



Peak figures for power and torque are not as important as the difference between the before and after values

Engine output graphs can be projected on to the wall to enable programmers to make real-time adjustments

Rewritten management program produces a much quicker Range Rover, which is also more flexible and frugal

Interrogation of the engine computer only requires a laptop to be plugged into a diagnostic port low on the fascia



Quick brick

The two-tonne Range Rover takes a lot of shifting. **Bob Cooke** stands by as a Td6 gets a helpful electronic 'tilt'

I have never seen 115mph in this before," said Harry Metcalfe, glancing in astonishment at the speedometer as its needle swept round the right-hand side of the dial. Nor was it merely the unexpected velocity which caught his attention, it was the ease with which the Range Rover had accelerated to that point, on a dead straight road on a windless day. And it would have gone even quicker if Harry had not backed off for fear of coming together with the Transit dawdling in the overtaking lane up ahead.

Now Harry likes a bit of performance. As with so many Range Rover owners, the big four-wheel drive is not his only car, he has it because, in spite of its luxury limousine character, it is also a thoroughly practical estate to have around the farm. "I do use it a lot off-road, around the farm, and it is a great car for a long drive," said Harry, before

he added: "It's a lovely car, but you do also need to have something quick in the garage."

The petrol 4.4-litre V8 Range Rover is a bit quicker: the 8.1-second 0-60mph acceleration gives it the ability to chase hot hatches away from the lights, but the brick-like shape limits top speed to 116mph and fuel consumption to the low teens if you insist on using the 282bhp to the full. Hence the popularity of the 3.0-litre Td6. It is a suitably refined turbodiesel, even if its capacity is somewhat shy of what the imposing off-roader really needs, but at least you can expect around 23mpg, even if you boot it to make the most of what performance it does possess.

As with so many turbodiesels, the Range Rover Td6 feels fine once it is up and running, the easy kickdown of the modern five-speed automatic helping to disguise the relative lack of torque by spinning the engine up into its power band between

3,000 and 4,000rpm. Where the lack of power shows is in standing-start acceleration, in that period where the engine is required to spin up to speed, the turbo has to build up its boost and the automatic's torque converter needs to take up drive. The result is a distinct lethargy when the accelerator is pressed against the floor, followed by a dreary, whining few moments as the Range Rover creeps forwards before, with engine racing and turbo howling, it eventually takes off. The 0-60 time of 13.6 seconds is not in itself disappointing – though, of course, this majestic and powerful-looking car deserves better – it is just that initial torpor which frustrates the eager driver.

Hence Harry's visit to the Superchips headquarters near Buckingham, where he had been promised a shedload of extra torque. There were no spanner-wielding mechanics or technicians dismantling

anything under the bonnet, just a man with a laptop, who did not even require Harry to move the Range Rover out of the car park.

The Superchips electronics wizard explained: "We can access this car's engine management program simply by plugging into the diagnostic port. This takes the form of a multi-pin connector, set low down in the dashboard to the right of the steering wheel, so we do not even need to open the bonnet.

"Our system reads the original program, then rewrites it to include our own performance-boosting tweaks. Depending on the car, this sometimes simply increases fuelling, though sometimes we also alter the way the turbocharger boosts. Because the Range Rover has a drive-by-wire accelerator, we can also 'tilt' the accelerator control map to give quicker response."

It took just minutes to download the original program,

a similar time to install the new one. Harry was then presented with a physical reminder that his car had been Superchipped – an additional electronic chip containing the car's original program. "You can have the engine returned to its original specification any time you like by calling at any of our agencies nationwide," he was told.

The car was run up against the dynamometer rollers first in its original state of tune, then with the Superchips enhancement. Interestingly the dynamometer revealed the standard engine to have 184bhp, 10bhp more than it should, and similar to the power it develops in BMW's own prestigious off-roader, the X5. After the power boosting-treatment it developed 208bhp, a not insignificant improvement. However, it was the mid-range torque enhancement which really impressed. Do not pay too much attention to the peak figures revealed by the dyno test, which suggested that the Td6 develops a massive 359 lb ft in standard tune, and a simply huge 497 lb ft when tweaked. "The peak figures are

exaggerated by the way the dynamometer takes up drive, especially with an automatic where the torque converter also gives misleading information. What is significant is the difference between the figures: our tweak has still added well over 100 lb ft of torque in the mid-range, so we're talking around 400 lb ft. Real stump-pulling stuff."

If Harry had any doubts, they were quickly dispelled as he drove the car away. The word "amazing" slipped out as he part-throttled the Range Rover out on to the highway and felt the big improvement in immediacy. We had already run a few acceleration times on the standard car, so we had a direct basis for a before-and-after comparison. In standard form the Td6 returned a 30-50mph time of 5.0 seconds, a 50-70mph time of 7.0 seconds. After the tweak these figures dropped to 3.9 seconds and 5.8 seconds respectively. More significant was the better getaway performance. We had checked the 0-30mph time before at 4.2 seconds; after the tweak that dropped to 3.2 seconds, the Range Rover also pulling from a

standstill in a more natural and progressive manner. Harry was suitably impressed: "It used to feel like a brick to drive. Now it's a quick brick!"

Harry was even more taken at the way the automatic held on to higher gears for longer. "Before the enhancement it was very eager to kick down. Now it's responding to the extra torque by holding high gear, and yet it's still accelerating well on part throttle. Right away I can feel the whole car behaving in a more relaxed manner. I have to say that this enhancement is a must-have accessory for any Td6 owner."

This enhancement also promises icing on the performance cake. If the bigger torque allows the engine to spend more time in higher gears, there is a good chance that fuel consumption will improve noticeably. Superchips performs similar power-boosting chip changes on big turbodiesel trucks, not because of the 50bhp improvement at the top end, but because of the 10% consumption improvement conferred by the extra mid-range torque.

It seems incredible that a program designed to increase

fuelling to improve power should also give better economy, but the Superchips technician explained: "The engine simply burns fuel more efficiently closer to its peak torque point than it does when it's revving up near its peak power point. With our enhancement you may be burning more fuel at lower revs but you're doing it efficiently, and you'll be spending less time at wasteful high revs. The result is typically a 5% improvement in consumption, as well as better driveability."

The reprogramming system devised by Superchips does the job so subtly that the tweak is invisible to technicians when the time comes for regular service attention. Not only that, the £511 all-inclusive reprogramming fee includes a peace-of-mind warranty, which is applicable to all Superchips conversions on the wide range of makes and models covered by their performance enhancement service.

To see if your car is on the list of vehicles suitable for a cost-effective performance boost, visit www.superchips.co.uk or call Superchips on 01280 816781.