units are identical as far as front-panel controls, CXN moniker (no 'V2' here!) and layout are concerned. Around the back, too, you'll find all of the connectivity that made the first version so flexible – coaxial and optical inputs and outputs for external DACs and digital sources like the CXC CD transport, USB Type B port (with 'ground lift') for asynchronous PC use and comprehensive analogue outputs that stop short of a headphone socket.

Wi-Fi (included) and Bluetooth (an option) are – as before – external dongles, which does admittedly provide a degree of future-proofing. They plug into USB Type A sockets, two of which are on the rear and

one on the front. They will also accept storage devices for 'direct' playback of compatible material. The colour display is much better, with improved contrast. The menus and layout they convey look very similar and the remote handsets are basically identical.

So what, then, are the differences? Dominic Baker, Technical Director, explained that the main changes relate to computing power. There's more memory and a faster (1GHz, up from 600MHz) computer processing chip. Amongst other things, this means an ability to support new features. Key is Chromecast Built-In, which will let you quickly route (or 'cast') the audio of your phone, tablet or laptop to the CXN. At the time of writing, though, it was not ready. For now, you get essentially the feature set of the CXN v1 running the April upgrade. That means an inability to play .ape files.

There's plenty that can be handled. The roster presently includes FLAC, ALAC, WAV, AIFF, DSD, WMA, MP3, AAC, HE AAC, AAC+ and OGG Vorbis. Although DSD is supported, as before the CXN won't go above DSD64 and the Wolfson converts to PCM. The full potential of MQA files hasn't been unlocked, either.

Inside you get the same Analog Devices SHARC 32-bit DSP chip as before, which Cambridge uses to – amongst other things – provide its proprietary ATF2 upsampling technology and the digital volume control that's active when the unit's 'digital preamp' feature is engaged. Each stereo channel is served by a Wolfson WM8740 operating in dual-differential mode. The chip only accepts PCM data and cannot, unlike some other chips, operate natively in DSD mode. Conversion between DSD and PCM therefore has to take place within the CXN.

The main difference is in terms of the CPU/memory module, which slots into a laptop SIMM-type multiway connector. Version one has a TI AM3352 ('Sitara') processor and a memory chip that provides 1 gigabit of RAM. The newer one has a heatsinked processor (a faster Sitara?) aided by a 2-gigabit RAM chip.

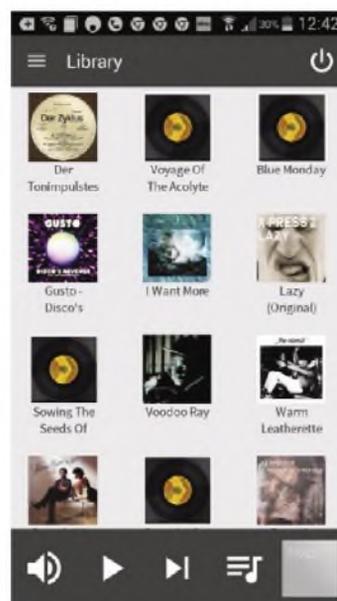
USAGE AND SOUND QUALITY

To use the machine as a 24/192 and DSD-capable USB audio device with a Windows (7 to 10) PC, you'll need to download and install the relevant



The CXN's analogue electronics is at the opposite end of the enclosure to the switch-mode power supply. Version two sports a faster processor and twice as much memory, ensuring that it can run more demanding firmware.

drivers. Its 1GHz processor has endowed the v2 with a smoother and more responsive user interface to that of its predecessor. It's easy to switch between inputs, find radio stations and wade through NAS or USB folders for music. As before, the front panel screen will display album artwork and radio-station logos. The inherited 'play from here' function is very useful. Select a track (the first of an album, for example), and everything from then-on is played.



Many of the CXN's functions can be configured or controlled via this web interface. Simply plug its URL into the web browser of a device attached to the same network.

Up to 20 radio stations – or physical inputs – can be assigned as 'presets', but it's a shame you still can't do the same with networked folders as this could save time. If your music collection is held mostly in the latter form, swiping through tracks with the excellent 'Connect' app, adding them to a playback 'queue', is your best bet. Connect also allows you to stream music stored on the device to the player via your network, removing the need for Cambridge's £70 Bluetooth dongle and the associated lossy compression.

Most of my listening was via an Arcam A49 integrated amplifier driving Quadral Aurum Wotan VIII speakers. I did however try inserting into the chain external DACs, like Chord's Hugo TT and the Aqua La Voce I review elsewhere in this issue.

It's nigh-impossible to tell apart the first version of the CXN from the v2 – hardly surprising, really, given the similarities. Even with careful listening and well-recorded 24-bit music they sounded identical to my ears! With the 320kbps streams, BBC radio has never sounded so good. Radio 3's concerts and 6 Music sessions, for example, benefit from a lack of colouration, sense of space and strong dynamics.

With speech (Radio 4, for example), there was a complete freedom from sibilance. The CXN's transparency also lays bare the



The handset will also operate other Cambridge items – such as the matching CXC disc transport you'll need to play old-school CDs, and the CXA amplifier.



REMOVE ALL CLICKS AND POPS



What is SugarCube™?

Everyone wants their record collection to sound the best it possibly can. But be it too many playbacks, parties or simply just wear and tear, records can become impossible to enjoy due to unwanted noise in the form of clicks and pops.

The SugarCube™ is a line of all-in-one vinyl noise removal components. The SugarCube SC-1 is the first audiophile-grade product to enable non-destructive click and pop removal on any vinyl LP record in real-time.

Try it now at your local hi-fi dealer!



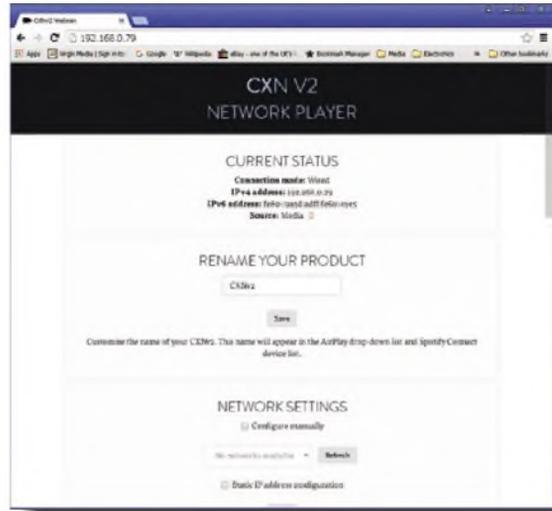


A Cambridge Audio USB 'dongle' with wi-fi or Bluetooth receiver inside.

inadequacies of outside-broadcast interviews, where the Beeb is (understandably!) prepared to sacrifice sound quality for immediacy.

Reproduction of recorded music excels too. The bassline in Hey Now, the track that opens London Grammar's 2013 debut album If You Wait (CD rip) was of a commendable standard – taut and well-defined, excavating the depths without losing control. Elsewhere on the track, Hannah Reid's distinctive voice was bestowed with appropriate intimacy

that features like Wi-Fi and Bluetooth aren't built in, as they are with competing gear, although it could be argued that making them external ensures performance (no radio signals to internally-contaminate the analogue signal paths) and upgradability (5GHz Wi-Fi, for example). Some will appreciate the forthcoming support for Chromecast Built-In – one hopes that other features will also follow. This fairly minor v2 revision nevertheless scores well, because it has at its basis a platform that is both powerful and a fine performer.



If you have an Android or iOS phone or tablet, the Cambridge Connect app presents a friendly and quick alternative to the CXN V2's front panel controls or remote.



To feed music into the unit there's USB and Ethernet, or wireless via wi-fi dongle in a USB port. Bluetooth requires an optional USB gadget.

while the remainder of her backing band – notably the electric piano and guitar – played with vivid detail.

A DSD64 of Keith Greeninger and Dayan Kai's uncluttered Looking For A Home was pretty much as I recalled it, as heard with the CXN. From this stunningly atmospheric Blue Coast track could be picked out vocal minutiae, alongside subtleties like string twangs and a sense of acoustic space. The CXN also drew me into a 24-bit/48kHz recording of Britten's War Requiem (LSO Live/Nosedá), with its ability to accurately-convey space. Commensurate colour and richness is given to the piece's ominous strings, while the brass instruments are given military-like attack and precision without compromising the massed choral authority. Yes, Cambridge's magic box of chips still has what it takes...

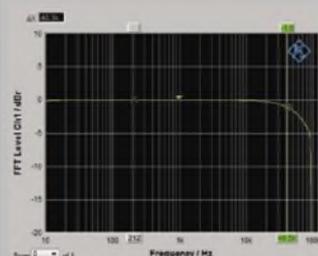
CONCLUSION

The CXN v2 undoubtedly works well; it's not so much a giant leap of progress as a cautious step forward. From a practical viewpoint it's a pity

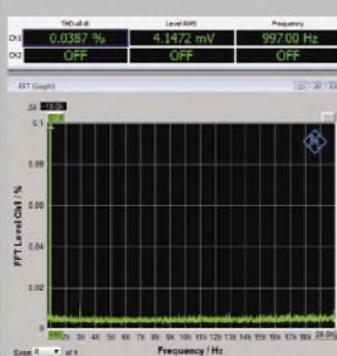
MEASURED PERFORMANCE

Frequency response of the CXN measured flat to 41kHz (-1dB) with a slow roll-down to 96kHz upper

FREQUENCY RESPONSE



DISTORTION



theoretical limit with a 192kHz sample rate PCM digital signal – a good conventional result. There are no filters to alter this.

Distortion was low, measuring 0.04% (-60dB, 24bit) with hi-res and 0.2% with CD (the CD result being due to 16bit quantisation noise, not the CXN). With low distortion and noise in its output stages after the Wolfson WM8740 DACs, the CXN had a measured dynamic range of 115dB – good if not class leading nowadays, where 117dB-123dB is achievable. The RCA phono socket outputs deliver 2V as usual and the balanced XLR sockets 4V, again as usual.

The CXN measures well all round. It offers good, if not class leading hi-res figures. **NK**

Frequency response (-1dB)

4Hz-41kHz	
Distortion (-60dB, 24bit)	0.04%
Separation (1kHz)	105dB
Noise (IEC A)	-113dB
Dynamic range	115dB
Output (phono / XLR)	2V / 4V

CAMBRIDGE CXN V2 NETWORK STREAMER £800



OUTSTANDING – amongst the best

VALUE - keenly priced

VERDICT

Minor changes relative to its illustrious predecessor, but the CXN remains one of the best streamers on the market.

FOR

- potent yet refined sound
- versatile
- easy to use with app.

AGAINST

- DSD64 only
- Bluetooth an extra
- no .ape support

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Melco Drives Forward

Melco's award-winning network music servers are some of the best around. Now they've added extra storage and a high-quality optical disc drive to the range. Jon Myles connects them in.

Melco are the audiophile division of giant Japanese computer peripheral manufacturer Buffalo Technology. Its engineers realised most hard disk-based

storage devices - such as NAS drives - were not ideal in terms of sound quality. They are not dedicated hi-fi devices, storing pictures, videos and many other digital files - all of which can introduce interference.

Yes, they do their job but could

they be improved? Melco thought so and set about building a server from the ground up using audiophile grade components, even including specially adapted hard disks optimised purely for the storage and playback of music.

Suffice to say they were a bit of



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USB sockets are used for connecting both units to the main Melco music library, in my case a Melco N1A Mk2.

a revelation (see initial review Hi-Fi World March 2015). Melco arguably changed the network music storage landscape with its original N1A server. Since then the company has steadily improved its range, adding new features and improved sound quality.

Now they have added two products long requested by customers - the E100 expansion drive and D100 optical disc drive. Both cost £899 and come in half-size cases, so can be used side by side on a standard hi-fi rack if required.

Being Melco both are superbly built. The company places great importance on the quality of each component's chassis to minimise vibrations that can disturb delicate internal electronic components. They are constructed from 2mm thick aluminium, both incorporating anti-vibration platforms for further stability.

Inside the E100 is a 3TB hard drive controlled by a Melco-designed control board. Its function is to expand the storage capacity of an existing set-up (and with high-

resolution files getting ever bigger it's amazing how quickly those terabytes can fill up). It's minimal in looks - an on/off button at the front with two USB sockets at the rear. One is for connecting to the system and the other to daisy-chain to another E100 if required.

The D100, however, is rather more complicated. It will essentially rip CDs in bit perfect form to the Melco storage library or enable direct playback via a USB-DAC. There are two USB 3.0 connections at the rear - one for connecting directly to a Melco music library for data import and the other to attach directly to a USB-DAC if you just want to play your discs.

SOUND QUALITY

I tried both units, via my Melco N1A Mk2 playing into our Oppo UDP-205 universal disc player feeding a McIntosh MC152 power amplifier.

Sound-wise there's not a great deal to say about the E100. It just does what it says on the tin (well, the box) - adding extra storage if you are running out of space on your original Melco.

The D100, though, was a different matter. I have thousands of tracks on my N1A, ripped from CDs by an Apple Mac and transferred via USB, so I used a selection of these to compare the sound to those extracted via the new D100.

Now, some people maintain that any form of copying a CD should give identical results (after all it's bit-for-bit isn't it?). However, I've found that is not always the case and differences do exist

depending on the drive used and software involved.

So I tried my original copy of The Allegri Quartet's 'String Quartet's By Alec Roth' - a real test with lush instrumentation, depth of sound and changes of pace. As usual the original rip from Mac sounded superb via the N1A Mk2.



The D100 uses a high-grade optical drive with extensive shielding and vibration damping.

Placing the original CD in the D100 and using it to rip the same files to the N1A took me by surprise. Playing back there was a definite improvement. Strings sounded more vibrant with improved flow to the music. The whole album came over as smoother yet with added detail - as though I could hear further into the soundscape. Digital artefacts seemed to disappear to be replaced by a - dare I say it - analogue sound.

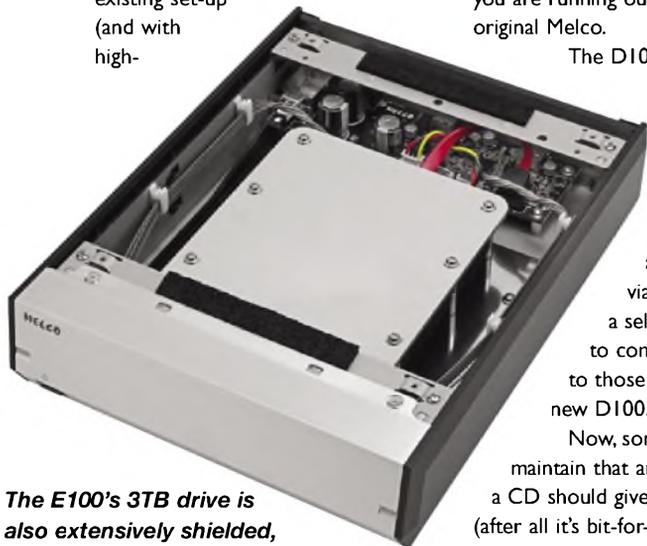
The same effect was present with Keith Jarrett's 'The Koln Concert' where his piano had more body and improved timing - bringing much more life to the piece. Okay, it wasn't a night and day difference but noticeable enough to make the listening session more enjoyable.

I can only assume that the dedicated audiophile construction of the D100 compared to the do-it-all and noisy environment of a Mac's CD ripper are making the difference.

For those who are sceptical I'd suggest you try it yourself. I reckon you may well be convinced. In the meantime, all I've now got to do is re-rip all my CDs from the D100 to my Melco N1A Mk2!

CONCLUSION

For existing Melco users the E100 and D100 significantly expand the capabilities of their system - adding extra storage and a quality way of transferring CDs to your storage device.



The E100's 3TB drive is also extensively shielded, with intrinsic vibration control.

MELCO E100/D100 £899 EACH



OUTSTANDING - amongst the best

VERDICT

If your Melco is running out of space the E100 is the simplest way to expand its storage - whereas the D100 provides high-quality copies that exploit all the excellent qualities of the company's music servers.

MELCO E100 FOR

- simple to use
- adds 3TB of storage
- build quality

AGAINST

-nothing significant

MELCO D100 FOR

- rips CDs to a high quality
- easy operation
- can be used for direct playback
- build

AGAINST

- nothing significant

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WIN

A PAIR OF ROTH VA4 LOUDSPEAKERS WORTH £200 IN THIS MONTH'S GREAT GIVEAWAY!

Here's your chance to win a pair of the lovely Roth VA4 Bluetooth loudspeakers – with a turntable input! Read the review excerpt below and answer the questions

"The Roth VA4s make for a comprehensive compact system that takes up little space at a minuscule cost of just £200. Quite a proposition – especially since you also get Bluetooth wireless linking at this price!

The cabinets are both small (170mm deep, 140mm wide and 220mm high) and light so can be sited just about anywhere. One

cabinet – the right channel – carries a mains-powered 20 Watt stereo power amplifier and needs a mains connection. It has loudspeaker output sockets for the left channel loudspeaker that is an unpowered slave. Connection is made through a normal loudspeaker cable terminated with 4mm banana plugs or spades, or just bared wire – a common and sensible arrangement.

The right cabinet was pleasantly simple to connect up and use, I found. One pair of RCA phono sockets accept either Line or Phono (turntable) analogue inputs, determined by a small slide switch. There's a small 3.5mm stereo

jack socket for connection to the headphone output of a portable 'phone or player and alongside an optical digital input (S/PDIF). A small volume control selects between these inputs when it is pressed in, selection being sequential between sources. A ground terminal is provided for turntables and there's even a USB charging output for portables that provides up to 1 A at 5V – to keep portables alive whilst playing. Finally, a single RCA phono socket analogue output provides a mono signal for a subwoofer".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 14th August 2018 to:

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QUESTIONS

[1] How do they wirelessly link?

- [a] via VHF/FM
- [b] Bluetooth
- [c] Medium wave
- [d] DAB

[2] What power do they produce?

- [a] 100 horse power
- [b] 1 mW
- [c] 20 Watt
- [d] 1kW

[3] Turntable is connected via -

- [a] RCA phono sockets
- [b] XLR sockets
- [c] BNC sockets
- [d] screw terminals

[4] USB charging provides -

- [a] 20 Amperes
- [b] 20 milliAmperes
- [c] 200 A
- [d] up to 1 A

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LETTER OF THE MONTH PRIZE



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 Tannoy Mercury 7.2 loudspeakers.

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

A pair of Tannoy Mercury 7.2 loudspeakers are on their way to ANDREW BURTCHAELL, Letter of the Month winner in our July 2017 issue.

Letter of the Month

TURNTABLE TROUBLES

Last year I bought a Technics SL-1210GR with an Ortofon 2M Blue. It has been used with an old Project Phono Box SE, Rega Ear headphone amp and a pair of Oppo PM3 headphones. Cables are Atlas Equator MkIII.

I recently bought an Ammonite Audio arm board and mounted my old Linn Ekus onto the Technics. I'm happy with most aspects of the sound - it's highly musical, and rhythmically it betters my old LP12! It's a lot of fun to listen to.

However there is a problem. Sometimes bass can be a bit overblown and boomy. Is

it a mismatch between the Ekus and Technics? Or is it between the Ekus and Ortofon? Is it something that could be tuned out with a few changes?

I've considered a few things, a) changing the cartridge, b) having the Ekus rewired by Incognito, c) putting Isovue feet onto the Technics, d) changing the interconnect, e) upgrading the phono amp.



Technic's new SL-1210GR Direct Drive turntable. "it's highly musical and rhythmically it betters my old LP12" says Andre Hyde.

Would any of these help, or should I admit defeat, sell the Ekus and buy a different arm? Any advice you can give would be greatly appreciated.

**Andre Hyde,
London**

Hello Andre. Boomy bass isn't something I would associate with these products unless you are

now suffering a degree of acoustic feedback or sound entry because the Technics lacks the isolation (suspension system) of the Linn. You seem not to be using loudspeakers though.

You don't mention whether the original Technics arm boomed. If it didn't then move back to it. But I'd suggest you consider getting a Rega

RB-330 arm – fabulous for the price. It better suits the Technics, which is a very advanced turntable and, at this moment, I believe it will fit with a suitable arm board. Check with Ammonite or Timestep, both who can advise; dimensionally it is standard but the Technics platter is low, so arm height could be an issue.

Similarly, your 2M Blue cartridge is a bit below par; get a 2M Black or Audio Technica VM740ML. But a 2M Blue doesn't boom so is not associated with this problem.

All the other mods. you mention will not cure boom either. The more I cogitate on this the more I feel you may need to pay attention to how and where the turntable is sited. If you have solid brick walls, try a dedicated turntable wall shelf: they're not only effective but convenient.

If floor mounting is the only option use mass beneath the turntable to minimise acoustic input. Pile up breeze blocks (ensuring top surface is level with spirit gauge) and put the turntable on top as an experiment. If this is the solution then you'll need a strong, low table, perhaps with a slate base for the Technics. I mention all this because they are simple experiments that cost nothing and may do the trick.

NK

Hi Andre. Like Noel I would not associate booming bass with this system. It doesn't sound like acoustical feedback as you are using headphones. Your letter suggests that this happened after fitting the Ekos which is a very good arm, but I'm not sure. I'm not sure if it happens on other sources such as music via the Internet? However the first thing I would do is to set the VTF as high as allowed, say 2.0g.

Your headphones are a very low 26 ohm impedance and my own Denon headphones are 25 ohm and can be difficult to drive. I use a TEAC HA-501 Headphone Amplifier with adjustable damping and my Denon's sound their best on the "high" setting. Maybe you could visit your local dealer and borrow another headphone amplifier?

Dave Cawley, Sound Hi-Fi.

NO TURNTABLE TROUBLES

On the subject of acoustic isolation for vinyl equipment I attach a simple sketch of an arrangement to isolate non-suspended record decks. I use acoustic flooring samples, 100 x



Rega RB-330 arm – a development of the superb RB-300, at a price anyone can afford.

100mm x 6mm thick, in one or two layers, to reduce feedback from decks. This has been the system used by me on several decks, from the Rega RP10 to the RP6 and now the RP3. I have also a version on a Gyrodec SE, but that is a suspended deck.

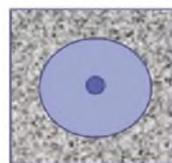
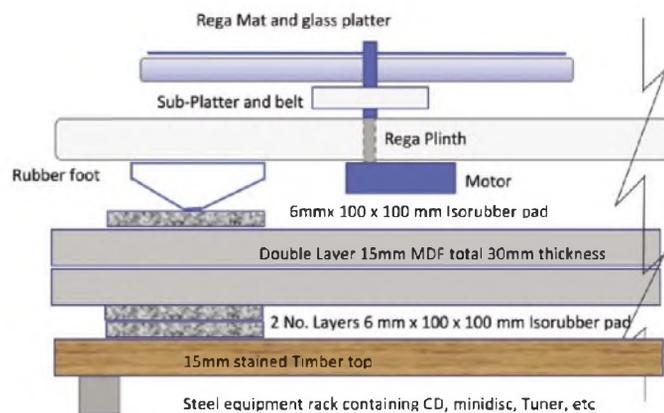
Now, I know that Rega decks are very well-built, and don't generally have a problem with feedback unless you are careless where you mount them. However, the difference in using the isorubber pads, which were free samples, can be acoustically significant.

In one system, due to lack of space, I have a Quad SI 'speaker directly sitting next to a Rega RP6, a few centimetres away. The Rega is just sitting on a couple of the pads, and the whole sitting on a very inexpensive modified Ikea record storage base. I can

timber base onto an equipment rack. The pads are used in two positions.

I feed the vinyl signal through a Rega phono preamp into an analogue mixer, and then to active Focal SBe speakers. Without the second layer of pads, I noticed a certain amount of bass feedback when the gain was increased about halfway up the mixer slider. With the second layer in place, there is absolutely no feedback even at extremely loud levels. The speakers are on tall stands in a small room.

I found the pads through a company called Thermal Economics, but have no connection with them, and there may well be other equivalents out there. I do appreciate that Sorbothane is widely used for similar purposes, but my installation to reduce feedback cost me nothing but a bit of time, and is



PLAN VIEW of Rubber foot on Isorubber Synthetic rubber square pad 100 x 100 mm
Pads are Acoustic flooring samples for use under floor cement screeds

A fine diagram supplied by Ron Koorm of his turntable isolation system for a Rega RP3 turntable. "You don't have to spend a small fortune on special isolating plinths" he says.

turn the Quad Vena amp up to really very loud levels, and suffer no feedback or adverse reaction from the speaker being so close. That surprised me.

The point is, you don't have to spend a small fortune on special isolating plinths if you are willing to experiment. The diagram supplied is where an RP3 sits onto a couple of thick MDF boards, and then onto a

probably just as good

I hope your readers experiment on non-suspended decks. I have an isolation plinth bought many years ago, supporting my Gyrodec SE, but even that was improved with the Isorubber pads to a small degree.

**Ron Koorm
Harrow
Middlesex**

Hi Ron. Thanks for your timely letter that usefully provides more insight onto the issue of acoustic feedback into non-suspended turntables – such as Andre Hyde's Technics SL-1210GR Direct Drive in the preceding letter.

As you say, with a little bit of effort and experiment such difficulties can be sorted out in a way that not only gives great sound but minimal domestic intrusion, using bits we can all buy such as heavy Ikea tables, Sorbothane pads – even sand and bricks I've found! **NK**

BUDGET CD PLAYERS

I am somewhat bemused by your approach to CD players which seems somewhat inconsistent. For several years your magazine has not included CD players in your annual hit list, which I have always found somewhat odd considering how many of the general public still use them as well as many of your readers I suspect.

Your approach seemed even more strange with the recent demise of the Oppo Universal Players. Of course the UDP-205 was your reference player – or so it seemed – until you compared it to a six grand McIntosh which seems very unfair as it is a completely different price bracket.

You also commented elsewhere about unexpected reservations about the ESS Sabre DAC compared to the more dynamic Sony chip used in the McIntosh. So where am I going with this?

I am not prepared to fork out for a £6K CD player, so please audition CD players in different price brackets. It may be a dying format but I feel it is still a vibrant one and I resent having to rely on your competitor magazines to get an assessment on current models.

Generally I have enjoyed your magazine for the last 20 to 25 years but please do not just go over to DACs and Streaming just yet. For me there is plenty of life left in the humble CD player, particularly so as people are ditching their CD albums and there are bargains to be had very cheaply in charity shops and on eBay etc.

Best wishes

Mark Richards
Bristol

Hi Mark. The McIntosh was a bit of a surprise and I did explain the situation relative to our favoured Oppo UDP-205 in-house reference player, but not in any detail. So I will be more specific here.

Converting digital to analogue



Quad's Artera Play CD player. Price a reasonable £1200 yet you get an ESS ES9018 Sabre32 Series DAC and the smooth but revealing sound that goes with it.

is a complicated process. So much so that most manufacturers buy in dedicated convertor chips (DACs). Just a few make their own. There's a limited choice and favoured parts, notably the Texas Instruments PCM-1794, Wolfson WM8740 (both now updated) and others. Also, manufacturers commonly buy-in whole player boards from major Far East sub-contractors, mounting them in their own cases with power supplies.

All this introduces commonality and there was a point around 10-15 years ago where player Y measured and sounded much like player X because in fact, under the skin, they were very similar, even the same. This practice includes the big Japanese brands as well as small UK ones. The result was a market full of affordable players, all of which sounded alike and – not very good. A yawn fest.

In 2007 ESS released their ES9018 Sabre32 Series convertor and Oppo was an early adopter. I recall also Twisted Pear producing a kit – the Buffalo – built around it and this is still available today ([www.twisted-](http://www.twisted-pearaudio.com/digital/buffalosep.aspx)

pearaudio.com/digital/buffalosep.aspx), which I mention because it is a good source of info. (ESS publishing little).

The ESS DAC chip, although expensive, was a step ahead and has now become very popular around the world. However, whilst the ES9018 gets more from CD in almost magic manner, it is a tad warm and analogue like. Not everyone likes this balance.

The McIntosh MCD350 player offered a surprising sonic alternative. It breaks the mould by using a massive DSD chip from Sony that few others use, price likely being an issue here because it's dedicated to DSD and not on mass-market offer. However, Sony know what they are doing and their DAC chip in the big McIntosh player, supported by high quality linear power supplies and such like, gave startlingly good sound. Specifically it was shiningly clear, as if a big spotlight had been turned onto the music. This made it snappy and vivid too, if not necessarily more insightful.

The Aqua La Voce player in this



The McIntosh MCD350 reviewed in our May 2018 issue. "I am not prepared to fork out for a £6K CD player" says Mark Richards. Good point!

issue uses old fashioned ladder DAC technology to offer another punchier sounding alternative to modern delta-sigma convertor chips (which most are).

Where are you going? Good question. Your options are limited. Rare specialised chips cost money and, by nature of the beast, will only be put into mega-money CD players like the McIntosh MCD350.

Luckily for you Chord Electronics make their own-design famed WTA (Watts Transient Aligned) convertor chip that matches ES9018 performance figures but gives a brighter sound balance. They don't put it into a budget CD player but you can buy it in Mojo for just £400. So get a Mojo and connect to a CD player's digital output I'd suggest.

I'm sorry to tell you that no matter what other reviews might say, budget CD players are much of a muchness our measurements and listening tests show. However, Quad make the Artera Play priced at a very reasonable £1200 and then there is Yamaha's lovely CD-S3000 (£3k); both use the ES9018 DAC. The Artera Play you may well want to consider – try and arrange a dealer demo perhaps.

Our CD player reviews declined in number as players stopped being made, due to rapid market decline – not because we made a decision to cease reviewing them.

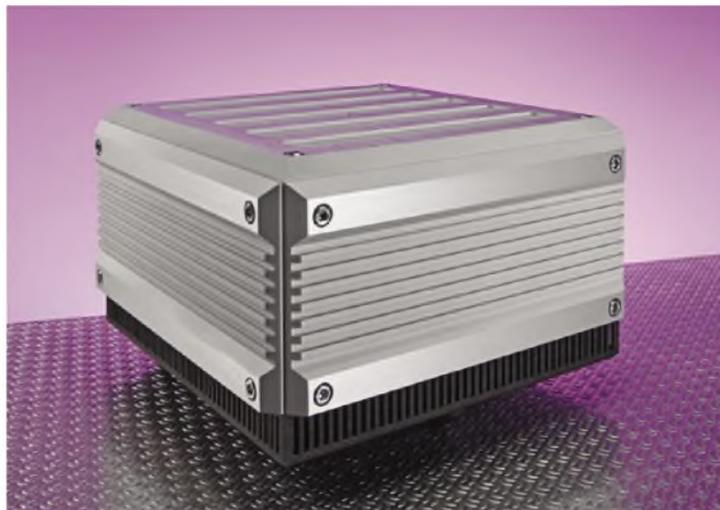
That's the situation today. It isn't of our making and leaves you with some stark choices you may not like. Best affordable sound from CD comes from an independent DAC nowadays. **NK**

MORE ON MAINS

I wanted to thank you for having the courage to print my letter regarding mains products (May 2018) which I assumed would never be published as it ran counter to the prevailing wisdom.

Well, little after that issue had come through the letterbox and hit the mat than I found myself having to reevaluate my position after being invited to a colleague's house to hear the benefits of mains regeneration in action. My new friend's (significantly more refined) system is vinyl based and comprises a Linn LP12SE turntable, a Linn Euphoric phono stage that is coupled to Akurate Control pre-amplifier, all of which is powered through an Isotek Titan mains regenerator. The Akurate is then controlling a pair of active ATC100 loudspeakers direct.

Where my Naim based system



Isotek Titan mains regenerator. "Sounds were projected into the room with considerable realism: they now hung against any inky black silence that was near disturbing" says Evie Sandston.

seemed to be immune to the benefits of my own mains upgrade, it made significant improvements to his, most noticeably with the phono stage and pre-amplifier. Without the benefits of the Titan and a range of Chord cables his system was certainly delectable but with the regeneration and cables in place the impact on the noise floor was significant. Where before sounds were projected into the room with considerable realism they now hung against any inky black silence that was near disturbing given how close it must have been to the original rendition that was recorded.

I don't think I can properly express just how disconcerting it was to hear various instruments hanging in the void, detached from the recording medium and seemingly projected from any point in the room. It was a whole new musical experience that has changed my idea of what constitutes hi-fi.

I am uncertain if the deciding factor is his choice of replay (given the physical limitations of vinyl) or the absence of electrical pollution, alongside which such minuscule signals from the phono cartridge must be amplified, but I can see the benefits of mains power regeneration (in similar systems).

I am sorry to say that on a second occasion the use of the Titan did not seem to have the same profound effects on my system. I'm presently sporting a Naim system comprising of a CD5 XS CD player, a NAC-N 172XS and a NAP 250 powering a pair of Monitor Audio PL100. All of this has been purchased second hand through reputable dealers.

I can only surmise that my system is unable to resolve the levels of detail that his can, or perhaps the larger signals from the digital source I use are less affected by mains interference. If there

is anyone in your readership who can offer enlightenment I should be most appreciative. At this point I am nothing short of confused and not sure how I can reproduce that evenings unprecedented replay.

Evie Sandston

Hi Evie. Thanks for giving us your experiences, which I feel highlight the difficulties here. Mains regeneration does not always provide improvement and some manufacturer's (and dealers) decay it.

In theoretical outline a well engineered power supply (within an amplifier let's say) rejects mains rubbish – but that's the simple view. Mains transformer leakage currents introduce noise by the back door, as it were, and this is the largely unrecognised problem. Better (screened) transformers help, but they cost more – and as always cost is the issue. But no one wants to admit to this.

Regeneration can quite drastically improve high gain preamplifiers like Phono stages; also we were taken aback to find it obligatory with our Martin Logan ESL-X electrostatic panel wall-wart power supplies. What a difference our Isotek Evo3 Mosaic Genesis made here; it was totally unexpected.

I suspect your system, with Naim amplifiers and Monitor Audio loudspeakers, has plenty enough resolution to reveal these issues, but it is immune to them through good design (which you paid for).

I'd suggest you 'phone around dealers to see if you can get on loan a regenerative mains power supply to experiment with at home. Or



Cambridge Audio Azure 640C CD player. "The clock cost as much as I had paid for the CD player but the improvement in the sound quality was amazing" says Chris Pinnington.

perhaps ask to borrow your friend's? Only this will identify the items in your system that do – or do not – benefit. **NK**

CLOCK WATCHING

I was interested in Noel's opinion piece and the letter from Graham Griggs in the July issue of Hi-Fi World. Though I am no expert in the strengths and weaknesses of 16 bit technology, I do know that the CD replay chain can be improved with judicial tweaks such as high quality DACs.

An area of the replay chain that I have never seen mentioned in hi-fi magazines is the clock, the device that regulates the flow of data from the CD. Most if not all CD players have cheap clocks which do an adequate job but no more.

For those people for whom sound quality is important the answer is to install a better clock. Here I speak from personal experience as I had a high quality clock installed in a budget CD player (Cambridge Audio Azure 640C). The clock cost as much as I had paid for the CD player but the improvement in the sound quality was amazing – more detail was evident, the kind of detail that is heard in mid to high-end LP replay.

I should add that as well as the clock, other components were replaced with high quality audio grade components such as capacitors and voltage regulators which would also improve the sound quality.

My aim overall has been to improve the sound quality of my entire budget system with judicial tweaks without spending a fortune, which I think I have succeeded.

**Kind regards,
Chris Pinnington.**

Hi Chris. That is interesting. I have heard what I would rate small improvement from a better clock. I wonder whether the component upgrades also contributed. Nice to

know however that after market tweaks like this offer obvious improvement.

You may be interested that DAC manufacturer ESS agree with you. In their ES9018 White Paper they say "to expose this level of detail to the listener, great care must be taken in preventing jitter and suppressing any mechanism of cross talk between the data and the phase noise of the system clock".

So there you have it. Nothing like a good clock, just as you say. **NK**

VHF TURN OFF

Has HFW "rolled over with its corporate legs in the air" over the government's proposed FM switch-off? It certainly seems like it to me. What is HFW doing to point out to HMG the madness of it?

FM radio is not broken, so why should it be replaced by an ill thought out digital system – DAB – which is rigid and inflexible; once implemented, it can't be modified or improved, except by a complete replacement.

Many DAB receivers can now receive DAB+, but there are no DAB+ transmissions in the UK, nor will there be. DAB was the worst possible choice! HMG and the BBC seem to think otherwise – all that is digital is gold, for them.

Implementing DAB+ would mean replacing all the existing transmitters.

Plus all existing DAB (only) radios would also be rendered useless. So it looks like we are stuck with DAB. The inflexibility of the system is alone a massive downside. DAB, I believe, is also an expensive system. Hence the broadcasters desire to cram as many stations as possible into their bandwidth allocation, reducing the bit rate and therefore quality.

We have thirteen FM tuners, including in-car ones, that will become nothing more than scrap metal and plastic, at a stroke. Along with about 120,000,000 other FM tuners. What a colossal waste, at a time when we are told to recycle as much as possible, and cut down on plastic waste. It shows what hypocrites ministers are. They are probably driven by the usual 'sell the FM bandwidth to the highest bidder' short sighted greed.

I listen to Classic FM most days, but I won't be listening to it on DAB! So they will lose one listener, at least. It may not be the best quality station on FM, but it mostly sounds very good through my Creek T40 tuner. FM's demise will be a sad day for me. And an example of unnecessary government meddling in things they don't understand, advised by people who have vested interests. I don't own any DAB radios.

Rod Theobald.

Hi Rod. We have never supported the roll-out of DAB as a replacement for VHF/FM and have written at length about its shortcomings in the past, pointedly by the excellent columns written by Steven Green.

However, the situation has moved on. A lot of domestic listening to radio is now via the internet and here the issue of sound quality gets more blurred. High data rate broadcasts such as those from Radio 3 are of very good quality and, the BBC say, better than that from VHF/FM. As internet data rates increase this offers a flexible way to improve



"Classic FM sounds very good through my Creek T40 tuner. FM's demise will be a sad day for me" says Rod Theobald.

quality progressively, without the restrictions of either VHF/FM that would be costly to upgrade, or DAB that would be equally costly and disruptive to improve.

As you say, DAB does not and likely never will offer the quality of VHF/FM. It was purposed for radio listening in cars, where noise and equipment quality arguably makes good sound difficult to appreciate.

DAB transmission in cities is frustrated by buildings and hills, because of the high transmission frequency. I can barely get DAB from Alexandra Palace a few miles away because there's a hill in-between – ridiculous! But I can get VHF/FM from Wrotham 24 miles away. Bigger, more powerful transmitters were needed for DAB to work at a national level; it won't happen.

It was a mistake to try and extend DAB to domestic radio and the idea has fallen onto rocky ground for a variety of reasons. The unforeseen one however is that the world has moved fast to embrace the internet. That has resulted in the mess we now face of three competing broadcast systems, none of which suit all needs. It also highlights the fact that cellular (mobile) phone transmitters already provide national radio coverage in effect, making DAB potentially redundant since if you can get mobile 'phone reception in a car – and mostly you can – you can also get

many with very large collections of CDs, LPs and DVDs have, like me, found it incredibly convenient to rip and encode media then access the music as files saved on networked attached storage (NAS). As a regular *Hi-Fi World* reader, I know that the hi-fi industry, Naim audio for example, has not been slow to meet similar needs for convenience and space-saving storage. However, I have managed to resist the many glowing reviews and focused on the less expensive alternative of playing NAS files via a Windows PC.

All my CDs have been ripped as 24/96 WAV files using dBPowerAmp and my LPs saved as 32/96 WAV files using Steinberg's Wavelab Essential 9.5. All these files were written to my Synology DS214Play (2x 4TB drives). For copying and playback, I started with a Dell XPS desktop PC, Exact Audio Copy and Foobar2000, but soon upgraded to an Item Audio T1. It was the same company's 'modded' Mac Mini that some time ago was awarded a 5 Globe *Hi-Fi World* review.

Item's T1 has a high audiophile spec. that includes fan-less silent running of a stripped down Windows 8.1 Pro operating system with JRiver Media Centre 23. My pre-loved Tellurium USB cable connects the PC to a Stello U3 24/192 ADC that feeds a digital audio data stream into my Naim NDAC and then my Naim 200 series amps with Shahinian Arc loudspeakers. Recent internet searches and reviews led to the installation of

My main point is that in striving to improve the sound of my NAS sourced PC system, I have had to seek information, advice and insights from the web and not HFW – or have I missed the reviews of ethernet cables, network switches, network cards and related equipment? In my monthly copy of *Gramophone* only three pages are devoted to audio equipment reviews, but Andrew Everard has twice covered ways of improving networks in domestic audio systems. And recently AQVox is advertising a high-end audiophile gigabit network switch that it claims improves all video and audio formats to unbelievably intense experiences.

I've enjoyed the journey, but what does the editor think about my amateur efforts to use a NAS and a Windows PC as a source? And will HFW be covering future developments in networked NAS sources? I would be interested to hear the expert's views and those of other readers who might have successfully experimented with computer audio.

**Aidan Kelly,
Taunton,
Devon.**

Hi Aidan. You raise a number of interesting points concerning computer audio. As ever with hi-fi, every link in the chain makes a difference and the simpler you can make it is usually better. Over the past few years I have tried a number of NAS drives in my system and invariably found little difference in



**Instead of a computer as source, try a dedicated streamer such as Naim's ND5 XS2 says
Jon Myles.**

radio.

It seems to me then that DAB should be phased out, not VHF/FM. It isn't now needed, being a relatively old transmission technology from Europe (EBU) whose time is up. It was always a mistake to adopt it, let alone extend it's dated paradigm to national broadcast status. **NK**

COMPUTER AUDIO

Many *Hi-Fi World* readers might readily define the purpose of buying good equipment to enhance the listening experience. The quality of sound, rightly perhaps, takes precedence. However,

a JPlay Network Card (with its own iFi power supply) that helps to provide for a noiseless connection between the PC and the NAS via a NetGear V208 Switch and using Audioquest Pearl ethernet cables.

The quality of the sound produced by my PC source has now improved so much that to my ears at least it is virtually indistinguishable from that heard when using my CD player or my ancient Thorens/Mission 774/AT23 record deck (I can hear some HFW staff suggesting that I should have focused more on upgrading these front-end components!).

their sound quality. They do what they do – which is hold digital information. More important is what is happening up-stream which is, as you rightly say, where the cables, home network and other factors come into the equation.

Looking at your system I'd advise taking the computer out and investing in a dedicated streamer such as Naim's ND5 XS2. That way you can access the NAS drive directly either wired or wirelessly. I think you will find it simpler and much more enjoyable in terms of sound quality. **JM**

Special Q

Q Acoustics new 3050i floorstander is one special loudspeaker, says Jon Myles.



Q Acoustics first came to prominence just over 10 years ago with a range of value-for-money loudspeakers whose sound belied their reasonable prices. Since then they have steadily expanded their range and introduced some upmarket models. Sitting at the top of their new budget 3000i Series is the Q Acoustics 3050i floorstander costing £649, reviewed here.

In looks it's a fairly traditional rear-ported reflex design measuring 1020mm x310mm x 310mm (H/W/D) with a three driver array – two 165mm bass units allied to a 22mm tweeter. They are arranged in a D'Appolito configuration with the tweeter situated between the two mid/bass units, all placed close together for best integration. Nicely rounded sides to the fascia give the 3050i a pleasing look – but it's inside this cabinet that the most interesting design features can be found.

Q Acoustics have paired with legendary German designer Karl-Heinz Fink to develop much of its range – and he is an enthusiastic proponent of making cabinets as structurally inert as possible to allow the drive units to work at their best.

So, internally the 3050i features specially developed PTP (Point-To-Point) bracing, used across the 3000i Series, that supports the parts of the enclosure that need to be stiffened, making them exceptionally rigid. It improves the focus of the stereo image, giving the soundstage more accuracy than ever before.

There's also HPE (Q Acoustics like their acronyms!). These are Helmholtz Pressure Equalisers designed to convert pressure to velocity and reduce the overall pressure gradient within the speaker enclosure. Q Acoustics say this reduces cabinet resonances and is perfect for taller loudspeakers that commonly resonate at a single main frequency determined by cabinet dimensions.

The conventional terminal panel cut-outs have been removed to improve structural integrity, and low-profile binding posts employed. They accept bare wires, spades and 4mm banana plugs, but even with the latter allow the 3050i to be placed close to a wall.

As to the drive units, the tweeter is decoupled from the cabinet via a suspension system to avoid vibration from the woofers



The 22m wide dispersion tweeter is decoupled from the cabinet via a suspension system to avoid vibration from the woofers smearing the sound

affecting the sound.

All told, there's a lot of technology packed into this 'speaker which – while at £649 may be dearer than many of Q Acoustics other models – is still competitively priced compared to many rivals.

SOUND QUALITY

Luckily, the 3050is are not fussy about positioning. Angling them towards the listening seat gave a slight treble lift which some may like but I preferred them pointing straight down the room; it gave the smoothest response.

And that response is very smooth indeed. All that cabinet technology certainly works, allowing the drivers to get on with their job, free from cabinet resonances that sully or smear the sound.

The low-end I found especially impressive – being strong, deep and powerful but never boomy or slow-paced. So with New Order's 'Age Of Consent' Peter Hook's bass was thrustful and energetic, with excellent presence. I've always found the better controlled a loudspeaker's bass response the more it brings out the instruments above and this is exactly what happened here – the guitars, electronics and vocals sounding pristine, with superb definition.

Overall, the new 3050is had a faithful, measured performance that lets music be heard exactly as it was laid down on the recording. Hence Nirvana's 'Nevermind' sounded suitably grungy while the gentle voice of Beth Gibbons on Portishead's 'Dummy' was sweet and melodic, all her unique phrasing evident.

Another plus point was an extremely wide soundstage. Music was pushed far and wide to left

and right (seemingly way beyond the cabinet edges). Wide tweeter dispersion may well account for this.

The 3050is also go very loud with little power (see Measured Performance) making them a good choice for a valve amplifier user.

And once you fired up it's hard not to push these 'speakers loud. On Dire Straits' 'Brothers In Arms' I couldn't help but turn volume right up yet the 3050is never complained, staying true and accurate when reproducing this superb album. Guitar solos had plenty of room and dynamic shifts in the music were relayed accurately at any volume.

In fact, whatever music I threw at the loudspeakers they refused to be phased. Even a dose of the feedback-drenched 'Psychocandy' by The Jesus And Mary Chain saw them cut through the sonic squall to reveal the individual guitar parts, while that bass again was firm and forthright with a rhythmic quality that drove every track along – so much so I'd got to the last track without even realising it.

Q Acoustics seem to 'up the ante' on every loudspeaker they produce and these latest 3050is

are no exception. They are smooth and authoritative, but with a powerful, enthralling sound. They are good enough to go up against other loudspeakers costing £1000 or more – which makes them a bargain.

CONCLUSION

The new 3050i is a great floorstander from Q Acoustics. Superb bass, a wide, even treble and a sense of ease and detail all characterise their sound. Highly recommended; I loved them.

Note the lack of traditional terminal panel cut-outs - designed to give the cabinet greater structural integrity - and the use of low-profile 'speaker binding posts.



MEASURED PERFORMANCE

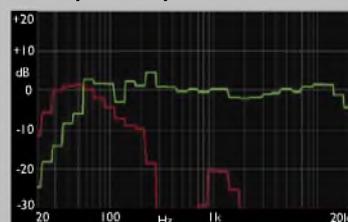
Our third-octave frequency response of pink noise shows a smooth and flat overall characteristic, with some small but subjectively important features.

Bass in particular is well extended downward and output relatively strong, especially from the broad tuned port (red trace) that is tuned to 45Hz our impedance analysis shows. The 3050i will have obviously strong bass, but it is well damped acoustically so will not

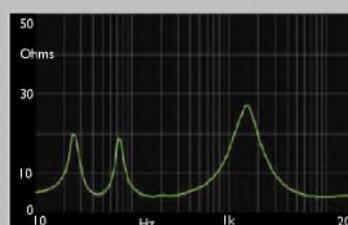
FREQUENCY RESPONSE

Green - driver output

Red - port output



IMPEDANCE



sound boomy or one-note.

The central tweeter (D'Appolito arrangement) has a slight lift to its output of around +2dB when measured on-axis and this reduces a little off-axis to the result shown, so the speakers are best pointed straight down a room. However, the tweeter has broad dispersion so changes will seem slight.

Sensitivity was very high – 90dB sound pressure level (SPL) from just one nominal Watt (2.8V) of input. Consequently, the 3050is need very little power to go loud – 20 Watts is more than enough. Even low power (10W) amplifiers will suit.

Impedance measured 6 Ohms overall but the bass unit is 4 Ohm, as is common nowadays. The impedance trace is classic, with the dip caused by port damping at 45Hz at left, the peak at 1.8kHz being caused by the tweeter starting to draw current above that frequency.

The 3050i has a smooth and even output across the audio band, so is both accurate and of good intrinsic quality (i.e. few local resonances). Bass is strong and sensitivity very high; the 'speaker measures well all round. NK

Q ACOUSTICS
3050i £645



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A £645 loudspeaker that punches well above its weight in sound quality terms. Demands to be heard.

FOR

- powerful
- deep bass
- refined treble
- rhythmic ability

AGAINST

- nothing

Q Acoustics
+44 (0) 1279 501111
www.qacoustics.co.uk



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Pro-Ject Vision

Noel Keywood visits turntable specialist Pro-Ject's headquarters and its manufacturing facilities to discover the secrets behind its success.



Pro-ject's new headquarters sit in an open landscape, just north of Vienna.

We all know by now that vinyl is back with us, as LP sales soar. Then there are all the shiny new turntables that have suddenly appeared for playing them. Some of the shiniest come from Pro-ject, a company started not so long ago 'over there' in East Europe where countries confusingly change their name and identity regularly as they struggle to emerge from communism. Pro-ject, I found on a recent visit, is part of both stories: success of turntable manufacturing today and the rejuvenation of industry in East Europe as it re-builds and re-equips to align with the modern world – something we see and hear little of in the UK.

I'll make plain at the outset that Pro-ject isn't an investment vehicle or government funded scheme like Strathearn once was (yep, I went there too!). It's very much driven by a love of turntables from one man, its founder Heinz Lichtenegger. Strange as it may seem, there are people fascinated by turntables, with big collections of them – and Heinz is one of them. Britain has a strong reputation in this field and Heinz has owned and used many of UK's spinners, even mentioning the rare Simon Yorke at one point. He also

knows Platine Verdier (France) and of course German brands such as Thorens.

I say "of course" because Pro-ject is based in Austria, a country that borders Germany and is culturally close, sharing the language. Heinz produced his first turntable in 1990 whilst running a hi-fi distribution business, Audio Tuning Vienna. It's testament to his interest and dedication because at that time the LP was all but dead, sales having declined steadily since the introduction of CD in 1983, so entering the turntable business made no sense at all – but he did it all the same.

What back then made no sense was about to make great sense, as the completely unforeseen revival of LP started, led by Britain I was told, whose expanding market absorbed and supported Pro-ject in its early years. Germany and the USA followed.

I suspect Britain's past history of music had influence here, since it put millions of LPs containing classic Rock performances into UK homes. Those that didn't get skipped when the CD arrived took on value when the notion of restoring classic items to full use took hold. All of a sudden turntables were back in fashion, historically underpinned in effect by

Britain's influential music business.

After building his first unit from MDF and auditioning it with Deep Purple, Heinz thought he had a design that bettered all else, until he realised that the sound of MDF favoured Deep Purple more than the Vienna Philharmonic down the road, so it was 'back to the drawing board' to sort out how to voice the unit for a more even result. Early production was imported to the



Heinz Lichtenegger, Pro-ject's turntable enthusiast – and also its founder!

FEATURE

UK by distributor Henley Designs whose director, Laurence Armstrong, personally co-operated with Heinz Lichtenegger from the start.

As demand increased across Europe, especially Germany, Pro-ject expanded steadily to become a major manufacturer – by any standard. At its newly built headquarters just north



An MDF platter being turned on a wood lathe.

of Vienna I saw a vast warehousing area with 30ft high racks in multiple rows – the sort of thing you see in Ikea – carrying thousands of turntables ready for export. Large fork lift trucks were needed to access the top rows. In this new building offices are positioned around a central garden, and demo rooms – small, medium and large – along one outside wall abutting a visitor centre, since this area of the factory is open to the public – providing they can drive as there's no other way of reaching its remote location.

Feeding this warehouse are

no fewer than four factories, two of which I visited. They're further north, in what is now the Czech Republic. One of the two I saw was a Tesla factory that once made simple turntables, as well as electric kettles and household appliances, for Soviet block countries. Although an old concrete frame structure from the 1950s I would guess, without air conditioning, it was in good condition and all seven floors were crammed with turntable parts since these factories, as in the past, today make every part and carry out all processes in-house: there was even a paint-spray shop.

Raw materials go in though one door and packed turntables come out of another, to be transported down new two-lane motorways packed with trucks (also mostly new) heading south from Poland. Their journey, like ours, takes them across a countryside of massive open land area with distant horizons, almost exclusively agricultural, patchworks



Acrylic platters with fitted centre spindles stacked high as they go through the manufacturing process.



Aluminium platters sit in shiny lines after being turned on metal lathes.



Pro-ject's new factory with its long lines of computer-controlled milling machines.

of fields stretching away into the distance, interspersed with small wooded areas and hedges, like the UK. Unlike the UK was the lack of human beings: there were few hamlets or towns – and the ones we did pass through were eerily silent – no one on the pavements or in the gardens. A population density one-third that of England explains this.

In this green, peaceful and sunlit place (whilst we were there!) I was taken from the old Tesla plant to a new factory a few miles away – and got a shock. It was not only unfeasibly large for turntable manufacture alone, it also had a long line of some of the most expensive automated computer controlled milling machines available, the finest being from Japan



A view of the Czech Republic from the Tesla factory's 7th floor – long flat horizons.



Lines of Yellow Submarine (The Beatles) themed turntables awaiting final inspection in the Tesla factory. Pro-ject produce many Beatles-themed variants.

costing £300,000. Factories like this don't come cheap: I would estimate this as a £10 million investment. In contrast to the old Tesla plant it was air conditioned, being mostly a conventional single-story industrial unit of huge floor area, albeit with a two-story store planned.

Workers walk, pedal or drive to the local village close to Litovel for food; there's scant public transport: I saw no buses. But both countryside and towns were spotlessly clean

and also uncluttered by signage and excessive road markings, having the air of a simpler world long gone. They've yet to suffer food outlets like McDonalds (I saw just one), or the big retail chains with their roadside warehouse operations, or mass tourism – but with so much open space this is all surely coming – lines of trucks and motorway jams warning of a future where two lanes are insufficient for the output of new factories such as Pro-ject's, feeding a world market.

A great believer in analogue, it was no surprise that Heinz Lichtenegger had (and could use!) a Studer A807 open reel tape recorder in the large showroom – and I got



This is what you need to produce turntable parts – a Nakamura-Tome WT-300 milling machine – £300k I was told.



The large listening room, with high-end models at right, a wall of LPs at left and Triangle (France) loudspeakers.

to hear that perennial favourite of the audio industry, 'Dark Side of the Moon', from a copy master tape. Yes, it was amazing, as all master tapes are: I hear them regularly at U.S. audio shows. You get the ordered sound of digital with the smoothness and flow

So it looks like analogue is making a comeback on a broad front, not just to sate interest in the past, but also as a medium fit for listeners of the future – and in this Pro-ject are a major player.

The hi-fi business has been driven by many illustrious names and we have our fair share of them in Britain. Heinz Lichtenegger's personal obsession with the turntable has flourished into one of the most extraordinary pure hi-fi operations I have seen in terms of scale and extent. Their first sales were into the UK and now, having recently taken over Musical Fidelity, the UK features yet again in Pro-ject's future, who will use this brand name for their electronic products.

So there's much more to come from the modern Austrian company,

HD VINYL

As you might expect this is a vinyl LP of super high-quality with – I was told – 100dB dynamic range. That compares to around 72dB for current best-quality LPs (as measured by our Rohde&Schwarz spectrum analyser), achieved by using higher signal levels.

HD LPs will be playable on any record deck, but for full benefit an HD cartridge is needed. Apparently, bandwidth stretches to 100kHz, where today's upper limit is around 20kHz, although CD-4 (surround-sound LP from the 1970s) with its sub-carrier once managed 35kHz. That high upper bandwidth allows low resolution video to be added and it's been done, but video isn't planned as standard I believe.

The key point of this system is in my view that it eliminates the cutting lathe – something that HD Vinyl (see <https://hdvinyl.org>) themselves omit to mention in their simple on-line explanation. Recorded music is cut into a metal master using lasers, instead of an electro-mechanically driven cutting head travelling in a straight line cutting into a soft 'acetate' – the traditional method.

The lasers work from a 3D computer map of the groove derived from the music, allowing the path to be compensated to suit radial pickup arms, greatly reducing tracking error distortion.

A phenomenon known as lacquer springback is also avoided, giving a more predictable and accurate groove profile.

Cutter velocity limitations don't exist, allowing high levels to be cut – hence the claimed dynamic range increase.

The stamper will be made from hard ceramic to lessen wear in the pressing process.

Impressive stuff. I'd expect a sound akin to a master tape: highly preened but still analogue.

An outstanding issue is the pickup cartridge. Quite whether this will become even more delicate and expensive to reach 100kHz remains to be seen – and it will have to track very high groove levels.

Tracking abilities are high enough nowadays to cope with higher groove modulation levels – although a 20dB+ increase may be a bit much. They'll be "hot" LPs, that's for sure.

strongly linked back to UK-based Henley Designs who have participated closely in their growth

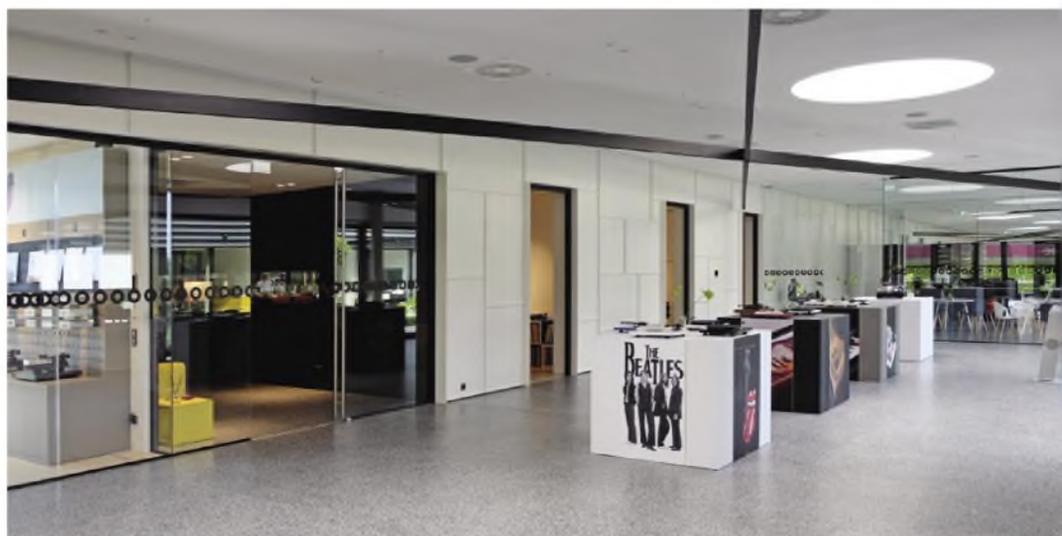


Pro-ject's Studer A807 open reel recorder, threaded with a 1/4in tape of Pink Floyd's 'Dark Side of the Moon'.

of analogue, as well as its stronger sense of power and dynamic contrast. There was discussion of whether Pro-ject could, using its advanced machine tools, manufacture all the parts necessary for a tape transport in future.

Another development Project are involved in is HD Vinyl – and this is more likely to reach fruition. LP stampers are cut by lasers and can achieve 100dB dynamic range I was told. Suitable replay pickup cartridges are complex but manufacturable using current materials and mechanisms.

An HD Vinyl LP can be played on a conventional turntable but gives best results with what will be an HD cartridge.



The reception area, with Beatles-themed turntables, three listening rooms – small, medium and large – plus a product display room.

Finding one's Voce



Martin Pipe examines a very unusual DAC from Italy.

When designing a digital audio product like a streamer, CD player or DAC it's common to use bought-in components to perform the critical function of converting digital data into analogue. Companies like Burr-Brown/TI, Cirrus, ESS, Analog Devices and Wolfson specialise in designing chips for this task, pouring millions of dollars into their development.

But some companies prefer to design their own digital converters in-house. In the UK, the best known are Chord Electronics and dCS with their Ring DAC (they also came up with DoP), whilst Prism Audio take a hybrid approach, hitching circuitry to specific sections of a commercial DAC chip.

And now, from Italy, we have the mysterious Aqua ('Acoustic Quality'), who hail from Milan. Their £3,395 La Voce DAC I am reviewing here. In appearance it's very much the archetypal audiophile product – substantial build quality, and an elegant aluminium frontage sporting the bare minimum of controls (power, input selection and digital-phase inversion). La Voce is the entry level model in a range

that boasts a range of interesting concepts – modular construction, electromagnetic isolation of the DAC circuitry with Optologic, the rejection of op-amps in the signal path, specially-developed timing chains and much more...

La Voce, now into its 'S3' incarnation, represents the most cost-effective way of buying into this approach. Previous DAC boards available for La Voce include DAC chips like the Burr-Brown PCM1704, Analog Devices AD1865 and even the Philips TDA1541A. But now the La Voce has its own incarnation of an Aqua-developed multi-bit DAC that is fashioned from discrete components and underpins the firm's more exclusive La Scala (£5,990) and Formula xHD (£11,990) converters. It uses a technique, known as the 'R-2R ladder', that harks back to the very early days of digital-to-analogue conversion. At 16 or 24-bit resolution it's difficult to achieve required precision, meaning non-linearity – in other words, distortion. In stereo, channels commonly differ for the same reason.

Modern delta-sigma DACs have addressed the problem, but practical DACs built around discrete R-2R ladders remain available – there are

at least three other firms (MSB, Holo Audio and Denafrips) making them. Claimed reproductive advantages include a more immediate and open character.

La Voce, like its siblings, has that proprietary AQLink among its four inputs. The other three are 'modular' (the review sample was fitted with an XLR for AES/EBU, although alternatives like optical can be specified), S/PDIF (BNC, rather than phono) and 'bit-perfect' USB for Class 2 computer audio. Analogue outputs are available in balanced XLR and unbalanced phono form.

True to Aqua's word, the analogue audio circuitry relies on transistors rather than op-amps for its capacitor-free signal path. Separate power supplies – each fed from a dedicated toroidal mains transformer – are provided for the analogue and digital sections. There's no means (front-panel LEDs, etc.) of confirming sample rate of the currently-selected source. La Voce is compatible with DSD64 and DSD128 (all inputs support DoP), and PCM all the way to 384kHz/24-bit. No MQA, though.

SOUND QUALITY

I used the Cambridge CXN V2 streamer I review elsewhere in this



At bottom-right is the R-2R DAC board - count those resistors! Underneath it is a powerful DSD chip that does decoding and conversion of serial data into the parallel form needed by the DAC section.

issue (connected to La Voce via coaxial digital) and a USB-interfaced Windows 7 PC as sources. You have to download the Windows drivers, which also include a control panel program, from the Aqua website. Regrettably, there's nothing in the rather-inadequate manual to explain how to set up playback software like Foobar2000 (free) and JRiver Media Center (commercial) for use with the La Voce. I couldn't find any information on the firm's website, either.

Output was fed to an Arcam A49 integrated amplifier, driving a pair of Quadral Aurum Wotan VIII floorstanders – I also used headphones.

Test results for La Voce are not inspiring, but in my view it's worth moving to a DAC that measures relatively-poorly if there's a perceptible sonic advantage.

And La Voce definitely delivers that! One thing this converter has above all else is energy, as tracks like David Bowie's 'Tis a Pity She Was a Whore (24-bit) amply demonstrate. Excitement abounds; in comparison, the admittedly much-cheaper Cambridge player (attached to another of the Arcam's numerous line inputs) sounds rather restrained and polite. The more reflective track that follows it on Blackstar, Lazarus, also engages the senses while acting as a showcase for La Voce's other talents. Its presentation here is very detailed, and it's easy to follow the sax line while the percussion thrashes away in the background.

The individual atmospheres and lush synthetic tones of Boards of Canada's Reach for the Dead (Tomorrow's Harvest, CD rip), Pye Corner Audio's The Mirror Ball

Cracked (Sleep Games, CD rip) and Mogwai's Remurdered (Rave Tapes, 24-bit) were all resolved distinctively; the latter track's drums and cymbal-crashes sounded clean, with no sound of overload. Orchestral work also fares well, La Voce managing to tease out of an archive (1967) Soviet-era performance of Tchaikovsky's Fourth Symphony (USSR Symphony

Orchestra/Evgeni Svetlanov, CD rip) a satisfying degree of musical scale and space. It tended towards the bright; I suspect that's more down to a recording over half a century in vintage, than a vintage DAC philosophy successfully brought up to date.

CONCLUSION

Congratulations to Aqua for daring to be different – and succeeding. Although this unusual DAC design doesn't measure particularly well, it's an engaging listen from the outset – the claimed advantage of 'old-fashioned' ladder DACs. I was impressed and feel it is well worth auditioning.

Also, modular design ensures that La Voce should be able to accommodate DAC fashions and technological changes in music-delivery technology, for as long as Aqua decides to support it.

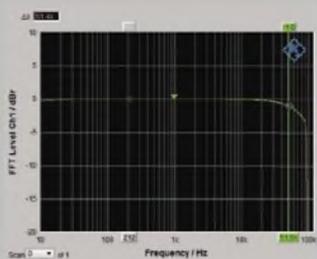


La Voce has four inputs, the AQLink being for their own transport. An optical connector would find more favour! In our review sample, the modular input is AES/EBU – you also get S/PDIF and asynchronous USB.

MEASURED PERFORMANCE

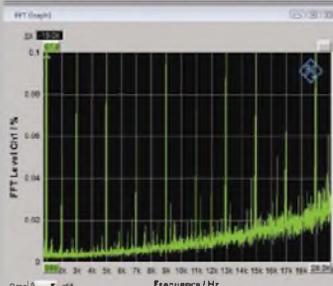
Via its BNC socket S/PDIF digital input the La Voce produced 0.28% / 0.15% distortion from Left / Right channel

FREQUENCY RESPONSE



DISTORTION

THD @ 0dB	Level [dB]	Frequency
0.2832 %	2.5882 mV	997.00 Hz
OFF	OFF	OFF



outputs (-60dB, 24bit) – around 10x more than common and unbalanced between channels, via both XLR and Phono socket outputs. Input via AES/EBU offered no improvement.

Dynamic range (EIAJ) was as a result low, measuring at 104dB (Left) and 107dB (Right), little better than CD (103dB) and well below the 115dB or so common nowadays for hi-res, let alone 117dB-123dB of top DACs.

Frequency response measured flat to 51kHz (192kHz sample rate); there is no optical input so frequency response wasn't an issue.

Output measured 5.5V from the XLR (balanced) socket outputs and 2.6V from the phono socket (unbalanced) outputs.

The Aqua measured poorly by current standards, exhibiting high distortion and low dynamic range. **NK**

Frequency response (-1dB)	8Hz-51kHz
Distortion (-60dB, 24bit)	0.28%
Separation (1kHz)	95dB
Noise (IEC A)	-104dB
Dynamic range (EIAJ)	106dB
Output (XLR/Phono)	5.5V / 2.6V

AQUA LA VOCE S3 £3,395



EXCELLENT - extremely capable

VERDICT
Good sound, different from the norm.

FOR
- energetic and musical sound
- a beautifully-made modular design

AGAINST
- no visual confirmation of input signal type
- no filter options
- documentation needs improvement

Elite Audio
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We do not sell these products. It is for your information only.

WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

TURNTABLES

EAT FORTE 2009 £12,500
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



FUNK FIRM VECTOR II 2009 £860
Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.

REGA P2 2008 £300
Excellent value for money engineering, easy set up and fine sound.

MCINTOSH MT10 2008 £8,995
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

REGA P3-24 2008 £405
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

ACOUSTIC SOLID ONE 2007 £4,050
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

AVID VOLVERE SEQUEL 2007 £4,600
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

MICHELL GYRODEC SE 2005 £1,115
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

MARANTZ TT-15S1 2005 £1,299
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound/play and play package at this price point.

MICHELL TECNODEC 2003 £579
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



MICHELL ORBE 1995 £2,500
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

SME MODEL 10A 1995 £4,700
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

LINN AXIS 1987 £253
Cut-price version of the Sondek with LVX arm. Elegant and decently performing package. Later version with Akito tonearm better.

TECHNICS SL-P1200 1987 £800
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

ROKSAN XERXES 1984 £550
Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth/top-plates make them a dubious used buy.

DUAL CS505 1982 £75
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

MICHELL GYRODEC 1981 £599
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

TOWNSHEND ROCK 1979 £ N/A
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

MARANTZ TT1000 1978 £ N/A
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



REGA PLANAR 3 1978 £79
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

SONY PS-B80 1978 £800
First outing for Sony's impressive 'Botracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

TRIO LO-7D 1978 £600
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

ADC ACCUTRAC 4000 1976 £300
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

PIONEER PLC-590 1976 £600
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

PIONEER PL12D 1973 £36
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



TECHNICS SP10 1973 £400
Seminal Japanese engineering. Sonics depend on plinths, but a well-mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

LINN SONDEK LP12 1973 £86
For many, the Brit superdeck: constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.

ARISTON RD11S 1972 £94
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

GOLDRING LENCO GL75 1970 £15.65
Simple, well-engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

GARRARD 301/401 1953 £19
Tremendously strong and articulate with only a veiled treble to let it down.



THORENS TD124 1959 £ N/A
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass

TO NEARMS

REGA RB251 2009 £136
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification

HELIUS OMEGA 2008 £1,595
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance

AUDIO ORIGAMI PU7 2007 £1,300
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive



GRAHAM PHANTOM 2006 £3,160
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

TRI-PLANAR PRECISION 2006 £3,600
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around

MICHELL TECNOARM A 2003 £442
Clever reworking of the Rega theme, using blasting drilling and rewiring!

SME 309 1989 £767
Mid-price SME comes complete with cost-cut aluminium arm tube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

NAIM ARC 1987 £1,425
Charismatic unipivot is poor at frequency extremes but sublime in the midband, truly emotive and insightful.

SME SERIES V 1987 £2,390
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

NAIM ARC 1986 £875
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



ALPHASON HR100S 1981 £150
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

SME SERIES III 1979 £113
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound

TECHNICS EPA-501 1979 £ N/A
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound

LINN ITTOK LVII 1978 £253
Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out

AUDIO TECHNICA AT 1120 1978 £75
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend

HADCOCK GH228 1976 £46
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup

ACOS LUSTRE GST-1 1975 £46
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now

SME 3009 1959 £18
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high

PHONO STAGES

CREEK OBH-8 SE 1996 £180
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination

MICHELL ISO 1988 £ N/A
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse



LINN LINNK 1984 £149
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

INTEGRATED AMPLIFIERS

NAIM NAIT XS 2009 £1,250
With much of the sound of the Supernal! at half the price, this is powerful, articulate and smooth beyond class expectations.

MUSICAL FIDELITY PRIMO 2009 £7,900
Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

SUGDEN A21A S2 2008 £1,469
Crystalline clarity, glizzying speed and forensic detailing. Power limited so needs sensitive speakers.

CREEK OBH-22 2008 £350
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound

CAMBRIDGE 840A V2 2007 £750
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance offering power, finesse and detail.

SUGDEN IA4 2007 £3,650
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrated's.

NUFORCE P-9 2007 £2,200
Impressive two box preamp with superb resolution and an engaging sound

MELODY PURE BLACK 101D 2007 £3,295
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterpiece

AUDIOLAB 8000S 2006 £400
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound

MCINTOSH MA6800 1995 £3735
Effortlessly sweet, strong and powerful with seminal styling to match

DELTEC 1987 £1900
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange

EXPOSURE VII/VIII 1985 £625
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



AUDIOLAB 8000A 1985 £495
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

VTL MINIMAL/SOW MONOBLOCK 1985 £1,300
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

MUSICAL FIDELITY A1 1985 £350
Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



NAIM NAIT 1984 £350
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power

CREEK CAS4040 1983 £150
More musical than any budget amp before it. CAS4140 loses tone controls, gains grip

MYST TMA3 1983 £300
Madcap eighties minimalism, but a strong and tight performer all the same.

ROTEL RA-820BX 1983 £139
Lively and clean budget integrated that arguably started the move to minimalism.

NAD 3020 1979 £69
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

ROGERS A75 1978 £220
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

A&R A60 1977 £115
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



SUGDEN C51/P51 1976 £130
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

SUGDEN A21 1969 £ N/A
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

ROGERS CADET III 1965 £34
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

CHAPMAN 305 1960 £40
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

POWER AMPLIFIERS

ELECTROCOMPANET NEMO 2009 £4,995 (EACH)

Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

NUFORCE REFERENCE 9SE V2 2006 £1,750
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

QUAD II-80 2005 £6,000 PER PAIR

Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



QUAD 909 2001 £900
Current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same.

NAIM NAP 500 2000 £17,950
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

MARANTZ MODEL 9 1997 £8000
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

MICHELL ALECTO 1997 £1989
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



MUSICAL FIDELITY XA200 1996 £1000
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

PIONEER M-73 1988 £1,200
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

KRELL KMA100 II 1987 £5,750
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

RADFORD STA25 RENAISSANCE 1986 £977

This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

QUAD 405 1978 £115

The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110

Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

LECSON AP1 1973 £ N/A
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

QUAD 303 1968 £55
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

LEAK STEREO 20 1958 £31
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



LEAK STEREO 60 1958 £N/A
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

QUAD II 1952 £22
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly



LEAK POINT ONE, TL10, TL12.1, TL/12 PLUS 1949 £28

Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

PRE AMPLIFIERS

AUDIOLAB 8000C 1991 £499
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



CROFT MICRO 1986 £150
Budget valve pre-amp with exceptionally transparent performance.

CONRAD JOHNSON MOTIV MC-8 1986 £2,500
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

AUDIO RESEARCH SP-8 1982 £1,400
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

LINN LK-1 1986 £499
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

NAIM NAC 32.5 1978 £ N/A
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

LECSON AC-1 1973 £ N/A
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

QUAD 33 1968 £43
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



LEAK POINT ONE STEREO 1958 £ N/A
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

QUAD 22 1958 £25
The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for anacrophiles only.

LOUDSPEAKERS

WHARFEDALE DIAMOND 10.3 2010 £290
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



YAMAHA SOAVO 1.1 2009 £3,000
Musical, transparent with impressive dynamics and cohesion. Excellent build and finish.

USHER BE-10 2009 £10,500
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



SPENDOR A5 2009 £1,695
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

MONITOR AUDIO PL100 2008 £2,300
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble



MARTIN LOGAN SOURCE 2008 £1,600
Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

PMC OB11 2008 £2,950
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

ISOPHON GALILEO 2007 £2,100
Big standmounters that really grip the music and offer quite startling dynamics and grip

ONE THING AUDIO ESL57 2007 £1,450
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

MOWGAN AUDIO MABON 2007 £3,995
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

B&O BEOLAB 9 2007 £5,000
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



ISOPHON CASSIANO 2007 £12,900
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

B&W 686 2007 £299
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

QUAD ESL-2905 2006 £5,995
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

B&W 801D 2006 £10,500
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



REVOLVER CYGNIS 2006 £5,999
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

USHER BE-718 2007 £1,600
Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

USHER S-520 2006 £350
Astoundingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions

ACOUSTIC ENERGY AE1 CLASSIC 2006 £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made



MISSION X-SPACE 1999 £499
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

MISSION 752 1995 £495
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

TANNOY WESTMINSTER 1985 £4500
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



CELESTION SL6 1984 £350
Smallish two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

HEYBROOK HB1 1982 £130
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic



QUAD ESL63 1980 £1200
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

MISSION 770 1980 £375
Back in its day, it was an innovative product and one of the first of the polypropylene designs. Warm, smooth, clean and powerful sound.

ACOUSTIC RESEARCH AR18S 1978 £125
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

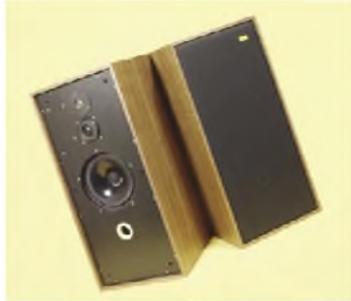
YAMAHA NS1000 1977 £532
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



JR 149 1977 £120
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging.

KEF R105 1977 £785
Three way Bextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

SPENDOR BC1 1976 £240
Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



IMF TLS80 1976 £550
Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

BBC LS3/5A 1972 £88
Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence.

LEAK SANDWICH 1961 £39 EACH
Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

QUAD ESL57 1956 £45 EACH
Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.

SYSTEMS

MERIDIAN SOOLOOS 2.1 2010 £6,990
Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.



NAIM UNITIQUE 2010 £995
Great little half width one-box system with truly impressive sound allied to a wealth of source options.

ARCAM SOLO MINI 2008 £650
Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

MERIDIAN F80 2007 £1,500
Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.

SHANLING MC-30 2007 £650
Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



AURA NOTE PREMIER 2007 £1,500
Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



MARANTZ 'LEGEND' 2007 £22,000
The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.

ARCAM SOLO NEO 2006 £1,100
Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

PEACHTREE AUDIO IDECCO £1,000
Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



TUNERS

ARCAM FMJ T32 2009 £600
Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



MAGNUM DYNALAB MD-100T 2006 £1,895
One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

MYRYAD MXT4000 2005 £1,000
Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.

NAIM NAT03 1993 £595
The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

CREEK CAS3140 1985 £199
Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

QUAD FM4 1983 £240
Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



NAD 4040 1979 £79
Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.

MARANTZ ST-8 1978 £353
Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

YAMAHA CT7000 1977 £444
Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

SONY ST-5950 1977 £222
One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.



ROGERS T75 1977 £125
Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.

SANSUI TU-9900 1976 £300
A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.



TECHNICS ST-8080 1976 £180
Superb FM stage makes for a clean and smooth listen.

REVOX B760 1975 £520
The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

SEQUERRA MODEL 1 1973 £1300
Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.

LEAK TROUGHLINE 1956 £25
Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.

HEADPHONE AMPLIFIERS

GRAHAM SLEE NOVO 2009 £255
Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound



MUSICAL FIDELITY X-CAN V8 2008 £350
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones

CD PLAYER/RECORDERS

MUSICAL FIDELITY TRIVISTA 2002 £4000
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic

MARANTZ SA-1 2000 £5,000
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down



SONY MDS-JE555ES 2000 £900
The best sounding MD deck ever, thanks to awesome build and heroic ATHAC-DSP Type R coding

PIONEER PDR-555RW 1999 £480
For a moment, this was the CD recorder to have. Clean and detailed

MARANTZ DR-17 1999 £1100
Probably the best sounding CD recorder made, built like a brick with a true audiophile sound and HDCD compatibility



CAMBRIDGE AUDIO CD4SE 1998 £200
A touch soft in the treble and tonally light, but outstanding in every other respect.

SONY TCD-8 DATMAN 1996 £599
Super clean sound makes this an amazing portable, but fragile

LINN KARIK III 1995 £1775
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

NAIM CDS 1990 £ N/A
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

MARANTZ CD73 1983 £700
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



MERIDIAN 207 1988 £995
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output

SONY CDP-R1/DAS-R1 1987 £3,000
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties

CAMBRIDGE AUDIO CD1 1986 £1500
Inspired Stan Curtis redesign of Philips CD104 complete with switchable digital filter. Lean but tight and musical performer



MERIDIAN MCD 1984 £600
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later

SONY CDP-701ES 1984 £890
Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadorned luxury of a paperbook-sized remote control

YAMAHA CD-X1 1983 £340
Nicely built 16x2 machine with a very sharp and detailed sound, sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time

SONY CDP-101 1982 £800
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



ANALOGUE RECORDERS

AIWA XD-009 1989 £600
Aiwa's Nak beater didn't but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon



SONY WM-D6C 1985 £290
Single capstan transport on a par with a Swiss watch. Single rec/replay head better than most Naks. Result: sublime.

PIONEER CTF-950 1978 £400
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless

YAMAHA TC-800GL 1977 £179
Early classic with ski-slope styling. Middling sonics by modern standards but cool nonetheless!

SONY TC-377 1972 £N/A
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

REVOX A77 1968 £145
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

COMPACT DISC TRANSPORTS

ESOTERIC P0 1997 £8,000
The best CD drive bar none. Brilliantly incisive, ridiculously over engineered

TEAC VRDS-T1 1994 £600
Warm and expansive sound made this a mid price hit. Well built, with a slick mech

KENWOOD 9010 1986 £600
The first discrete Jap transport was beautifully done and responds well to re-clocking

DACs

DCS ELGAR 1997 £8500
Extremely open and natural performer, albeit extremely pricey - superb

DPA LITTLE BIT 3 1996 £299
Rich, clean, rhythmic and punchy sound transforms budget CD players

CAMBRIDGE AUDIO DAC MAGIC 1995 £99
Good value upgrade for budget CD players with extensive facilities and detailed sonics

PINK TRIANGLE DACAPO 1993 £ N/A
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QED DIGIT 1991 £90
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CABLES

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WIREWORLD OASIS 5 2003 £99/M
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money

TCI CONSTRICTOR 13A-6 BLOCK 2003 £120
Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

The Meridian line

Martin Pipe revisits one of the original 'two-box' CD players.

When the Compact Disc was born in 1983 many were not satisfied with its sound. Among them were Bob Stuart and

Allen Boothroyd of Meridian, who thought they could do better. The result was 1984's Meridian MCD and up-specced MCD-Pro CD players. These were basically top-loading Philips CD101 machines, as their appearance suggests, but with radically re-engineered analogue audio stages, power supplies and laser servos. Meridian was a relatively-small company in the early 1980s and at the time simply didn't have the resources to design a complete CD player 'from scratch'.



Meridian specified the TDA1540 14-bit DAC, used here in a 4x oversampling configuration, it's partnered with high-grade analogue circuitry designed by Meridian. The later 207G switched to 'true' 16-bit conversion in the form of Philips TDA1541 DACs.



The MCD models gave a more natural sound from the rather granular and harsh discs of the time, proving popular with audiophiles more used to vinyl. International sales of these players were strong, especially in Japan and the US. Meridian also claims that they were used by record companies for reference purposes. By 1986, the business had gained considerable experience with digital audio – and was able to put more of its own input into a CD player, although the significant input of Philips is still evident.

I'm talking about the glass-fronted (and distinctly-1980s!) 207, as featured here. Launched in 1986 with a pricetag of £850 – twice a Linn LP12 turntable without arm and cartridge – the Meridian 207 was one of the first two-box CD players designs on the market. The link between its transport and the digital audio module is a proprietary one built around 25-pin 'D' cable of the sort then-common in the computer industry. You can't use the 207 with a third-party DAC, but

1987's Mark-2 follow-up, the 207G, did offer an S/PDIF output.

The 207's transport unit contains not only a Philips optical mechanism (a CDM-1 or CDM-4, depending on vintage) built into the disc tray, but the power supplies. They employ a single toroidal transformer, with separate windings for the digital and analogue sections. Also evident is a motor (Philips, natch!) that looks powerful enough to spin a decent turntable. It's coupled via a toothed belt to the slide-out disc tray, which makes use of a 3-point sorbothane-sprung mounting system to improve isolation from external shocks and vibration.

In the main unit is the control microprocessor, digital audio circuitry, the butchered (some chips have been removed) main board of a Philips CD player...and a preamp! Pointing the way forward, Meridian designed the 207 so that it could be used directly with a power amplifier or active speakers – whether those produced by the firm, or a third party. Under digital control, its clever volume control switches

in high-grade metal-film resistors to provide 64 steps of attenuation – at the time, this was the best solution technology could provide!

The 207 offers a single line-level input, a tape loop that could be pressed into service as a second line input – and a headphone socket on the back! There's also a fixed output for listeners who want to simply use the 207 as a CD player. The later 207G, which can be identified by its yellow front-panel volume buttons (those of the original 207, as featured here, are red), added another line input that could be upgraded with an internal MM/MC phono stage. All credit to Meridian; most other manufacturers were, remember, phasing out support for vinyl back then! The 207G also offers 16-bit (Philips TDA1541) DACs; the original 'red button' model employs TDA1540s (14-bit DACs, implemented here with 4x oversampling). The 207G has a 'proper' 6.3mm headphone socket, although it's still inconveniently on the rear. With phono stage, a 207G would have set you back £1000.

New or old versions, the two half-width units could be placed side-by-side or one on top the other. They were worked by a basic handset, or Meridian's glorious 209 'system remote'. I had neither of these, but a Philips CD player remote – or its emulation on a smartphone 'app' – works fine. The 207 isn't perhaps the most intuitive of CD players to

drive. Forward/reverse scanning isn't, for example, available from the front panel (an annoyance when it comes to mix CDs or long classical works!), and programmed playback isn't particularly easy to accomplish.

Furthermore, you have to press play after inserting the disc to load

"The 207 still manages to deliver the goods today. Not bad for a machine that's over thirty years old"

its table of contents ('dir' will appear on the display, followed by the total playing time). There are also some odd features to confuse the unwary. The 207 was one of the first players to provide the user with switchable control over digital phase – select whichever you judge to give the best sound quality. And the usual four-digit display is augmented by a battery of LEDs to indicate bit-errors (both fully-corrected and interpolated), phase, playback mode and whenever de-emphasis is active (no modern discs make use of emphasis). All very sophisticated by mid-80s standards.

If my experiences are anything to go by, using an Arcam A49 amp and Quadral Aurum Wotan VIII speakers, the 207 still manages to deliver the goods today. Not bad for a machine that's over thirty years old, and still on its original laser (the optical components of much early Philips CD hardware are famously reliable)! Admittedly, it's not history's



The 207 was one of the first 'two-box' CD players. One box contains the Philips CD mechanism and its power supply, while the other contains most of the electronics. As can be seen, the standard of construction is high - as one would expect from a British-made product that happened to be one of the most expensive CD players then available!



To extend and withdraw the glass-fronted disc tray, Meridian built in an enormous Philips DC motor that seems like overkill! It's coupled to the drawer mechanism via a toothed belt. The ribbon cable connects the Philips CD loader (a CDM-1 or CDM-4, depending on your unit's vintage) to a computer-like DB25 socket on the rear panel and thence to the electronics half of the 207. Note too Meridian's use of a toroidal mains transformer.

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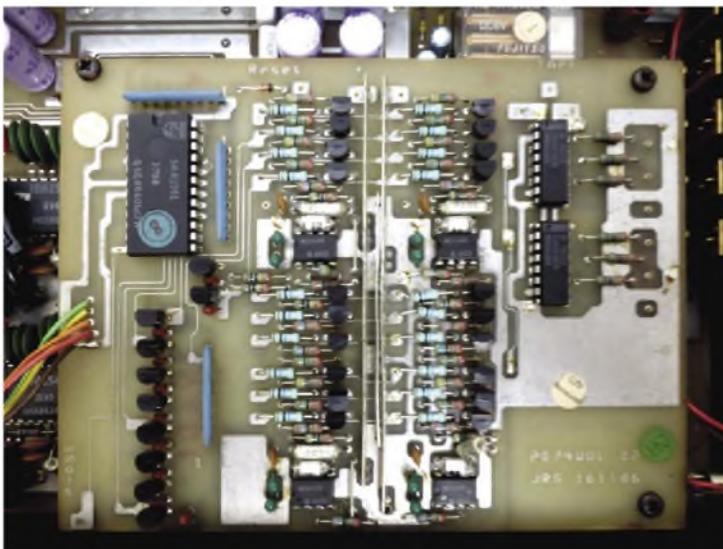
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The full potential of the 207 can be seen from its rear panel. The player offers a fixed output for those who don't need the volume control - in other cases, the variable output would be routed to a power amp. There's a genuine tape loop (the front panel has a 'monitor' button) and a line input for a radio tuner or phono stage. Note too the ground-lift switch (to break hum loops), the serial 'comms' port for remote control and the 25-pin umbilical link between the transport (207A) and the main electronics (207B). The 3.5mm headphone socket was replaced by a 'proper' 6.3mm type come the 16-bit 207G, which also added a S/PDIF output.



Meridian designed the 207 so it could be used as a preamplifier too. Add a power amplifier and speakers - or active speakers - for a complete system, with extra line input and a tape facility. The 207G follow-up even made provision for an internal phono stage! To adjust volume, Meridian designed a switched resistor 64-step attenuator circuit - superior to all other types and very audiophile. There are no potentiometer tracks or wipers to crackle and wear out!

most revealing player but the tonal balance (a tad warm and 'analogue-y'), natural conveyance of space, depth and lack of top-end harshness make the 207 very easy to live with. But above these, it's the sheer musicality. This player sings with anything you care to place in its tray - rock, jazz, electronica or symphony.

Note that, as with most early players, CD-RWs are completely rejected while CD-R playback isn't guaranteed. Mine plays some of the latter, notably finalised 'audio' CD-Rs written in real time by a stand-alone CD recorder. But even with these the error-correction LEDs tend to flicker, and on occasions the music is tainted by an unpleasant roughness.

The preamp section performs well, and there is no obvious 'steppiness' to its volume control. At lower listening levels, there is no sacrifice of detail - as there can be with players providing such functionality via 16-bit digital means. Even today, then, the 207 can justify its presence at the heart of a credible hi-fi system.

I chanced on my player for £35 at a local second-hand shop - £200 or so on eBay is more typical, for a 207 in good order with 209 remote. My specimen was however somewhat tatty (Meridian's front-panel legends tend to rub off) and I had to reattach one of the glass frontages. Black D-C-Fix self-adhesive film (from Wilkinsons) can be restore transport front-panel glass after thorough cleaning, and Gorilla Tape used to reattach it to the tray's metalwork.



When designing the 207, Meridian relied considerably on Philips CD technology. There's more Meridian input than there was with, say, the original MCD, but a relatively-small company simply doesn't have the resources of a global giant like Philips. A tell-tale sign is its usage of the main board from a Philips CD player. Note that many of the chips have been removed, their functions instead being performed by Meridian-designed circuitry.

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GOMEZ

Bring it On: 20th Anniversary Edition
Virgin

Listeners of a certain age will always remember this band for their Mercury Prize win for this very album back in 1998 when a host of people responded with the word, "Who?". Especially as respected artists and albums were right up against them, the Verve's 'Urban Hymns' and Massive Attacks 'Mezzanine' being just two others in the running. Another odd thing about the band is that they never really caught fire in terms of popularity or album sales. Not when you consider that initial rush of publicity and acclaim for the album.

The album itself was different because of its genre base and tone. It was more blues-based. Again, other contemporary bands featured nostalgia rock such as Oasis, trip hop-based vibes such as Portishead and Radiohead's more experimental, spacey rock. This album seemed out of step – maybe that's why it was noticed.

Featuring the vocals and guitar

of Ben Ottewell, the same plus keyboard from Tom Gray, Paul Blackburn (bass, guitar), Ollie Peacock (drums) and Ian Ball (vocals, guitar, harmonica) combined attractive harmonies plus relatively raw blues outings while the album itself sounded immediately mature and well formed; it streamed across the music biz like a shooting star of musical glad tidings.

The album now appears in an attractive 4CD box set, remastered by Frank Arkwright at Abbey Road studios, plus thirty-five previously unreleased tracks including twenty-five demos (recorded between January 1996 and August 1997), thirteen of which are appearing on an official Gomez release for the first time, plus the band's 1998 Glastonbury performance and BBC sessions. You also get a 10,000-word essay by music writer Paul Stokes, with new interviews with the band and those close to them.

Quite a package and quite an album

AUDIOPHILE CD



SHE'S SELLING WHAT SHE USED TO GIVE AWAY

28 Risqué Hillbilly Songs From the '30s
Bear Family

Because sex sells. That's why these songs existed in the first place – but combine that with a liberal dose of humour and you have a selection of songs that flew off the shelves in hotcake manner. What's really interesting, as you run through these songs, is the wholly inventive array of double entendres used within. It gets to the point that every other word has a double meaning. "You've got the right key but the wrong keyhole", battles with: "Let me play with your Poodle" or even the rather more blatant "I can't grind your sausage". They're all there, folks. Each one is veiled in a shade of blue as well.

There's twenty-eight of these lively presentations here. A lot of the sexually tinged songs emerged from the black blues experience but many white hillbilly singers took note

and copied them. To begin, the hillbilly approach was a bit of a blues rip-off. Milton Brown's 'Somebody's Been Using That Thing' is one example, but more hillbilly directions were eventually taken in comic fashion with the likes of Oscar Woods' 'It Won't Hurt No More' or with yodelling attached with 'Tom Cat and Pussy Blues', as did Jimmie Davis who invented a character, Corrine – sex mad of course. Davies produced a sort of narrative effect for his approach.

Too often sung from a male perspective, the shoe was on the other foot with a series of female-oriented tales such as 'She's a Hum Dum Dinger From Dingersville' while Betty Lou, on the blues-based Bluebird label, sang a series of ditties that were certainly to the point including, 'Feels Good', 'No Huggin' or Kissin' and 'Let Me Play With It'.

An intriguing R&B duo that found fame and fortune in the fifties and early sixties on the Aladdin and Imperial and Speciality, the pair were notable for singing together and, well, singing apart. Not for them the complexities of harmonisation. Oh no. It was a style of singing that found plenty of attention and would go on to prove essential to the core template of both ska and reggae-style presentation.

The pair were lucky to draw the attention of the famed producer and songwriter, Dave Bartholomew (the same guy who had worked extensively with Fats Domino, Loyd Price, Earl King, Robert Parker and more) who penned 'I'm Gone', Shirley & Lee's 1952 debut single which was a red hot hit.

All successful singers and singing groups tend - or tended - to find fame or notoriety because of a singing style or use of content

It was the latter that enabled Shirley & Lee to dig a niche of their own by creating a series of soap opera stories, musical narratives if you will. Normally focusing on two lovers, their trials and tribulations. Often these stories would span entire discs which would spawn more sales as fans would seek out the next installment in the continuing saga. It was a great hook. Hence the duo's nickname: The Sweethearts of the Blues.

Once that style ran out of steam the duo, in 1957, took up the rock'n'roll reins and integrated the genre into their biggest hit, 'Let the Good Times Roll'. The pair continued to around 1963 before parting.

This 2CD production offers a total of sixty-two tracks that follows the pair up until 1962 - and does so chronologically so you can wallow in the grand soap opera theme of the pair at their career height



SHIRLEY & LEE

Golden Decade
Jasmine

AUDIOPHILE CD

Yes I know that Cobain's Seattle lot had the mega-stardom, the multi-format fame, the record sales and the legend and maybe its me, but I feel just a tiny bit peeved that the original Nirvana, the sixties psychedelic band lead by Patrick Campbell-Lyons, is always referred to as Nirvana (UK) or, "No, that one".

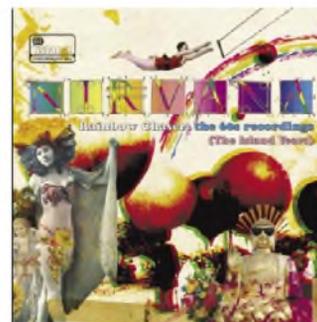
I say UK but Campbell-Lyons was from Ireland and his partner in the group, Alex Spyropoulos was Greek. Originally a six-piece outfit, the band were signed to Chris Blackwell's Island. Mainly because Blackwell realised that he had to have a foot in the psychedelic of the time.

The band produced a science fiction concept album (songs thinly tied to a thin story) that, nevertheless offered plenty of songwriting quality and was known as 'The Story Of Simon Simopath' (1967). Later, 'All of Us' (1968)

followed which offered psychedelica-lite in a pop vein. Both are top quality, however, no matter how you brand them. There's a real lightness of touch here, combined with invention and a sense of delicious simplicity.

'Rainbow Chaser' collects the first two Nirvana albums ('The Story Of Simon Simopath' and 'All of Us') as a 2CD set featuring fifty-two tracks with twenty-seven previously unreleased outtakes, demos and alternative versions.

Also look out for the badly distributed original third album, 'Dedicated to Markos III' (1970) from the Esoteric label that was the name given to the US version. The original LP was known as 'Black Flower' and that's what this reissue has been called. Packing in five bonus tracks, 'Black Flower' is another winner and should be grabbed by both hands, adding a touch of beautifully crafted loungecore to the basic psychedelic template.



NIRVANA

Rainbow Chaser: the 60s
Recordings (the Island Years) &
Black Flower
Island/Esoteric

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"PR men were shot dead at its gates during a visit"



Noel Keywood

We are going back not just to old analogue technologies, but even past situations surrounding those technologies, as if the world had suddenly decided on a re-wind back to the 1970s. I'm increasingly wrapped up with the arcane complexities of turntables, pickup arms – and now even the politics of producing them, as you'll notice from my coverage of a visit to the Pro-ject headquarters and factories in Eastern Europe in this issue.

The last dedicated turntable factory I visited was Strathearn in Northern Ireland, back in 1973 – and what a situation that was. If ever politics surrounded turntables – that was it. The underlying socio-economic circumstances had similarities to those of Project I mused, as we sat waiting for a take-off slot at Vienna, due to a strike by French air traffic controllers (also very 1970s). Yet one was a failure, the other a success.

Pro-ject surprised me by its size, modernity and obvious scale of investment. I did not ask Heinz Lichtenegger where the money had come from but have to wonder whether there was help from the EU by direct or indirect means to bring modern industry to the Czech Republic and Slovakia following their departure from the Soviet bloc and entry to the EU in 2004.

There's always a need for jobs, to avoid the poverty and conflict that arises without them – just as it did in Northern Ireland during "the troubles" of the 1970s. Back then, unemployment in Northern Ireland was the reason the British Government, in some desperation, pumped "many millions" I was told at the time into a brand new,

high-technology turntable start-up – Strathearn.

Interestingly, the figures from back then compared to those of Pro-ject today look very similar. If £3 million was pumped into Strathearn in 1973 that would equate to around £34 million today – close to my estimate of Pro-ject's ambitious new headquarters in Austria and factory in the Czech Republic. Pro-ject claim to employ around 300 people and that was a figure bandied around with Strathearn.

Sadly – and unlike Pro-ject – Strathearn turned into an agonising disaster story when two London based PR men were shot dead at its gates during a visit, and its infamously incompetent turntables proved a failure from which it could not recover, causing it to shut down at the end of the 1970s. All was lost: two families had lost their fathers and Northern Ireland benefitted not one iota from this fiasco of misunderstanding and incompetence.

The opposite has been true of Pro-ject and for the quite obvious reason that Heinz Lichtenegger and UK Distributor MD Laurence Armstrong both understand the market for hi-fi and how to work within it, both being product distributors with a life time of experience. It takes more than a 'good' (mis-guided with Strathearn) idea and lots of cash to get a turntable manufacturing company off the ground, with the benefits it can bring in terms of employment.

Heinz Lichtenegger has a Degree in Economics, he told me, and he also has the sort of driven passion for reproducing music that marks out a person of his ilk – Roy Gandy of Rega being the most obvious – perhaps only equivalent. Put these qualities together, plus access to a receptive market – and the result is

success on a surprisingly large scale. I never imagined turntables could be made in thousands, supporting such ambitious manufacturing.

For the time being at least, whilst people experiment with returning to vinyl, we are suffering a glut of uber-budget players that make LP sound like MP3 – bland and unexciting. What a pity, since it misrepresents what vinyl can do.

Pro-ject have jumped in at a critical point by offering budget designs that also sound good – because the boss is listening to them! Someone somewhere has to make an executive decision about product quality, and in hi-fi this includes the difficult issue of sound quality – and if the boss can do it, all the better. It then becomes apolitic; no one takes the can – and it also becomes woven into the company ethos.

That's where Pro-ject scores. I've seen too many outsiders enter top roles in UK hi-fi companies and fail miserably because they don't understand fundamental issues about a product such as this, nor market expectations – the two can be quite different.

To explain, turntables must look the part as well as fulfil their role: they're style icons as well as a technology product. A wood veneer plinth, chrome plated platter and – especially – a stroboscope, convey the right message to buffs.

Interesting to me then (as a buff!) were the Beatles themed turntables Pro-ject produce. They exploit vinyl's music link that others do not. It's savvy marketing – and is part of Pro-ject's success I suspect.

If we're going back to revered music, we're going back to the time it was revered. That was an analogue era. I see analogue making a big comeback in a modern world. ●



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"a vision for life that has the power to lift you from a rut"



Paul Rigby

You can learn a lot from artists. You have to filter, I agree, you can't take on board everything they say as gospel because they will talk to you from their own bubble of experiences and, frankly, not everything in their heads is pure wisdom. That said, I'd prefer to listen to the thoughts of an artist to most other people. They specialise in original thought. Or they re-order ordinary thoughts into unique directions. They come at you from a position of pure belief. Belief in what they do and what they think. Passion too – they are often wholly wrapped up in their thoughts. That's another thing. They tend to think before they speak. Not enough people do that. Listen to any passing politician, for example.

Many musicians are true artists. You can easily recognise those who are not. Normally after a few sentences.

The artist as musician offers a purity and a vision for life that has the power to lift you from a rut, from a low mood and from a sense of despair. It's a terrific power. Even if the effect lasts only for a few minutes, the span of a single song perhaps, the after effects can be life changing. They can often show you... possibilities.

They can also say and do things that others cannot. They can, in effect, 'get away with it'. We, the public, allow artists space to 'make a fool of themselves' when, in fact, they're offering us inconvenient truths by reflecting the problems of society right back at us.

This type of character, this artist and musician who can raise hackles and trigger debate is a valuable one and should certainly be cherished by all of us. They are a rarity, though in

a business populated by too many 'me too', empire-building careerists who seem to have spent more time in business school than pondering the nature of clouds.

They are a rarity too partly because of fear within the majority of other artists who look to build a career backed by corporate money and partly because of the fear from the same – in this world of social media – of the public backlash that can strike at any time in any place, so it seems. Sprinkle on a bit of greed too maybe?

Which is why we should praise the Lord for Janis Ian.

You remember Jan, she had a gigantic hit with the single, 'At Seventeen' but she is known for more than that, a lot more.

She dared, you see. And she continues to dare, even at the age of 67. Imagine producing a song like 'Society Child (Baby I've Been Thinking)', in the USA, in 1966, about an interracial romance. The ensuing furore pushed the song up the charts. Money from later LPs was basically given away to her friends and favourite charities but her work continued to hit sore spots: homosexuality, prostitution, the Holocaust, domestic violence, ageing and the nature of the music industry. You name it, Jan has/will tackle it head on.

Her folk/pop/rock oeuvre, from 1974-1979 has just been reissued over five LPs on the We Are Vinyl imprint of Sony Music as, of course, vinyl that includes 'Stars' (1974), 'Between the Lines' (1975), 'Aftertones' (1975), 'Miracle Row' (1977) and 'Night Rains' (1979). Within these LPs, she can be sensitive and intimate but is never lacking in her approach, she's never the 'oh so weak and defenceless' victim, she has strength and a voice

to speak out.

This magazine is a great advocate of the use of your ears to make an informed choice when making a purchase decision. We're here to help and advise. To guide and suggest but the ultimate selection, when it comes right down to it, is yours because you are unique and that includes your ears.

As such, I love the way that Jan speaks out and promotes taking responsibility for your choice, including aural choices. For example, she once referred to a concert at the USA's Carnegie Hall and commented on her love of the acoustics there, "Someone warned me about a 'bass trap' in the upper left balcony before my first solo gig," she said, "so we faced the bass amp that way and we were told it was the best sound from a band they'd ever heard."

Most of the great halls were designed for non-amplified music – vaudeville halls. All the older, great Broadway halls, European halls and Carnegie are included. I think they've had to tear the Philharmonic Hall apart now what – three times! – to fix the acoustics. Instead of relying on experience and ears, architectural firms and 'soundscape engineers' (seriously? 'soundscape engineer?') rely on machines. Just stupid".

Well, hurrah for that Janis.

She also had some great advice for budding musicians out there in terms of their music listening choices. "...remember the computer term GIGO — garbage in, garbage out. You listen to crap, you'll write crap".

Which is a great reason to follow the music pages in Hi-Fi World for buying guidance. Oh – and buy the new Janis Ian vinyl reissues of course. ●

THE VINYL REVOLUTION



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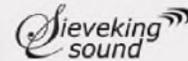
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“There’s a long list of football-related songs”



Jon Myles

As you read this column the World Cup will be well and truly under way in Russia. There’s also a good chance England may already be on their way home from the tournament (they’re not exactly amongst the favourites). But as the event combines two of my passions – football and music – it would be remiss to let this global feast of sport go without a mention.

Music? Yes, there’s a long list of football-related songs down the ages. OK, many of them haven’t exactly set the world alight but there’s still a few gems lurking in there if you look hard enough.

And no, I don’t mean the England 1970 World Cup squad’s ‘Back Home’ – despite being written by Ivor Novello Award winner Bill Martin and acclaimed Irish musician Phil Coulter.

It’s opening lines are all you need to know about its general quality: “Back home they’ll be thinking about us / When we are far away / Back home they’ll be really behind us / In every game we play”.

Not exactly Bob Dylan – but that didn’t stop it selling enough copies to make it the top of the singles chart when that was something still deemed worthwhile. Amazingly, it was also a hit in Ireland, reaching number two there.

Unfortunately, its upbeat tone didn’t prove a good omen as England went out 2-3 to Germany in the quarter-finals.

Other not too memorable items include Newcastle’s own Ant and Dec releasing ‘We’re on the Ball’ as England’s official song for the 2002 World Cup in Japan and Korea.

Yet again it didn’t presage a glorious campaign as England again went out in the quarter-finals, this

time to Brazil.

But there have been some musical highlights, chief among them New Order’s ‘World In Motion’ recorded with 10 members of the England squad (allegedly not all of them turned up as they’d never heard of the group).

The song was the brainchild of Football Association Press Officer David Bloomfield – a big Joy Division fan – a shining light in the annals of football songs featuring New Order’s club-friendly electronic sound and, famously, a rap section by England winger John Barnes which was improvised on the day.

Original plans were to call it ‘E For England’ – an idea vetoed by the FA as they thought it sounded suspiciously like a reference to the drug ecstasy (which was rather understandable).

Still the song went on to become New Order’s sole number one single in the UK charts and is still popular today. Interestingly the lyrics were written by comedian Keith Allen (father of singer Lily Allen) who later went on to collaborate with Blur’s Alex James and part-time Pink Floyd bassist Guy Pratt on ‘Vindaloo’ for the 1998 World Cup in France.

This was more of a tongue-in-cheek football chant parody with most of the song consisting of the phrase “nah nah nah” and the word ‘Vindaloo’ repeated over and over by a mixed group, occasionally interspersed with lines such as “And we all like vindaloo” and “We’re England; we’re gonna score one more than you”.

Undeniably silly, but undoubtedly catchy.

One other honourable mention must go to ‘Three Lions (Football’s Coming Home)’ released by the

band The Lightning Seeds for the Euro ‘96 tournament in England – with lyrics by comedians David Baddiel and Frank Skinner. It’s one of only three singles to top the singles charts with different lyrics – Mambo No 5 with Lou Bega, Bob The Builder, and Band Aid and Band Aid’s ‘Do They Know It’s Christmas’ being the others that regularly resurface when England are playing in major tournaments.

However, yet again it didn’t help the England team much on the pitch as they went out in the semi-finals to Germany on penalties, despite playing rather well throughout the tournament – helped by the fact that all their matches were at Wembley.

The last official England World Cup song was released for the 2006 tournament in Germany ‘World At Your Feet’ by Embrace reached number 3 in the charts. Predictably, though, England were eliminated on penalties in the quarter-finals by Portugal.

So perhaps the mixed quality of football-related songs bears a direct correlation to the mixed fortunes of the England team on the pitch down the years (remember they haven’t won anything since their only World Cup triumph in 1966).

Perhaps wisely, then, the Football Association has decided against releasing an official anthem for the 2018 World Cup – an FA spokesman simply saying, “There is no official World Cup song planned”.

So, if you are a fan of the link between football and music you will just have to satisfy yourself with FIFA’s official anthem by American signer Jason Derulo and entitled ‘Colours’.

Or, alternatively, dig out ‘World In Motion’ again. That’s what I’ll be doing. ●



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"The duo's entire back-catalogue was immediately deleted"



Martin Pipe

Whilst an A&R man for WEA, Bill Drummond signed the rock band Brilliant. This put him into contact with guitarist Jimmy Cauty who, it transpired, shared Drummond's appreciation of hip-hop. Drummond then quit the corporate confines of WEA to make music with Cauty. Thus was born The KLF, also known as The Justified Ancients of Mu-mu (The JAMs, for short)

Why am I telling you this? Blame 6 Music, which recently (re)broadcast a documentary about The White Room, the 'stadium house' album they released in 1991. Younger music lovers may be unfamiliar with The KLF (which possibly stands for 'Killer Low Frequencies', or 'Kopyright Liberation Front').

For their benefit, and to bring a wry smile to the faces of readers who (like me!) lived through this era, I felt The KLF's contribution to musical history was worth recalling. Long before the 'anything goes' self-promotion culture of the Internet arrived, the shenanigans of these Illuminati-obsessives achieved plenty of media coverage.

It all started with 1987's All You Need Is Love, a politically-charged five-minute comment on the AIDS epidemic. Released by The JAMs, it featured Clydeside-accented rapping, Samantha Fox, the MC5, public information films, children's songs and of course a certain Beatles composition. Hardly surprisingly, it proved rather controversial. The track may sound crude today (the available technology was somewhat primitive) but it still entertains.

You'll find it on The JAMs' riotous debut album 1987 (What the F**k Is Going On?), currently-

available on YouTube. Released before sampling controversy reached its peak, the LP plundered musical history as disparate as The Fall, The Monkees, Scott Walker, the Sex Pistols, Stevie Wonder and Dave Brubeck. Also featured is an edited compilation of adverts and TOTP excerpts, plus an inexplicable recording of a Tube train ('mind the gap...')

1987... had the energy and anger of Public Enemy, and to me still sounds quite unlike anything then being produced in the UK. Perhaps inevitably, a lengthy sample of Dancing Queen in one of the tracks (The Queen and I) got them into trouble with ABBA's management and the MCPS. Drummond and Cauty were ordered to withdraw the record from sale and relinquish the master tapes.

Together with an NME journalist, a gold disc and unsold copies of the album the duo set off in Drummond's prized Ford Galaxie police car for ABBA's Stockholm studios, hoping to explain their cause to the band. Having failed to do that, the gold disc was handed to a prostitute and some of the LPs burnt. The remaining copies of 1987... were reputedly thrown overboard during the return ferry journey.

Their next musical adventure was to prove more rewarding. Thirty years ago as I pen this, Drummond and Cauty briefly set themselves up as The Timelords to release Doctorin' the Tardis. Welding the Doctor Who theme to chunks of The Sweet's Blockbuster, Gary Glitter's Rock 'n' Roll (Part 2) and a laddish call/response, the novelty record attained number-one status in June 1988. As a student I can remember their Top of the Tops debut - complete with endearingly-

crappy robots, clips of Drummond's car and two drummers wearing 120bpm T-shirts.

Its success spawned 'The Manual', a short book explaining how anyone could make a chart-topping record. As deleted as that debut LP, its entertaining text can be found within seconds on Google. If The Manual's instructions were followed to the letter and success didn't result, the reader would get his money back. The creators of a 1989 novelty hit, the (ironically!) ABBA-sampling Bring Me Edelweiss, had no need of a refund.

The duo understood that their book would be "completely redundant within twelve months... an obsolete artefact". Evolving music-production technology would drive commercial recording studios to near-extinction; much of The Manual is concerned with producers, engineers and studio activities.

Aspiring hitmakers were advised to seek inspiration from the latest compilation LPs, and "all of the 7in. singles in your house that ever made the Top 5". And the record player? "The crappier the better, as long as it actually works". We are told that "the expensive set up is only for judging coffee-table records". HFW readers might take issue with that!

Further hits followed, Chill Out remains in my opinion one of the best of the genre.

It wasn't to last. With help from grindcore merchants Extreme Noise Terror and an automatic weapon loaded with blanks, The KLF bowed out in spectacular form at the 1992 BRITs. The duo's entire back-catalogue was immediately deleted, with no official reissues to this day. You can however find them online, alongside White Room rushes. ●

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				Cairn Diablo/Tornado Amp/CD pack was £1900	x/d 599
				Arcam Solo and speakers	x/d Call
				Devialet 400 & Magneplanar MG3.7i speakers	used 9979
				Naim Musa nr mint boxed	x/d 799
				Quad 77 CD/Tuner/Pre and Power with remote	used 999
				Sonasonic USB100 Turntable & Active Speakers	new 349
				AV/Accessories/Cables	
				Audeze EL8 Headphones	x/d 399
				Audeze LCD2, near mint boxed with cables	used 599
				Audeze LCDX, near mint boxed with cables	used 949
				Audio Systeme CD Improver	used 329
				Chord Sarum, original	x/d Call
				Creaktiv Audio 4 Racks under half price	new 299
				Cyrus PSXR, excellent from	used 299
				Elemental Audio speaker stands	x/d 399
				Grado SR325is, excellent boxed	used 179
				Grado GS1000i, excellent boxed	used 599
				Hifi Racks, large black oak AV rack	used Call
				Kimber KS3033 2.4m pair	used 1899
				Kondo KSL Vc 2m Din 10 phono	used Call
				Little Dot Mk3 Headphone amplifier	used 249
				Naim HiLine and Powerline both available used	from 279
				Naim Headline Headphone amplifier	used 249
				Naim Supercap Power supply, excellent boxed	used 1399
				Oppo HA2 Headphone Amp excellent	used 189
				Sennheiser HD590/£50/700 & 800s all in stock	used Call
				Stax Lambda and SRM1 mk2	used 599
				Stax SR404 and SRM006Ti	used 699
				Townshend Seismic rack	used Call
				Van den Hul D102 mk3, selection	used Call

Tel: 01642 267012 or 0845 6019390 Email: world@2ndhandhifi.co.uk

"Goodmans Maxamp 30 is rather primitive"



Dave Tutt

A couple of interesting pieces of hardware arrived during this last month. One needed extensive work, the other nothing at all... so far!

The first was a Goodmans Maxamp 30 made around 1970. So almost 50 years old. You would expect it to be scrap to be honest. It was poor in one channel, very unstable in the Aux input, producing wild thumps and crashing if that input was selected.

By the standards of today the Maxamp 30 is rather primitive, with a simple single-line power supply and a non-complementary output stage with capacitive coupling to the speakers. The preamp was very much standard for the time with all the inputs – be they phono or line level – passing through the same transistor stage, with a switching arrangement of feedback and input attenuators wrapped around it.

Mechanically the preamp section isn't nice to work on, full of worn out capacitors – as indeed are the unit's power amps. At least the later are reasonably easy to get to. The pre is bolted to the side of the case with an integral metal shield plate, with an input switch over the top and a large number of very thin screened wires connecting to the tone controls and the rear sockets. Working on it is time consuming and fraught with breaking wires and difficult threading operations – that all must be carried out before testing.

The original capacitor values are no longer made, so close modern equivalents have to be fitted. This in turn has a knock on effect, resulting in even more instability in the very sensitive auxiliary input – but only on occasion. These sorts of repairs are difficult to impossible if you

have to constantly strip a board out and put it back again. Having done it three times I had to call a halt on getting the Aux input working correctly. However, everything else was fine.

Stability remained an issue even with every capacitor swapped. And yet if I put an input in the tape out it suddenly became stable and quiet. Very strange. My customer – a Hi-Fi World reader – had it back but couldn't get it to work with his Celestion Ditton speakers even though they worked fine with my Mission, Teac, JBL and Eltax workshop boxes. So another round of investigation as soon as possible when it returns! When components age, stability can become a difficult issue to fix.

What about the other amp – a Dynaudio Acoustics DCA650? This was a totally different kettle of fish! Rather than a little box it's a rack mount 2u beefy piece of kit. Sound wise a dynamic tour de force as they say. Unlike many rack mount amps which people expect to be used in disco and club systems – sounding as subtle as a sledge hammer – this unit was quiet, with a proper hi-fi sound; there are PA amps that sound fantastic even though they are never intended to be used with hi-fi. You just have to pick one and try it. The Dynaudio Acoustics DCA650 is a typical example.

I really wouldn't say the DCA650 looks like a hi-fi amp and given the manufacturer you would expect the sort of amp that's used in a studio – which in reality is what I had here.

My customer said it was humming. No matter what speakers I tried or methods of connection, it showed no sign of hum. This is a balanced input amp with a ground lift switch so those two things

together suggest that it is unlikely to do anything particularly odd on the noise front.

And that is an issue that isn't exactly easy to deal with. You see for things that are impossible for me to see or hear I have to find some sort of viable path forward. I could for example replace all the capacitors, especially all the main smoothing caps in the power supply, but this might not, from the customer's point of view, make any difference. I have as a result stressed the amp by working on it and changed components that may not be necessary. It is a difficult situation.

Further discussions seemed to suggest that there might be two things going on here. First there is a 4/8 ohm switch, an unusual addition to any amp that could play a part in the problem. But there was also the issue of its journey to the workshop. It could have suffered courier bounce in transit and lost its ability to hum.

So the DCA650 is in pieces again – but still no sign of a fault. The soldering is good, components first rate and showing no signs of distress.

After all this I still haven't heard it hum and now having done work on it I really can't tell if I have fixed it permanently or just delayed its return. It is sitting here with me now making a great job of some Gino Vannelli. Hopefully, when the customer gets it back all will be well at his end too.

That is always the issue with electronic repair. Sometimes, with the best will in the world, it can be an unpredictable process, especially when there's no circuit diagram available because the unit is so old. Reviving old hi-fi products can be easy sometimes, a challenge at others. It's satisfying when they do return to their original glory though. ●

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WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

TURNTABLES

AVID INGENIUM £800
Great bass response and upper midrange detail allied to clarity makes this a must-hear at its price-point



CLEARAUDIO INNOVATION £6400
Expensive, but offers great results from a finely honed and beautifully finished belt drive turntable, with servo control from the platter to keep a grip on tempo like few others. Can be fitted with a Clearaudio tangential arm, or any conventional design. Awesome.



INSPIRE MONARCH £4 350
A rebuilt from the ground up Technics Direct Drive, having blistering pace and dynamics allied with smoothness, sophistication and purity of tone. A true reference.



LINN LP12SE £3 600
The UK's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel sub-chassis and Radikal DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

MICHELL GYRO DEC £1 700
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



PRO-JECT ESSENTIAL DIGITAL £300
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LF to your laptop.



REGA RP3 £550
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding RB303 tonearm, suitable for MM and MC cartridges. A standard at the price point.

TIMESTEP EVO £2100
The famous Technics SL-1210 MkII Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



TONEARMS

ORIGIN LIVE ENCOUNTER MK3C £1,745
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

HADCOCK GH-242 EXPORT £810
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

ORIGIN LIVE ONYX £450
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



REGA RB303 £300
A one piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC. Reference quality for peanuts

SME 312S £1 600
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



SME 309 £1500
A one-piece tapered 9in arm finished like a camera and slick to use. Superlative SME quality and sound at affordable price.

SME V £3000
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets.

CARTRIDGES

AUDIO TECHNICA AT-OC9 MLIII MC £420
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



AUDIO TECHNICA AT-F3/III MC £150
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

BENZ MICRO ACE SL MC £595
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

BENZ MICRO WOOD SL MC E945
Highly finessed Swiss moving coil that plays music with riflebolt precision.

DENON DL-103 £180
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value.



LYRA TITAN I MC £3,500
Breathtaking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



ORTOFON 2M MONO SE MM £80
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



ORTOFON 2M BLACK MM £400
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

ORTOFON CADENZA BRONZE MC £1,400
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



ORTOFON CADENZA BLACK MC £1,800
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

ORTOFON A95 MC £3,750
Fast and extremely detailed, this is an MC cartridge that sets standards.

REGA CARBON MM £35
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



GOLDRING 1012GX MM £250
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



SHURE M97XE £80
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor.

VAN DEN HUL DDT-II SPECIAL MC £995
Long-established cartridge from Holland with an open and dynamic sound.

PHONO PREAMPS

CAMBRIDGE AUDIO 651P £200
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

ICON AUDIO PS3 MKII £2,500
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



LUXMAN EQ-500 PHONOSTAGE £4,495
A fully-equipped phono stage from Japanese manufacturer Luxman that offers comprehensive cartridge matching allied to superb sound.



LEEMA ACOUSTICS ELEMENTS ULTRA £1,199
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money.



PRO-JECT TUBE BOX DS £425
Compact MM and MC phono stage with valve output circuit and a big sound.



QUAD QC24P £995
MM and MC, oodles of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

TIMESTEP T-01MC £995
New, minimalist phono stage that sonically punches well above its weight.

PREAMPLIFIERS

ICON AUDIO LA-4 MKIII £1,400
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



MF AUDIO CLASSIC SILVER £4,500
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

MING DA MD7-SE £1,520
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



INTEGRATED AMPLIFIERS

ARIAND PRO845SE £1,499
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet forcefully dynamic at the same time.



AUDIO RESEARCH VS160 £3,500
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



CAMBRIDGE AUDIO AZUR 651A £350
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

CREEK EVOLUTION 100A £1,500
Superb build and smooth confident sound make this powerful amplifier a benchmark.



CYRUS 8DAC £1,400
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

EXPOSURE 1010 £495
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



ICON AUDIO STEREO 60 MKIII £2,800
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



NAIM NAIT 5Si £925
Naim's fabled entry-level integrated amplifier is updated to si status. Demos Naim's superbly muscular sound at entry level.

SUGDEN A21SE £2,480
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



POWER AMPLIFIERS

AUDIO RESEARCH VS175 £7,498
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

AUDIO RESEARCH VS115 £5,000
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

ICON AUDIO MB845 MKII £7,600
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



ICON AUDIO MB81PP £15,000
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

MCINTOSH MC-152 £4,995
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



QUAD ELITE QMP MONOBLOCKS £2400 PR
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

QUAD II-EIGHTY MONOBLOCKS £6,000 PR
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



LOUDSPEAKER FLOORSTANDER

B&W 803 D3 £12,500
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

CASTLE AVON V £1,600
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



EMINENT TECHNOLOGY LFT-8B £2,500
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

EPOS K2 £1,000
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

FOCAL ARIA 926 £1,400
Simple, clean, neutral sound – easy going but well engineered and affordable.

MARTIN LOGAN SUMMIT X £16,698
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



MARTIN LOGAN ELECTROMOTION £2,500
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



QUADRAL CHROMIUM STYLE 8 £1,700
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

QUADRAL ORKAN VIII AKTIVS £6,200
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



Q ACOUSTICS 2050i £480
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

SPENDOR SP100 R2 £6,495
Retro looks but a sound that's hard to match. Sendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



SPENDOR A3 £1,300
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

TANNOY DEFINITION DC10 Ti £6,000
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



TANNOY KENSINGTON £9,950
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



LOUDSPEAKERS STANDMOUNT

ACOUSTIC ENERGY NEO 1 V2 £225
Civilised sounding speaker with fast and tuneful bass.

ACOUSTIC ENERGY AE1 CLASSIC £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



ELAC BS243 £1,000
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



EMINENT TECHNOLOGY LFT-16A £1,200
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

WHARFEDALE DIAMOND 220 £200
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



KEF LS50 £800
Supremely musical mini-monitors which sound much bigger than they look.



MARTIN LOGAN MOTION 35 £1,300
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



PMC TWENTY.21 £1,575
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



Q ACOUSTICS 2020i £165
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

WHARFEDALE DENTON £500
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



HEADPHONE AMPLIFIERS

CREEK OBH11 £150
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

CHORD MOJO £399
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



EPIPHANY EHP-02 £99
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



ICON AUDIO HP8 MKII £650
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



FIDELITY AUDIO HPA 100 £350
Great little headphone amplifier with a lively yet refined and open sound.

MUSIC FIRST PHONE BOX £276
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



OPPO HA-2 £250
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.



CD PLAYERS

AUDIOLAB 8200CDQ £949
Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



CANOR CD2+ £3,100
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



CAMBRIDGE AUDIO AZUR 651C £410
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

CHORD RED REFERENCE MKIII £16,000
A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



ESOTERIC K-03 £9,495
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



EXPOSURE 101 £395
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

ELECTROCOMPANIET EMP-1/S £4,650

Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



OPPO BDP-105D £1200

Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



REGA APOLLO-R £550

Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.



ROKSAN KANDY K2 £900

A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.

TUNERS

CAMBRIDGE AUDIO AZUR 651T £299

Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



CREEK DESTINY 2 £550

Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



MAGNUM DYNALAB MD-90T £1,900

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



DACS

AUDIOLAB M-DAC £600

Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



AUDIOLAB Q-DAC £250

Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.

ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095

DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



CHORD 2QUTE HD £990

Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



DCS DEBUSSY £8,000

DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.

NORTHERN FIDELITY DAC £650

Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



METRUM OCTAVE £729

Unique two-box digital-to-analogue converter with great sound at a great price. Cuts upper treble, though.

NAIM DAC £2,400

Superb high-end digital converter with a probing, punchy and forensically-detailed sound



TEAC UD-501 £699

Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



RESONESSENCE INVICTA MIRUS £4,499

One of the most highly spec'd DACs available, with a smooth yet entrancing presentation. Few approach it.



NETWORK PLAYERS

CHORD DSX100 £7,500

Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



CAMBRIDGE AUDIO NP30 £399

Budget offering from Cambridge offers a great introduction to network streaming.

CYRUS STREAM X £1,400

Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



CONVERT TECHNOLOGIES PLATO £2999.00

A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



NAIM NDX £2,995

Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

NAIM ND5XS £2,175

Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

NAIM NAC-N172 XS £1,650

A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



PRO-JECT STREAM BOX RS £1,095

Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

QUAD PLATINUM DMP £2,500

Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



DIGITAL SOURCES

ASTELL&KERN AK100 MKII £569

Portable high-definition digital player with superb sound quality. Punchy and fast.



FiiO X3 £150

Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

LOTOO PAW GOLD £1,500

Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



NAIM HDX £4,405

Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

NAIM UNITILITE £1,995

A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



PORTABLE SPEAKERS

BAYAN SOUNDBOOK £149.99

Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



RIVER IBA-50 £69

Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

CABLES

BLACK RHODIUM TWIST £71/3M

Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



MAINS CABLES R US NO.27 £95

Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



CHORD SIGNATURE REFERENCE £900

Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



TELLURIUM Q BLACK 280/3M

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

TELLURIUM Q SILVER DIAMOND £804/M

An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



HEADPHONES

AUDEZE LCD-3 £1,725

A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



B&W P3 £170

Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

JAYS V-JAYS £49

Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



NOBLE K10 INC. FITTING £1,279

Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



OPPO PM-1 £950

Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.



SENNHEISER HD700 £599

Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.



YAMAHA HPH-MT220 £150

Purposed for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.

FiiO



Portable Hi-Res DAP M7

Exynos 7270 ■ ES9018 ■ aptX/aptX-HD ■ LDAC





M7

Portable High Resolution Lossless Music Player



Hi-Res Audio



DAC ES9018Q2C



Exynos 7270



LDAC



Bluetooth 4.2 (aptX/aptX-HD)



TYPE C USB



Native DSD Support



2GB+512GB



6-layer HDI PCB



3.2" TFT 480×800



USB Audio



40 Days Deep Standby



FM



Independent App Development



Clock



20 Hours Battery Life

Specifications

FM radio	Supported (5 broadcasting regions available from 76 - 108MHz)	Output power 1	≥70mW (16Ω / THD+N < 1%)
USB	TYPE C USB2.0	Output power 2	≥40mW (32Ω / THD+N < 1%)
Screen	3.2 inches 480 x 800 high resolution in-cell touch screen	Frequency response	10 Hz~90 kHz (-3dB)
Size	52mm×109mm×13mm	SNR	≥117 dB (A-weighted)
Weight	About 116g	Output impedance	< 2Ω
Charging time	< 2.5h (USB 5V 2A charger)	THD+N	< 0.004%
Battery life	> 20h (Headphone output); > 30h (Bluetooth output)	Peak output voltage	3.35 Vp-p
Battery capacity	1880mAh Li-polymer battery	Noise floor	< 3uV

M7: £159.99 Discover more: www.fiio.net



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AUGUST 2018

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TECHNICS SP-10R DIRECT DRIVE TURNTABLE 85

A £9k reference turntable; listen up. Noel Keywood does – closely.

AUDIOPHILE BOOK – OF COURSE I SAID YES! 91

Paul Rigby looks at The Amazing Adventure Of A Life In Music.

news

COCKNEY REBEL

Two from the Chrysalis label, both superb. 'The Human Menagerie' (1973) is an unprincipled melange of lyrical images with little to say, no narrative thread but a delicious picture book guide that reminds me of the hedonistic days of the Bright Young Things doing Dark Degraded Actions.

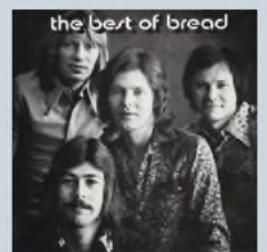
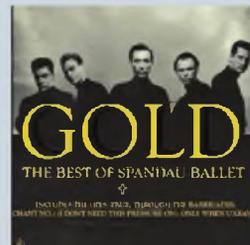
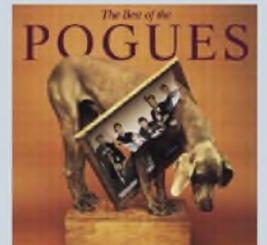
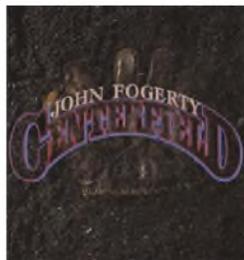
'The Psychomodo' (1974) is even better and, if anything nastier and nightmarish in its selection of metaphors. Both offer rock to savour.



JOHN FOGERTY

The ex-Creedance Clearwater Revival lead singer has two reissued solo albums here, via BMG. 'Centerfield' (1985) was his first release for almost ten years. Yes, it is slightly dated by including synth percussion elements but this slice of nostalgia produces a host of top notch songs too which reflects his days in CCR. Includes bonus track access via a download card. Look out for a picture disc, Record Store Day 12" single edition too including 'Centerfield' and 'Rock And Roll Girls'.

Also look out for 'Blue Moon Swamp' (1997) – its first time on vinyl – plus new sleeve art. A laid back, relaxed, rocking roots/country/blues album where Fogerty sounds quite at ease with himself.



ALL THE HITS!

Warner Music has released a host of Greatest Hits packages beginning with Otis Redding's 'Dock of the Bay Sessions' which...isn't. Kinda. The songs have been published before elsewhere but this LP is a sort of 'what if' LP. If the great man had not met his accident, that is...

True blue hits packages do come from The Pogues ('The Best of...'; 1991), packing in fourteen tracks.

Spandau Ballet's unsurprisingly titled 'Gold' covers two discs and nineteen tracks (two bonus tracks that weren't featured on the original CD edition) with a marginalised Tony Hadley falling off the edge of the sleeve (ah, politics).

a-ha's 'The Hits of...' appears for the first time since 1991. Full of synth pop, it spans fourteen tracks.

Rod Stewart's 'Greatest Hits Vol. 1' (1979 – and desperate to show us his bottom during just about every pop video of the included collection!) features 'Da Ya Think I'm Sexy' and 'Hot Legs'.

Finally, the Best of Bread (1973) includes 'If', 'Everything I Own' and 'Make it With You'.



BLACK SABBATH ON 7

A new limited-edition 7" vinyl, pizza-style box set of ten singles from the rock legends and the BMG label, spanning 1970-1978, it includes five rare single edits: 'Iron Man', 'Sabbath Bloody Sabbath', 'Am I Going Insane (Radio)', 'Hard Road' and 'Symptom Of The Universe' plus ten unique colour picture sleeves from around the world, either ultra-rare or exclusive to this box set.

RHYTHM BOMB RECORDS

Featuring rock/roots music with a fifties sensibility, founded in 2003 in Hamburg, Germany, the company has released a range on new vinyl including Joakim Tinderholt's 'Hold On' who offers a strong, bluesy vocal with blues finger pickin' to go (hold the anchovies).

The Kokomo Kings' 'Too Good to Stay Away From' provides a rock'n'roll base with blues distortion. Energy-filled with bouncy boogie guitars.

BB & The Blues Shacks' 'Reservation Blues' plays epic blues edges but also smoothing rock'n'roll pop with a commercial 'in'.

Finally, Black Patti's 'Red Tape' is more raw roots than true blues. American 'folk', if you will with a bluegrass flavour and a mountain air. Old time music for new ears.



ZANOV

...or Pierre Salkazanov as he's known to his mother. You can think of our Pierre in classic synth-based terms. 'Green Ray' provides washing soundscapes from 1976, offering any serious electronica fan plenty to get the teeth into with added Berlin school styles added for flavour.

'Moebius' (1977) adds more Tangerine Dream-type driving rhythms and background loops with more synth variety to provides greater complexity.

Both are highly recommended and have been reissued on vinyl for the first time and both feature a 7" single of extra tracks plus eight-page inserts.

...AND FINALLY

Toure Kunda's 'Lambi Golo' (Soulbeats; <https://www.facebook.com/SoulbeatsRecords>) – a combination of happy, clappy soundtracks for dancing super models in lifestyle adverts and...meaningful, considered Afro-Latin beats.

Midas Fall's fourth LP, 'Evaporate' (Monotreme; www.monotremerecords.com) offers "haunting" female vocalisations over pseudo-classical/rock arrangements but it's too enamoured by its own over dramatic sensibilities.

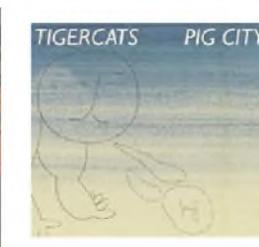
Slightly melancholy 'Empty Handed' from singer-songwriter Christof Van Der Ven (Planet Zog; www.christofvanderven.com) provides Chris Martin/Coldplay emanations. Worth persevering with.

Carpenter Brut's aggressive 'Leather Teeth' (Caroline) offers synthwave and a 80s horror vibe. Arriving from a heavy metal dark place, the LP offers lots of fun.

Telesen's 'The Emotional Life of Savages' (Goldmin; www.facebook.com/GoldminMusic) offers a dance/electronica hybrid with jazz infusions. Introverted beats, random rhythmic angles and attention-grabbing time signatures.

'Hospital Hill' from Aussie singer-songwriter and instrumentalist, Jack Carty and Guy Gardiner respectively. You've heard it a million times before. Pretty yet bland.

Tigercats' 'Pig City', energetic east London indie band with White Stripes-leaning vocals plus Lightning Seeds-type arrangements. Stick with this one.



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Heavy Metal



With an 8kg brass and tungsten platter, Technics new SP-10R Professional Direct Drive turntable was barely liftable, Noel Keywood finds. There's little like it.

When LP ruled – sales peaking in 1979 – radio stations, clubs and what have you needed turntables that started and stopped fast and were bullet proof. Hence the Garrard 401 I use with its rock-like construction. Over in Japan, at that time Pro turntables instead used the newly developed low speed d.c. motor, dubbed Direct Drive. Technics made one of the finest in the SP-10 Mk2. Their new SP-10R I'm reviewing here revives old glories then, for today's market in vinyl that is able to afford bigger price tags it appears, in this case £9000 for the chassis alone.

The SP-10R is a low volume, highly specialised turntable made for those around the world aware both of their own needs and likely future values. As such Technics have not held

back in their attempts to establish it as a new market reference in both performance and durability. Perhaps spurred by a global petition asking them to re-start manufacture of the SL-1200 Mk2 Direct Drive turntable. This was a remarkable cry, likely convincing them there was global mileage in products so good they defied the ageing process, becoming legendary in doing so.

The SL-1200 Mk2 was replaced by the SL-1200G/GAE and then SL-1200GR turntable re-launches in 2017, the former an expensive £2800+ all-in-one package (i.e. with arm and plinth) with new technology Direct Drive motor, the latter a cut-down version with simpler single-rotor motor (£1300). All this gets into perspective the SP-10R. It uses a twin-rotor motor like that of the SL-1200G but is a basic turntable unit without plinth or arm.

With no arm or plinth and a higher price tag, you might wonder what the point is then. Bringing me to what pro turntables are used for. An apt example is that of George Blood's SP-15 turntable we published in our July 2018 issue with no fewer than four pickup arms around it – each arm carrying a different size 78rpm stylus for matching old 78s. This set up demands a motor unit mountable in a custom plinth. Anyone wanting a stone or slate plinth, or worked hardwood plinth also needs the SP-10R – as well as deep pockets! It might sound a bit esoteric but this unit appeals to a prestige market where top quality counts.

Technics use their own arm in the all-in-one packages, but people want alternatives: hence our use of a Timestep modified SL-1210 Mk2 in-house, fitted with an SME309 arm. This is in-effect a Pro working deck,

VINYL SECTION

acting as our hard-used reference for LP.

A bare-chassis reference deck then has a lot of potential uses, more than I know I suspect. All of which is to place the new SP-10R into its real-world context.

Technics asked us if we were happy to accept a basic unit, meaning we would have to mount the deck onto a plinth and fit an arm. Of course we were! But I didn't start up my circular saw. Plinth materials and construction then become an issue in themselves and we co-opted Timestep to sort this out for us, since they work with Technics, so our set-up comes tacitly approved. The decision here was to use a Technics plinth rather than an after-market plinth. On it was



Our review sample SP-10R, flown in from Japan, was fitted to an original Technics plinth of enormous weight.

fitted a high quality Japanese Glanz MH-94S stainless steel tonearm. We retained cultural authenticity, whilst also ensuring Technics would not question our choice of plinth! More seriously, Timestep were happy that Technics' original plinth was up to the job – we couldn't risk adding colouration from this source. The SP-10R is a three-speed turntable, 33, 45 and 78rpm, with +/-16% variable pitch (speed). Basic speed is chosen by three turntable mounted push-buttons, but an external power supply carries speed adjustment, in terms of % or rpm on a digital display, as well as five torque settings. The speed range is fine for general purpose use, even for most rare records where 90rpm is the upper limit. The only records not catered for are some historic cuts made at 16rpm for the spoken word, since 28rpm is the lowest speed possible.



The Glanz MH-94S stainless steel arm with its original headshell. We replaced this with an Ebony headshell. Cartridge - Ortofon A95 moving coil.

Missing is the convenient speed change slide control, illuminated stroboscope and pop-up cue light of consumer models; this unit is not purposed for DJ work, nor does it look particularly eye catching.

An unadorned Pro deck, it may well disappoint

potential buyers who'd like the traditional twiddly bits and a nice bit of lighting – but their choice of arm.

A point Timestep made is that the external (switch-mode) power supply sends command signals to motor servo-chips within the turntable chassis. There's no control circuitry within the power supply, so it can't be modded or replaced to affect performance. The start torque comes set at maximum (Torque 5), presumably for shortest start time, but Torque 1 gave best speed stability (see Measured Performance) and start time wasn't inconveniently slower. I used it at Torque 1.

Technics have given the new SP-10R identical 'bottom shape and screw locations' it says in the handbook, as earlier SP-10 MK2 and SP-10 MK3 models, so 'you can continue to use your cabinet and tonearm' – as we did. Its weight is considerable at 18.2kgs (40.2lbs), and our assembly weighed 31kgs (68lbs) in total – barely liftable. Dimensions are 365mm x 109mm x

365mm. The platter is of brass/cast-aluminium sandwich construction with a 'deadening' rubber layer, heavy tungsten weights at its periphery adding inertial mass. It weighs nearly 8kgs alone and comes with screw-in handles that facilitate lowering onto the platter spindle. Technics advise not to use an electrical screwdriver or impact hammer to tighten the fixing screws!

The main chassis is also cast aluminium. There are three speed selector buttons and a large square Start/Stop button. The unit runs at the default speeds unless adjusted, whereupon a small blue indicator LED turns orange. Turning power off then on returns to default speed, not last adjusted speed. However, dimmer and torque settings are retained at power off/on. A record clamp weight of up to 1kg is suitable, but not supplied. A rubber mat is supplied, but our pictures show the bare platter to reveal its construction.

SOUND QUALITY

Initially I fitted an Ortofon A95 moving coil cartridge to the Glanz arm but had reservations and



The strengthened main bearing carries three support pillars to retain the 8kg platter.

SP-10R MOTOR

The massively heavy 8kg platter of the SP-10R is driven by a twin rotor motor, like that of the SL-1200G, carrying powerful rotor magnets both above and beneath the plinth-mounted stator drive coils. In outline the motors are similar, but the SP-10R needs more torque to get its platter up to speed quickly so has additional drive coils. It also has a larger thrust pad at the base of the spindle to support the weight of the platter. Interestingly, Pro-ject MD Heinz Lichtenegger told me that the use of mass to sink energy from the platter and bearing was an important feature of their better decks, so sound quality wise this is not to be underestimated, helping reduce low level vibration in the platter and the noise it produces.

A traditional criticism aimed at Direct Drive and still alive today on the 'net is that of 'cogging'. It's real and can be measured – our analyses clearly show it. But the levels are minuscule and with the SP-10R a small cogging component at 9Hz appeared at start up only, when the motor was required to apply maximum torque to get the platter up to speed quickly. Otherwise there was no measurable cogging, as you'd expect from such a massive platter with such high rotational inertia it irons out fast (flutter) speed variations. All the same, Torque can be reduced in the control unit and this improves speed stability even further.

As on the SL-1200G, Technics use pancake shaped stator drive coils, fed by power transistors driven from a motor driver chip controlled by a Renesas RX231 microprocessor, part of the RX23 family billed as suitable for Brushless DC (BLDC) motor control. Hall effect sensors, that sense the magnets in the rotor, provide positional feedback, as is common in BLDC motors. Rotational speed is sensed by a 'hybrid encoder' at the base of the platter bearing shaft. In all, the control electronics is hugely complex and Technic's own motor parts and platter (rotor) very sophisticated, being upgraded versions of SL-1200G parts it appears.



swapped to our Ortofon Cadenza Bronze. This decision was swung by sound quality of the whole assembly, in which the arm played a strong role. Measurement showed best results came from a Timestep T-01HS Ebony Wood Headshell Silver Wire 15gm headshell, so it was used in all listening tests, as well as a contoured rubber platter mat. An Icon Audio P53 valve phono stage fed an Icon Audio Stereo 30SE

with 12in 45rpm Dance singles where synthesisers impose machine timing to rhythmic progression. Spinning Alison Goldfrap's 12in 45 'Ride A White Horse' – drum sequences came at me like speeding bullets, all in locked time order.

Beyond the issue of perfect pace I also heard a purity of tone that marks out this turntable's character; even with live acoustic performances such as Eleanor McEvoy's 'Isn't it a

"Offers a degree of unarguable perfection for professional studios and anyone working with vinyl."

Single-Ended amplifier driving our Martin Logan ESL-X hybrid electrostatic loudspeakers with, as always, an Isotek Evo3 Mosaic Genesis regenerated mains supply.

The SP-10R's amazing grip on timing was obvious from the outset, as always with Technics Direct Drives. Where belt drives wander in speed and sound temporally vague or even drunken when it gets bad, the SP-10R had a supreme grip on timing and pace. The property is most obvious

Little Late' the SP-10R brought clarity to the stripped down musical arrangement, her voice and guitar having a fresh and pure sound – likely attributable to lack of the frequency-modulation hash caused by speed variation.

With our Ortofon A95 moving coil (MC) cartridge this turntable assembly was vividly brighter in basic presentation than

most else, with forceful insight on tracks that juddered a little. I'm used to a more laid-back, organic sound. Changing from our deeply analytical Ortofon A95 to fuller-bodied Cadenza Bronze MC cartridge brought better subjective balance, if not the easy smoothness and stage depth of our SME309 arm, or my magnesium SME312S at home – known for its laid back performance.

The Glanz stainless steel tubular arm has an altogether brighter patina than the rolled alloy, tapered SMEs, turning a bright spotlight onto music. It made for impressive sense of insight, enhanced by the SP-10R's qualities of tonal purity. Even



The Glanz MH-94S arm is sturdily built from stainless steel.

our Cadenza Bronze came over as brightly lit, as well as fast and hard edged in temporal character, where from my general experience it is "romantic" with honey-sweet treble quality and an easy going nature.

So as a system this one changed the sound in front of me – in quite extreme fashion. What I heard



The external power supply adjusts speed and torque. Also here is the Glanz tone-arm lead.



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The external power supply is a switch-mode type, able to work on any mains voltage.

generally was enormous insight and fabulous temporal grip from the Technics, tonal qualities better described as vivid than laid back.

Enormously impressive was our wonderfully recorded (384kHz DXD) and cut 2L LP of Marianne Thorsen playing Mozart violin concertos. She was brought forward on the sound stage and spot-lit to an extent that her every small dance of bow on strings was made so brutally clear I couldn't help but be made aware just how wonderful her playing is. And again there was fabulous purity of tone within the strings of her violin.

Perhaps more surprisingly, the

sudden interjections of the Sondheim Solistene (Sondheim Soloists) were sudden and in strict time, seemingly locked into the performance, in rigid order. I say "surprisingly" because unlike synth timing, human timing is more mellifluous, yet all the same a tighter order was still apparent.

I'd muse that in this set-up best balance would be achieved with an Ortofon Cadenza Black that has a very mild balance. The system here was so finely honed and revealing that cartridge choice is a major issue. However, the role of the SP-10R in providing a rock-stable sound with great tonal purity and

low background noise was always apparent.

CONCLUSION

It's simple in appearance and easy to use: seemingly you don't get so much for £9000 here! However, measurement showed the new SP-10R has unrivalled speed stability – everything that Technics claim in fact. Because under the simple exterior lies a massively powerful and capable professional Direct Drive motor of modern design. Arguably it's a tad too bare for domestic use, where an SL-1200G or GR has more visual appeal.

This is a spinner of vinyl for the serious, where you just want to punch a button and get on with it – there's a job to do. That's me with our Timestep modified Technics deck, so I understand and appreciate the intended role of the new SP-10R. It offers a degree of unarguable perfection for professional studios and anyone working with vinyl. If you want such unerring focus on the basics of playing LP – time to check the piggy bank.

MEASURED PERFORMANCE

The Technics SP-10R seemingly ran +0.12% fast according to our DIN 45 545 test disc but this is likely a minuscule difference between Technics speed standard and DIN, than turntable inaccuracy. The 3150Hz test tone remained rock steady at 3154Hz with no variation on the frequency counter – extraordinary.

This quartz-locked lack of variation of basic speed meant Wow and Flutter values (speed variation at low and high rates) would be low – and they were. Technics quote 0.015% wow & flutter (Japanese JIS Standard) and we measured 0.02% (JIS Standard, Torque 1) – which is close enough at such low levels. Timestep use a Denon test disc and this gives 0.014% figure they say. These are minuscule speed variation values, way below belt drives and far below what we can aurally detect (think 0.2% – ten times more).

Hi-Fi World turntable reviews quote Wow & Flutter to DIN Standard, using the DIN 45 545 test disc and DIN meter ballistics and weighting. DIN figures for the SP-10R are quoted below for comparison to our other turntable reviews. Japanese JIS figures are lower than DIN, due to a long time-averaged meter ballistic, but whilst the figures look better, the performance is still the same

of course.

More illuminating than a meter readout is our spectrum analysis that shows a low peak at basic rotational rate (0.55Hz / 33rpm) and very low harmonics above that frequency. The infamous "cogging" of Direct Drive motors was just visible at 9Hz but at minuscule level just after start up. It subsided to zero after 30 seconds or so, with Torque set as standard to maximum (Torque 5). This suggests Technics are using a 16 pole motor (16 x 0.55Hz = 9Hz), not a 12pole as in the SL-1200G/GAE where cogging was at 6.6Hz.

Reducing torque to minimum (Torque 1) brought obvious improvement, surprisingly cutting basic rate variation at 0.55Hz by half, as our analysis shows. This variation I thought was down to residual factors such as disc eccentricity (even though it is carefully centred using the locked groove) and cutting lathe variation – but perhaps not. The SP-10R produced its best result in speed stability tests at Torque 1 – and they are exceptionally low values, beyond all else.

Vibration testing the Glanz MH-94S arm with its standard slim headshell, using a Bruel&Kjaer accelerometer, showed a strong first order bending mode of the arm's tube at 275Hz and lively headshell behaviour. An Ebony

replacement headshell gave a far better result, good by any standard, ensuring our view of the turntable wasn't compromised.

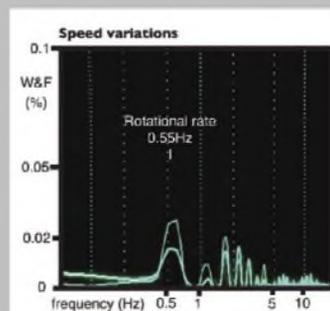
In all then, the SP-10R offers exceptional measured performance, having unmatched speed stability at Torque 1. NK

SPEED VARIATION

DIN Standard (Europe)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.05%
Total W&F wtd	0.04%

JIS Standard (Japan)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.03%
Total W&F wtd	0.02%

WOW & FLUTTER



TECHNICS SP-10R DIRECT DRIVE TURNTABLE £9000



OUTSTANDING - amongst the best

VERDICT

A near-perfect Direct Drive turntable for Pro use. Sets standards.

FOR

- speed stability
- adjustable torque
- ease of use

AGAINST

- no disc light
- no strobe lamp
- heavy

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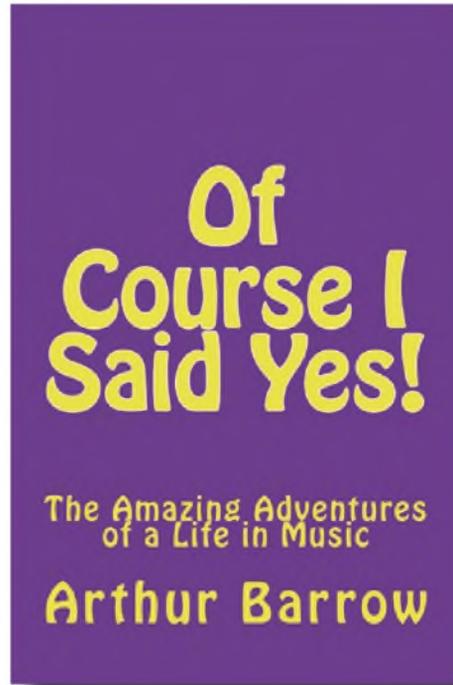
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DECO AUDIO

I said "Yes"!

Paul Rigby relates the life of Arthur Barrow, from his illuminating book on 'a life in music'.

**Of Course I Said Yes! : The Amazing
Adventures Of A Life In Music**
Arthur Barrow
Price: £9.06 (Kindle £7.07)



This book is a musical biography, reflecting on contact with great figures, examining music creation, the machinations of the music industry and the politics that governs what music is made available for you to hear. The rest of the book provides an opportunity to – as it were – go behind the scenes of the hi-fi hardware utilising the review process as a means to do that. The book does the same for the software.

A self-confessed nerd, Barrow discovers Hendrix and democratic music. With Hendrix, for example, Barrow didn't realise that the noises he was making were being produced by a 'mere' guitar. That, in itself was a realisation for him.

Barrow talks about musical instruments, giving an appreciation of their possibilities and restrictions. For example, his early teen experiences with his family's Hammond organ are interesting, along with how the RT3 version differs through the addition of extra pedals. The RT3 has a two and a half octave pedal board "so that you can play a complete classical repertoire" he said. Along with "a very low 32" sub-octave tone that can be added to the normal Hammond pedal sounds.

As a fan of the Hammond sound on a range of original vinyl in my collection, I'll be looking out for the RT3 in future to hear its intriguing capabilities.

It was as a teen that Barrow first heard the music of Frank Zappa. From that point, he was enraptured and determined to somehow play alongside the great man. Barrow describes – as coincidences – how he kept almost tripping over Zappa in terms of concerts, then moving close to Zappa compatriots, then getting to know the same, then being introduced to Zappa, then auditioning for Zappa and – bingo – being in the Zappa band playing bass.

Not coincidence, no. Barrow was more like a benevolent stalker. A determined man, each move was calculated. Even subconsciously. But calculated, nevertheless.

This section is fascinating in how Zappa put together a range of often incredibly complex orchestrations and arrangements, pushing his band further – often into territories they would never have ventured themselves.

Listening to Zappa's music after Barrow's stories, you have a new and respectful appreciation of the man's oeuvre and the talents within, as well as an insight into Zappa himself. "He had these very penetrating dark eyes and I found it a bit unnerving. He was big on handshaking. I believe it was because he loathed the whole hugging thing, even with people who knew him well".

After Zappa, Barrow spread his wings and joined famed producer, Giorgio Morodor, where he learned writing and arranging music skills, as

well as developing synthesiser talents. Here, we move into pop, soundtrack work and the quest for hits: well, this was Morodor, after all.

What I found enlightening here – after his Morodor period – was how callous the record labels were. Stringing along new and upcoming artists, promising them the world, even recording entire albums, fully produced, the works...and then dumping the entire project on a whim. Often because of office politics.

It was also amazing to hear how record label staff would be hired, fired, moved sideways, put on and taken off projects for wholly bizarre and shallow reasons. Art? Never heard of it. I can only imagine just how many unreleased albums there are out there, mouldering in the archives, the victim of inter-office grudges.

Barrow comes over as a good guy: reasonable in temperament, dedicated and talented. Despite delving into music production, technologies and politics, this book is a very easy read that will race by before you know it.

Click www.amazon.co.uk to purchase.

Going Solo!

Studio 19's Solo looks like no other Bluetooth loudspeaker out there – but sounds rather good, says Jon Myles.

Looking at Studio 19's new Solo E500X-EQ my first impression was that it could just be some sort of new high-tech air purifier from Dyson. But as we don't review air purifiers (well, at least until they start coming with built-in 'speakers and Bluetooth) I quickly revised my opinion.

This is a Bluetooth loudspeaker of original and visually striking design. Standing almost three feet high as a squared tower, it has a brushed aluminium body in with the 'speaker section sitting at the top behind a cloth grille (more of which later).

To add to its unusual looks the base is connected to the main unit by four metal rods that allow for a subtle but

(hence the EQ in the loudspeaker's name) as well as a button for turning off the underside light display.

Apart from Bluetooth other connections include auxiliary in and out, an HDMI socket if you fancy using the Solo with a TV, plus USB for charging the internal battery which gives an estimated battery life of eight hours.

There's also music, movie and gaming modes available to optimise sound for the connected device which is handled by the internal DSP (Digital Signal Processor) while two Solos can be paired together for simultaneous playback. The only drawback is there's no app to control all the functions - but that's probably not a deal breaker.

Overall, it's a lot of technology

“It's a lot of technology packed into a £399 loudspeaker but in looks and overall design it's certainly out of the ordinary”

attractive light display - although this can be turned off if required.

The top six inches of the unit contain the two 'speaker drivers that Studio 19 say are able to give 360 degrees spread as sound travels not only left to right but top to bottom to fill a room. There's also something called DPCT (Dual Pressure Air Compression Technology) which uses air pressure to enhance bass.

On the top fascia are buttons for on/off and four sliders: one for volume and then three others for equalising sound across bass, mid and treble

packed into a £399 loudspeaker but there's no denying that in looks and overall design it's certainly out of the ordinary. Place this in your living room and friends will no doubt be unable to take their eyes off it at first.

But that's not enough if it doesn't actually sound good...

SOUND QUALITY

I ignored the movie and gaming settings and concentrated purely on the Solo's music-making abilities.

I admit I was a little cynical over the Solo E-500 EX at first having



experienced many different-looking Bluetooth loudspeakers promising groundbreaking audio technologies that don't really deliver sonically.

My initial reservations weren't allayed when I placed it on a glass hi-fi shelf and connected it via Bluetooth to an iPhone 7 Plus. Yes, it definitely sounded expansive but rather coarse up top and a little boomy. Fiddling with EQ settings helped a little but not enough to convince.

It quickly dawned that this was not the best position for it - so down it went onto the carpet. Now things snapped into place pretty quickly.

The faults were gone and it actually started to sound rather fine. Streaming James Blake's 'Limit To Your Love' via the iPhone and low-end was, indeed, much deeper than the dimensions of the Solo would suggest. This isn't a track that takes kindly to most Bluetooth loudspeakers due to its seismic bass. Turning the volume right up did bring some thickening of the sound but at halfway - which is plenty loud enough - it sounded tight and actually rather pleasant. Blake's voice was also presented in a sweet, plaintive fashion with the vocals thoroughly intelligible.

And yes, the 'speaker does do a good job of filling the room. Model 500s 'No UFO's' was especially expansive with the techno effects rocketing from side to side as though they were actually coming off the walls. Hiding the Solo out of sight it was possible to believe I was listening to a much larger pair of loudspeakers (as indeed one visitor believed and was a little astonished when I pulled the E500X-EQ into view).

Don't however push the loudspeaker tight into a corner as



There's both an auxiliary plus HDMI to connect to a TV, and a USB charging socket for the battery.

you'll immediately lose its expansive sound and introduce room reflections that'll spoil the presentation, most notably boomy bass.

Playing around the EQ buttons is instructive - especially if you have recordings that are less than optimally produced. Johnny Thunders' 'And The Heartbreakers' appallingly muddy 'LAMP' benefitted from having the bass pushed way down with the mids pushed up and the treble way near its limit. Okay it didn't actually turn it into a Mark Knopfler-quality production

but certainly made it more listenable.

OK, you can get a decent pair of hi-fi 'speakers for around £400 from some pretty well-known manufacturers. But then you'll need an amplifier and source equipment to boot. The Solo on the other hand is convenient, gets the best out of Bluetooth and is a style item to boot.

CONCLUSION

Great-looking Bluetooth 'speaker that uses some innovative technology to provide room-filling sound.



A light at the base gives added visual appeal - although this can be defeated if required.

MEASURED PERFORMANCE

Measured from front (connecting panel at rear) and placed on the floor, the Studio 19 delivered the response shown in our third-octave analysis. Overall it is relatively even from 200Hz up to a high 10kHz so the Studio 19 does a good job in presenting the audio band to listeners. The roll off above 10kHz is to be expected and from some microphone positions, especially at side, frequencies up to 20kHz were delivered but this does not have much impact on overall sound quality as the ear is relatively insensitive at such high frequencies.

Of the three EQ settings, Music gave the smoothest result, Game boosted treble and Movie lowered it. Sonically, our pink noise test signal sounded smooth and natural with Music.

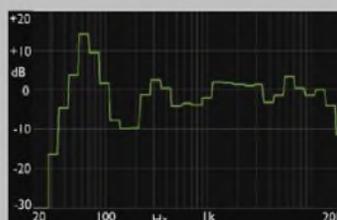
Bass output peaks strongly by +10dB at 60Hz and under test it was obvious that the 'speaker is strong but resonant here. Subjectively this will give the Studio 19 unexpectedly strong bass for such a small unit. The peak could be attenuated by pulling the bass slider control down, lessening low bass boom. The substantial dip at 180Hz was inherent to the design, rather than due to floor reflection measurement 3ft above

the floor showed. It contributes to a sense of bass detachment in subjective terms.

Sensitivity was high via the 3.5mm stereo jack Aux input, just 150mV giving a loud 90dB sound pressure level (volume at max). Since portable 'phones and players produce at least 1000mV - seven times as much - there's no problem with matching here. Similarly with Bluetooth from an iPhone, the 'speaker gave 90dB at one-third volume on the 'Phone (max on the speaker) so there's plenty of volume (gain) in reserve within the signal chain.

The Studio 19 measured well enough. Bass could be better damped; a foam bung would help. Otherwise it offers good sonic balance and plenty of volume. **NK**

FREQUENCY RESPONSE



EQ controls at the top allow for tailoring of bass, mid-range and treble.

STUDIO 19 SOLO E500X-EQ £399



OUTSTANDING - amongst the best

VERDICT

Fun to look at and fun to listen. A really innovative Bluetooth loudspeaker.

FOR

- big bass
- great design
- room-filling sound

AGAINST

- no dedicated app

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MANFRED MANN

MANN MADE 1965



"Most people have a problem with the follow up – and we did"

As this LP was only the band's second LP release, it's worth noting the group's origins because the LP retained a flavour of those early times.

The basis for Manfred Mann was both blues and jazz of varying flavours. Mike Hugg was playing in another, early group at Butlins holiday camp in Clacton and it was he who recommended Manfred Mann for the post of pianist because no-one liked the current incumbent. Mann was teaching piano at the time and so became a part time member of the group (Graham Bond filled in the gaps, by the way, not a bad substitute, eh?).

In fact, Bond was in the process of joining Alexis Korner's blues band at the time and it was Bond who was a major factor in the formation of the Manfred Mann band because he took Hugg to see Korner play: "That's how I discovered R&B and the jazz side of that with Ginger Baker and Jack Bruce. It seemed like an exciting road to go down. So I persuaded Manfred and that's the route we took", said Hugg.

Paul Jones – who became the lead singer – was known on the circuit as a 'blues shouter' – although Jones would probably object to the label. An unnamed intermediary brought the fledgling band together. "[Jones] was the one who introduced us to the wider blues thing", said Mann. So Jones got the job. Although Jones added: "They told me that, out of the six of them, two thought I was good, two thought I wasn't and two thought I would do until they found somebody".

The band were originally called the Mann-Hugg Blues Brothers, then the Blues Brothers and then, because of EMI pressure, Manfred Mann. "I found that so embarrassing", said Mann. "I remember coming up with other names over a weekend. 'The Government' was one I quite liked. 'The Driving Wheels' I liked too. But they insisted".

After the blues-centric debut LP, 'The Five Faces of Manfred Mann', 'Mann Made' (1965) was a relative "mish mash". "It was easy the first time because everything came from a live set", said Hugg. "The follow-up is

always difficult. Most people have a problem with the follow up – and we did. We were so busy at the time, we were gigging all the time. We'd go into the studio in the morning, leave at lunch time and drive to Blackpool or somewhere".

"I think 'Mann Made' is a real mess of an album", said Tom McGuinness. "Its got a bit of this and a bit of that. We were all pulling in different directions. There were lots of alpha- males at different times in the band, I think we'd lost our direction".

After that critique, why is this LP in a Classic Cuts? Well, just because the LP creation was not a happy experience, it doesn't mean that it's a bad album. Being at the centre of things is often distorting within a creative project. That is so here, I believe, because this LP's soul-injected content took the band to a new level of maturity with a broader suite of arrangements with some worthy original songs amongst the usual covers which hangs together well, despite what the band say (what do they know, eh?). I prefer it to their debut in fact.

Now you can hear this LP, along with 'The Five Faces of Manfred Mann' (1964), 'Mann Made Hits' (1966) and the instrumental set, 'Soul of Mann' (1967), in a presentable set within a pizza-style box reissued by Umbrella Music, plus a full-colour vintage band photo print and a DVD of interviews filmed in 2017.

This set marks the first time in over thirty years that the albums have been released on vinyl – and from first-generation quarter inch master tapes too. Even the sleeve art was taken from original negatives and the quartet of titles comes under the 'Artist Approved' banner, with the full sanction of the band.

Owners of the box set should use a mono cartridge to get the very best from the set. I would grab a 0.7mil tip and would head straight for either a Miyajima Zero (£1,375) or the excellent Kotetu (£395) from the same company, or the Ortofon 2M Mono at £250 – but even a bargain cartridge such as Audio-Technica's VM610 (£125) will be preferable to a standard stereo design. Don't forget, you need the right tools for the job. **PR**



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