



[TUNED ELISES]

CHARGE

of the light brigade

These are the hairiest Elises we've tested. One's a highly tuned race car for the road; the other uses a supercharger to deliver the same performance punch. Which is best?

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Above: supercharged NSR Elise chases 190 VHPD roadgoing racer (the one with the chequers and the roundels). Both cars have around 190bhp and weigh only slightly more than a crisp packet

Are you all power-mad, you Elise owners? Is the regular 118bhp car not enough for you? Doesn't the thrill you derive from an efficient, lightweight car making indecent progress with modest power leave you satisfied? Of course it doesn't. Initially, maybe, but after a while the standard car feels like it needs more raw grunt, feels like it could handle it, feels like it would enjoy it. In any sports car there's a desire for the thump of hefty power when you tread on the throttle, not just the effect of healthy power-to-weight.

No fewer than seven Elises have passed through our hands in the last few months. Six of them have claimed to improve the pace of the standard car and the seventh, well, that *was* a standard car. We've performance-tested them all, from the 'budget' upgrades that cost a thousand pounds or two, to the factory 135 kit which costs double, and finally the very

expensive, line-built 111S with its VVC engine. While many of the conversions have felt and sounded good, the only upgrade that's delivered the goods in convincing fashion is the 135.

So here we are, unpacking the test gear once again and adding two more tuned Elises to our tally. This pair promise not to pussy-foot around: one is supercharged and claims 188bhp; the other has the factory's ultimate normally aspirated engine, the 190 VHPD (Very High Performance Derivative) which weighs in with 187bhp. If you're wondering, 190 is a PS rating and one PS is a tiny bit smaller than one bhp.

The effect of both should be pretty spectacular, what with the power-to-weight ratio of the regular car rocketing up from 158 to around 250bhp/ton. You can bet the two cars are going to feel different, though. Superchargers generally retain the shape of the standard power and torque curves but move them higher up the scale. Unlike turbos they are

mechanically driven and thus begin to boost earlier and in proportion to engine speed.

The VHPD, meanwhile, relies on traditional tuning techniques, optimising the engine's breathing through ports and valves and exhaust to high engine speeds. Torque is sacrificed in the search for over 100bhp per litre, so don't expect to feel what the VHPD is all about until the rev-counter is showing big numbers.

Don't expect to see much change from £10,000, either. The engine costs £7580, the big carbonfibre inlet manifold another £500, and then you've got to have the whole lot fitted, which involves cutting away the bulkhead between the engine and luggage hold to accommodate the Zeppelin airbox.

There's metal-snipping involved in the NSR (Nik Saran Racing) supercharger conversion, too, this time to make room for the 'charger. This eight-inch diameter device looks like one half of a truck turbocharger which in effect it is, only instead of being driven by another turbine sitting in the flow of the exhaust, it's belt-driven from the engine. There are no high-pressure oil-feed complications because the 'charger has dry ceramic bearings, and it makes 188bhp without the complication of an intercooler. Best of all, it requires no modifications to the stock 118 motor. Fitted and ready to roll, the NSR conversion costs just under £5000.

If it does what it claims horsepower-wise, it looks fantastic value compared with the VVC-powered 111S, which did diddly-squat for the same money, and strong competition for the VHPD, too.

Knocking about on some cracking roads close to our Northamptonshire office, the blown car





feels wonderfully urgent. NSR claims that the supercharger is 'almost noise-free' but that's not how it sounds to us. It might be the drive belts or pulleys rather than the supercharger itself, but at idle there's a distinct chirrup that sounds like a cricket rubbing its hind legs together.

From a standstill it feels merely keen, but by 4000rpm it gets serious, its rising, Long Wave radio-style whine turning into a scream and by that point it's the acceleration rather than the noise that has your attention. A strong, seemingly relentless urge lifts the Elise's nose – this is like no other Elise I've driven – and flings it forward.

Let's reflect for a moment. This is the sort of urge that the standard Elise cries out for; solid mid-range *umph* that loads up the chassis and gives the rear tyres – and the driver – something to think about. It's a sustained shove in the back that you can relax into, overtake

long strings of traffic with, and generally feel pretty pleased about.

It's a bit peakier than expected. It's as though the supercharger has built on the power and torque curves of the higher revving VVC engine, emulating its slow burn, only at a higher temperature. It fills the gaps between the standard car's gear ratios so effectively they don't feel clumsy any more, which makes it deceptively quick. It's not lazy power but it is generous and not too hard to find, delivering its best rush between 4500 and 6500rpm. Go near to 7000rpm and the Elise's lack of sound-deadening makes it sound like the valves and pistons are headed for metallic oblivion, but you get used to the noise after a while and, honestly, you don't really need to go there.

How fast? By the time we strapped our test gear on a few days later, it wasn't running as strongly, but we'll come to that in a moment...

Our VHPD-powered Elise is road-registered but, as you can tell from its chequer livery and stickers, owner Simon Scuffham uses it more at weekends. Bolted firmly into his car, the VHPD engine feels and sounds very much like a racing engine, setting the whole car abuzz at idle and hunting a little when dawdling through town at low revs. The VHPD is approved for road use in the UK, though not with the baffle-free exhaust that Scuffham's car has.

All that chomping, gnashing and vibrating at idle evaporates as soon as the revs are climbing the dial. It feels pretty willing in the mid-range and sounds great too, a wide-open throttle eliciting a gloriously old-fashioned twin-cam-on-twin-forty-carbs bark. Keep the accelerator nailed and this is soon swallowed up by a frantic, rising, high-pitched scream that's of a different depth and quality to the NSR car's wail. 22

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NSR supercharged Elise comes on song sooner and snaps at the tailpipes of the VHPD car out of corners, but if the next straight is long enough, it'll be playing catch-up by the next corner

As the revs and noise build, you sense that something big is about to happen any moment, but, boy, does it leave it late. With just 2000rpm left to go, the VHPD hits its stride and blasts the Elise forward on an ever-rising wave of power. It peaks at about 7500rpm, but in the lower gears momentum carries it into the limiter at eight, though there's no excuse for *bap-bapping* because there's a final shiver through the chassis just before peak power.

Once tasted, you spend all your time seeking out this high-rev wallop, and the close-ratio 'box helps you hang onto it once you've found it. After a good few miles courting the limiter, when you drop down to even 4000rpm it feels like someone has pulled a couple of plug leads off. Yet apart from some very low rpm reluctance, it makes a pretty good road engine, and there's a reward for backing off, thanks to the exhaust that Scuffham's fitted – a lovely, popping, *bimba-bimba-bim* overrun.

We can't say conclusively what effect either of these conversions will have on the standard Elise. The VHPD car is a racer on road tyres; the supercharged car had up-rated suspension that is still in development. What we can say is that neither felt troubled by their substantial performance.

Subjectively, the VHPD has a slight edge over the supercharged conversion, even taking into account the advantage of shorter ratios. A

>> PERFORMANCE – VHPD 190 ELISE

MAX SPEED 142MPH*

*est. mated

STANDING START (SECS)		3RD/4TH/5TH GEAR ACCELERATION (SECS)	
0-30mph	1.3	20-40mph	5.1/7.3/9.8
0-40mph	2.1	30-50mph	4.3/6.9/9.0
0-50mph	3.3	40-60mph	3.8/6.2/9.1
0-60mph	4.5	50-70mph	3.7/5.2/8.6
0-70mph	5.9	60-80mph	3.7/5.0/7.7
0-80mph	7.8	70-90mph	4.0/5.4/7.4
0-90mph	9.8	80-100mph	4.6/5.8/7.9
0-100mph	12.3	90-110mph	—/6.6/9.1
0-110mph	16.2	100-120mph	—/8.3/10.9
0-120mph	20.9	110-130mph	—/—/14.5
SS 1/4 mile (secs./mph)	13.2/102	TEO (Time Exposed to Danger – time taken to overtake a standard articulated truck travelling at a constant 45mph)	4.75secs

>> SPECIFICATION

SPECIFICATION	NSR SUPERCHARGED ELISE	VHPD 190 ELISE
Engine	In-line four	In-line four
Location	Mid, transverse	Mid, transverse
Displacement	1795cc	1795cc
Bore x Stroke	80.0mm x 89.3mm	80.0mm x 89.3mm
Compression ratio	10.5 to one	11.0 to one
Cylinder block	Aluminium alloy	Aluminium alloy
Cylinder head	Al alloy, dohc, 4 valves per cyl	Al alloy, dohc, 4 valves per cyl
Fuel and ignition	Multipoint fuel injection and ignition Belt-driven impeller-type supercharger	Rover MEMS multipoint fuel injection and ignition
Max power	188bhp @ 6500rpm	187bhp @ 7500rpm
Max torque	n/a	150lb ft @ 5750rpm
Weight (kerb)	1673lb	1673lb
Power-to-weight	25.2bhp/ton (kerb)	25.0 bhp/ton (kerb)
Conversion price	£4817	£10,000 (approx)



Bruntingthorpe session was arranged to put figures to those impressions but by the time we got the NSR car back, it felt a bit limp. By the time we sent it away again, having recorded a full set of disappointing times, we'd seen a huge plume of oil smoke in the rear view mirror. Clearly something significant was amiss and rest assured we will have the car back again when it's fit.

No such worries with Scuffham's car. As we expected, it's got no bottom end to speak of; comparing in-gear times, the 135 murders it in the low and mid-range. In fact, the 190 only gets into its stride once the 135 has done its best, and then keeps going, reaching 100 in third where most other Elises have hit the limiter at 80mph. This makes direct comparison difficult, though one figure that does show the VHPD's power is the TED time – the time taken to pass an articulated truck moseying along at 45mph. All of the tuned Elises we tested back in February took 5.5secs to get past, but the VHPD ripped through the gears and managed it in a blistering 4.75secs. From a standing start it's equally impressive, knocking off 60mph in 4.5secs and 100 in 12.3.

You'd be hard-pushed to make this advantage stick on the road, however. As Scuffham himself says, a well-driven 135 would have his car for breakfast on a give-and-take twisty. So the 190 isn't the solution if you're looking for a quick, exploitable road car.

The NSR car just might be, so it's frustrating that the freshly converted test car went sick on us. When it was running sweetly it felt superb. We'll have it back soon to bring you the definitive figures. But even if it does the business, it's a complex and expensive solution. Right now, for us, the 135 kit remains the best way to give an Elise the hurry-up it deserves.

Nick Saran Racing is on 0181 451 2237.



The supercharger can be seen in the foreground. Like a turbo, it forces air into the combustion chamber, but unlike a turbo it's mechanically propelled, rather than driven by exhaust gases

Right: Zeppelin-like carbonfibre airbox dominates under-bonnet view of VHPD motor; it channels air to the individual cylinder throttle bodies. Underneath it all there's the bare bones of a standard 1.8-litre K-series engine

