

Nagra BPS (£1650)

For those who chose Nagra's PL-L line-level preamp instead of the phono-equipped PL-P, the teensy BPS MM/MC phono stage is an ideal add-on for analogue access
Review: **Ken Kessler Lab: Paul Miller**

Ah, if the audio gods were benign, we should all have to suffer such choices: Nagra PL-L or PL-P? The former control unit is a line-stage, the latter also offers phono. Other differences define them, the former having more inputs and mains-only operation, the PL-P enjoying battery juice, but the absence of a phono stage is the main concern. It was inevitable that Nagra would introduce suitable phono amplification for PL-L owners, and they decided to offer two: the dearer, valve-based VPS (for 'Valve Phono Stage') and the affordable, compact battery-power alternative, which is on review here.

Dubbed the BPS (for Bipolar Phono Stage), it is, indeed, bipolar in the current clinical, psychological sense. On the one hand, it's so 'right', so instantly appealing, so beautifully formed and so cleverly developed that you'll want it as much as an *objet d'art* as you would for its phono stage functions. On the other hand, in displaying a bipolar behavioural disorder, it can be an ornery little fellow, because – in its straight-out-of-the-box, factory-default form – its necessarily high gain and dependency on battery power from a lone 9V MN1604-type battery make it a challenge to match with many modern cartridges.

Its basic description is as simple as the unit is petite: the 110x27x160mm (whd) machined aluminium case contains a single PCB bursting with components, and the front panel but one control: a toggle to choose on/off and 'test', to show the battery status. At the back are the requisite phono sockets for signal in/out, a useless earthing tag – too small, too fiddly – and a mains input. As no AC adaptor was supplied, and I didn't want to fry someone else's £1650 worth of kit, I stayed with battery power.

RIGHT: Dual-mono layout, top-flight components, crammed into a case smaller than a paperback novel. Rectangle in lower right-hand corner covers the PP9 battery

And no, you won't draw me on Duracell-vs-Kodak-vs-Eveready, nor which brand of battery will exceed the estimated 100 hours playing time. So here's a caveat: it's *very* easy to forget to switch this off. The battery will drain and you'll be ticked off when you want to listen, the battery's dead, and there isn't a spare MN1604 in the house.

So, if you find yourself in possession of a BPS, discipline yourself.

PLUG-IN AND PLAY

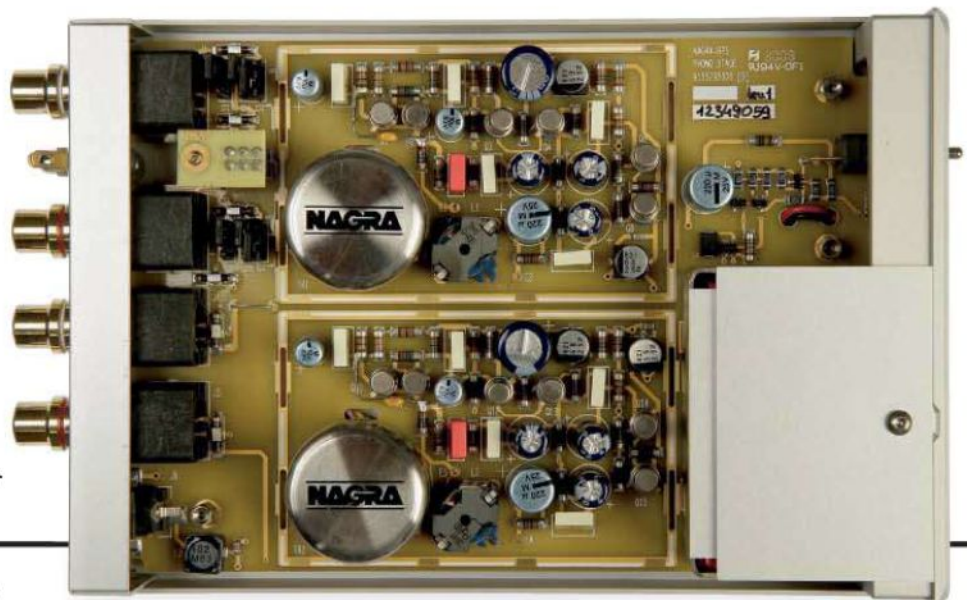
A view of the innards reveals Nagra's familiar in-house designed and built, custom-wound transformers, as found in the PL-P and VPS phono stage. Nagra states that the BPS is based on concepts which formed the VPS, including user-changeable loads built onto small plug-in devices with six pins that nestle into a block behind the input sockets. These come with the BPS, in its superb carry case, the modules resting in a cut-out, along with a MN1604 battery and two different Allen keys – one for the battery cover and another for the entire lid.

Even with the plug-in modules, Nagra exhibits the Swiss obsession with detail: most makers would be happy to have you simply slip them in place, assuming – probably with good reason – that

pressed home on their six legs, they'll be secure. Not so Nagra: they add a little fixing screw to ensure that the module stays in place. The fixation doesn't stop there: even the rubberised underside is special. The non-slip material is cut out in the shape of a Nagra logo. And the lid? It contains an image of the basic circuit – a Nagra feature that dates back to its tape recorders.

Sharing space with the switches and transformers on the single motherboard are 'discrete and military-specification' components, while the amplification stage employs individually selected and matched bipolar transistors. Nagra has never scrimped on component choice: the capacitors in the signal path are described as 'of audiophile quality' and the precision resistors are MELF (Metal Electrode Leadless Face).

With the lid off to enable a view of the insides, the user can access set-up options that optimise the performance to nigh-on-perfection: different loads for MCs with the supplied modules, movable jumpers that select 47kohm MM or MC, and jumpers to set MC for balanced or unbalanced operation (also identified as 'symmetrical' and 'asymmetrical'). The choice is determined by the presence of hum, which was undetectable in my



set-up, so my use of the Nagra was in asymmetric mode.

Inserting the modules changes the input impedance of the BPS to values of 100, 150, 220, 330, 470, and 1000ohms. I tried so many variants with so many cartridges that at first I ended up leaving the lid off, but soon found that it sounded different open-vs-closed (damn, I hate writing those words), so it was four tiny screws back in place every time. Lid-on sounded quieter than lid-off.

Because the BPS only weighs 480g, stiff or robust cables will lift it off a table. I used it with Yter and Kimber Hero, the former being thin and light, the latter wonderfully flexi-y and floppy. The unit was fed into an Audio Research Ref 5 preamplifier, and compared to the Audio Research PH5, as well as step-ups from Ortofon, Pro-Ject and EAR. Amps included the Croft Series 7 [see p30] and Quad II-eighty, while speakers included the Sonus Faber Cremona Elipsa Auditor and Wilson Sophia II.

As for cartridges – whew: using the SME 30/2 with Series V arm and the Linn LP 12 with Ekos, I sampled the following: Shure V-15 V for MM listening, Koetsu Urushi, Transfiguration Orpheus, Linn Arkiv, Blue Angle Mantis and Air-Tight PC1 for moving-coil. The remarks which follow are an attempt to describe the unit's overall character, though it's clear that some cartridges were simply of too high an output to operate without tweaking.

MAKING SENSE

In order to make some sense of the plethora of cartridges and the BPS' options, I had to focus on what was consistent from set-up-to-set-up, and LP to LP. Little Feat's *Dixie Chicken*, the new



ABOVE: The on/off/test toggle is the only control. Don't forget to switch off: battery drains quickly. Note circuit diagram on lid

LP of Keb' Mo's *Peace... Back by Popular Demand*, Peggy Lee's *I Like Men!*, a fresh pressing of the Rolling Stones' *Exile On Main Street*, the Dave Clark Five's *Greatest Hits* the recent Nirvana reissues and the Beatles' *Abbey Road*.

How Swiss this is: once I was confident that I had the BPS adjusted for each specific cartridge, I was able to hear, time and again, clarity and transparency that might antagonise the

'Where the BPS excels is with its portrayal of air and space'

tube faithful. How much of this has to do with battery power I can't say, although in my little mind that addresses noise, which in turn enhances clarity and transparency. But then there are mains

phono stages which are hardly slouches in that area. The two virtues manifested themselves repeatedly with the leaner, less cluttered recordings, especially numerous tracks on the Keb' Mo' of close to 'unplugged' spirit.

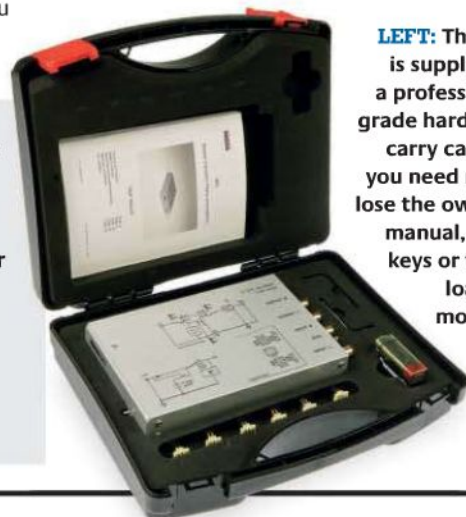
Where the BPS excels is with the portrayal of air and space. Interestingly, it doesn't do this with scale, for the soundstage is slightly smaller than, say, that of the PH5's. It's all down to neutrality, an absence of grunginess or any near-diaphanous layer between you and the music. What recalls previous experience with other Nagra products

is that the BPS does this without sounding too finely etched or aggressive.

If, however, you feed a brash cartridge into the BPS, one with high enough output to exacerbate the problem of too-high gain and knife-edge dynamics, and the music is raucous, the sound might turn brittle. Half of the Stones LP sounded to transistor-y and artificial to enjoy – I suspect the VPS would cure this – while the more thrashy moments from Nirvana bordered on white noise. (Note, however, that a bombastic, wall-of-threatening-sound may have been the desired effect from Cobain and co, so the BPS is just doing its job.)

NEEDLE MATCH

Please, don't let me misguide you into thinking that the BPS only works with certain cartridges and certain LPs: it's all about matching. It's simply that this is less forgiving, less generous than the EAR 834P, the PH5 or even the tiny Pro-Ject tube phono stage. If you find a way to tame the level of the Urushi, you can savour the textures of Peggy Lee's voice with the added benefits of the



LEFT: The BPS is supplied in a professional-grade hard-shell carry case, so you need never lose the owner's manual, Allen keys or those loading modules

NAGRA ICONOCLASM

Most manufacturers anticipate the need for their products to work with those from other brands. Nagra exists as if in isolation, yet they openly admit on p9 of the owner's guide, without the least hint of apology or even pity: 'If you are using high output level cartridges (MM or MC), it is possible that the high gain of the BPS generates distortion on the output stage. You would then hear unpleasing distorted sound. In this event, your BPS needs to be modified to match your cartridge level, please contact your local dealer.'

Unfortunately, what Nagra regards as high output is far lower than the current norm: nearly every MC in my arsenal taxes this device. So, an open appeal to Nagra: *please* ship this as standard to work with 'typical' cartridges, not just absurdly low-output MCs like Ortofon SPUs and Audio Note's Io.

PHONO STAGE



ABOVE: Minimalist back panel filled with high-grade gold-plated phono sockets for signals in/out, the inputs flanking an unnecessarily tiny and fiddly earthing tag; socket at right awaits the forthcoming AC adaptor

open-window sensation that the BPS possesses when not being overdriven. It's not as seductive as a valve-based phono amplifier, but it's pretty close – almost as mock-valve-like as Croft's Series 7 power amp.

Throughout the lower registers, the BPS shows exceptional control and fluidity, quality over quantity. With the fatter-sounding moving-coils, it manifests itself as a tightening of the sound, especially beneficial with the Little Feat recordings, which can often sound too rich – not the music I'd ever subject to single-ended triode amps powered by 300Bs.

With the bass-heavy stereo take of the Dave Clark Five's 'Glad All Over', the BPS exploited all of the available extension, while allowing the listener to separate the sax from the bass, and from Clark's overly exaggerated, often overwhelming drum sound.

SHEER COMPETENCE

For the two almost mutually exclusionary extremes – the DC5's mechanical plod, Little Feat's liquid Crescent City-inflected ebb and flow – the Nagra maintains its composure, and presents a wonderful opportunity to the listener. Here is a device which can exploit all that vinyl offers, without succumbing to any of the nasties that a bit of rumble or groove noise might excite. For sheer competence and freedom from irritating artefacts, this is almost a poster child for battery operation. The only caveat is that, more than any other phono stage I recall using, it requires undue attention to its gain levels.

Lest panic ensue back in the land of the cuckoo clock, this is not an omnipresent worry, and it is as much music-dependent as it

is cartridge-driven. I do *not* want any of you to be too discouraged by the BPS' posh-Mayfair-club attitude toward which cartridges it will or won't allow to flourish. Dynamic squashing will make its presence known when fast and wide contrasts, with lightning quick attack and a robust increase in level, tax the BPS' capabilities. I suspect huge orchestral works will cause more trouble than, say, the constant level of a rock recording: the above issues with the Rolling Stones and Nirvana had as much to do with the heavily-distorted-by-design sonic textures of the material as they did with levels.

I am loathe to tell you which cartridges work best, because that would be to deprive Nagra itself of performing factory settings suitable for whatever transducer you prefer. Rather, I would ask that, should you find an opportunity for a demo, you keep the above in mind: you may be hearing a mismatch, and *not* a deficiency in the BPS.

And when they get it right, you'll find it hard to hang onto your £1650. ☺

HI-FI NEWS VERDICT

Despite the matching issue, Nagra's BPS rewards obsessive analogue addicts with a smooth, detailed, open sound. It is not as warm (nor user-friendly) as my personal sub-£2500 choice, the Audio Research PH5, but comparing them is apples-vs-oranges: they are wholly dissimilar beasts. If you favour battery-power silences and jewel-like build-quality, BPS for you will mean 'Brilliant Phono Stage'.

Sound Quality: 85%

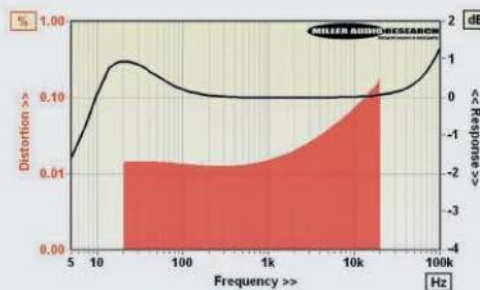


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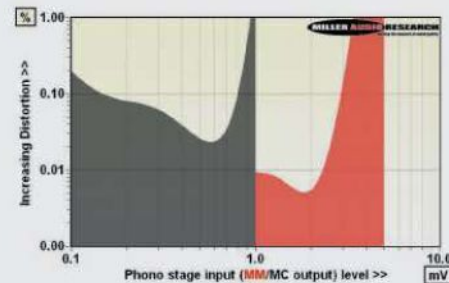
Tucked away in Nagra's little BPS booklet is the following comment: 'If you are using high output cartridges (MM or MC) it is possible that the high gain of the BPS generates distortion on the output stage'. Interestingly, it does not give a value to 'high output' nor does its 'Technical Specifications' mention either the BPS's maximum output or maximum input (overload margin). It does show us the frequency response [identical to that illustrated by the black trace in Graph 1, below] and distortion, rated anomalously at <0.15% and easily met from 20Hz-20kHz [red infill, Graph 1 below]. Its 76dB A-wtd S/N ratio is also close enough to the 77dB quoted by Nagra.

Nevertheless, Nagra does not spell out that the BPS's maximum output is just 1.4V even with a very fresh 9V Duracell Plus (MN1604) cell installed. While this is more than sufficient to drive any modern amplifier, the accurately-specified +52.6dB and +63.7dB gain (MM and MC) means this output is achieved with inputs of only 3.4mV and 0.93mV, respectively [see red and black infills, Graph 2 below]. With many modern MCs delivering 500µV at 5cm/sec, this represents a headroom of less than 6dB, which is insufficient to accommodate even moderate peak groove modulations. To achieve a headroom of 20dB (ok, 19dB) without causing the output THD to exceed 1%, you'd need to employ an MC with a staggeringly low 100µV output at 5cm/sec. Nevertheless, it's worth bearing in mind that this overload is gentle and progressive, not a hard clip.

Readers are invited to view a QC Suite test report for Nagra's BPS MM/MC phono amp by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



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



ABOVE: Distortion versus input level showing limited overload margin for MC (black) and MM (red) options

HI-FI NEWS SPECIFICATIONS

Input loading (MM/MC)	47kohm/100pF / 100-1kohm
Input sensitivity (MM/MC re. 0dBV)	2.3mV / 0.65mV
Input overload (MM/MC)	3.4mV / 0.93mV
Maximum output (re. 1% THD)	1.4V
A-wtd S/N ratio (re. 500µV in MM/MC)	75.2dB / 76.2dB
Frequency response (20Hz-20kHz)	+0.93dB to +0.08dB
Distortion (20Hz-20kHz, re. 0dBV)	0.012-0.18%
Power consumption	9V cell (100 hours battery life)
Dimensions (WHD)	110x27x160mm

SME MODEL 30/12



A larger and more massive version of our well known Model 30/2, it will accept nine, ten and twelve inch arms but is especially directed at the exciting Series V~12. This offers performance 27% better than a nine inch arm in respect of angular error distortion. Its immaculate construction and finish stem from facilities and uncompromising quality control which have made the name SME a byword for engineering excellence.

With its dedicated arm, the Model 30/12A possesses a majesty I hadn't heard before. Bereft of absurd, self-aggrandising over complexity exhibiting nothing but sane engineering and producing sound that's impossible to fault.

Ken Kessler Review – *Hi-Fi News*, March 2009

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