

POWER RANGER

A big off-roader needs lots of torque. **Bob Cooke** finds the answer for the BMW-powered Range Rover



Above: Few cars have the road presence of the hunky and fashionable Range Rover, but some have better diesels

If you want a car to show that you have made it, a Range Rover has to be on your list. There is not much around that blends this hunky and stylish off-roader's mix of sheer luxury with plain brutish road presence in quite the same way. There is even a diesel version, using the very smooth and refined 2.5-litre BMW straight-six IIDI engine.

To be perfectly frank, a diesel engine in a Range Rover has always been something of a compromise. The car was created to compete in the United States, and was designed to have V8 petrol power. The whole Range Rover philosophy revolves around high performance combined with exceptional off-road agility. The huge demand for a more economical version of the car caught Land Rover rather by surprise and it did not have a suitable diesel of its own. There was a 2.25-litre thumper in the agricultural Land Rover but thankfully no one ever seriously considered fitting that to the Range Rover, so Land Rover had to shop around.

The choice was not easy, because the underbonnet space, designed for a short V8 block, just was not long enough to take any of the sixes that were around at the time, offering good power and torque but requiring far too much bodywork modification.

The eventual solution was, in retrospect, a good one, because

the Italian VM company had lots of experience in producing relatively high-revving, high-performance diesels. Unfortunately, they were of rather small capacity, and had to be revved hard and noisily to make the Range Rover move with any alacrity. Realisation that the superbly refined BMW 'six' could be made to fit in the second-generation Range Rover made that the obvious replacement unit as the search for greater luxury continued. Development of Rover's own modern five-cylinder direct-injection unit was well on stream, but the BMW is a much smoother, quieter runner than the efficient but rather noisy Td5.

Thus the Range Rover retains the older-technology indirect-injection BMW unit delivering 134bhp, compared with the 136bhp of the Td5.

Because it produces less torque than the Td5, the BMW engine has its work cut out to haul the big Range Rover. A better comparison is to look at the turbodiesel's 134bhp against the 215 of the 4.6-litre V8 powering the range-topping Range. It is hardly surprising that the turbodiesel Range Rover is not as sprightly away from the lights, and takes its time getting up to a reasonable cruising speed. Apart from its straight power output the BMW engine is a dream in this refined machine. It is quiet at any speed, spins smoothly to the rev limit and ultimately still

has the muscle to hold the big luxury car in a steady 100mph cruise. All it needs is a bit of a torque boost at the lower end, where in standard form it is prone to stalling when pulling away and dying if you don't grab a low enough gear to negotiate a slow corner.

Fortunately, there is a simple answer. Because the BMW engine is electronically controlled it is possible to remap the engine management computer to enhance the engine's performance. Superchips, based at Buckingham, has designed a programme that takes under an hour to fit and gives the turbodiesel Range Rover its much-needed mid-range performance boost.

The improvement is immediately obvious because, apart from anything else, the engine seems much more eager to pull away from a standstill (something that was also noticeable in the automatic version that we subjected to the Superchips treatment).

As usual, the stopwatch gave a clear indication of the extra torque available. On the way to the Superchips workshops we chose a level stretch of country road and floored the accelerator from 20mph, felt the automatic kick down and then measured the time it took the big Range Rover to heave itself from 30 to 50mph – a not unreasonable 5.7 seconds.

The run from 50mph to 70mph



Above: BMW's engine programme chip is replaced by the Superchips item



Below: Four-wheel-drive Range Rover requires a dedicated rolling road to measure torque and power outputs

was actually somewhat nerve-wracking because it included an upshift from second to third. The shift slurred through smoothly enough, but the 9.7 seconds it took to reach the magic 70mph took the car treacherously near a sharp left-hander, calling for some heavy braking an instant after we hit our target speed.

Into the workshop and a run on Superchips' four-wheel-drive rolling road revealed the expected 134bhp and 199 lb ft of torque. Then the engine management computer was coaxed out of its sealed housing under the bonnet and taken into the laboratory, where the programme chip was quickly replaced by one with an enhanced fuelling map. Plugged

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back into the car's wiring loom, the computer fired the engine up first time and revealed a power output close to 150bhp and an extra 38 lb ft of torque.

Back on our stretch of country road the stopwatch confirmed the rolling road readout. The 30-50mph time had dropped to 4.3 seconds – a 1.4-second

improvement. There was no danger of running into that left-hander while repeating the 50-70mph run either, because that took just 7.1 seconds, a massive 2.6-second reduction.

Allied to the much better overtaking performance, kick-down response to a floored 'throttle' was more eager. There was also a much reduced tendency to kick down in response to moderate acceleration, since the increased torque allowed the car to accelerate adequately in a higher gear, an advantage that holds out the promise of enhanced fuel consumption as well as more relaxed towing behaviour.

The Superchip treatment applies to almost any electronically controlled turbodiesel engine, and is available from any of the Superchips agencies around the country, at a cost of £470 fitted, including VAT. Call 01280 816781, or visit the website at www.superchips.co.uk to see whether your car is on the Diesel CAR enhancement list.



Data in brief

MODEL TESTED	
Range Rover 2.5 D HSE	
Upgrade cost	£470 (inc fitting & VAT)
Max power	149bhp
Max torque	237 lb ft
Test mpg	23.4mpg
0-60mph	12.1 secs
30-50mph (kickdown)	4.3 secs
50-70mph (kickdown)	7.1 secs