Stepping up the pace

Is a power boost automatically a good thing? With the Steptronic BMW 330d it is, says **Bob Cooke**

There are those of us who, even with a performance car, always yearn for more power. You would think, for instance, that the 184bhp of the BMW 330d's straight-six, 3.0-litre engine would satisfy most enthusiasts – it is, after all, just about the fastest, most accelerative production diesel available.

Nevertheless, the insatiably power-hungry can always find a reason to seek more performance, whether it is simply that the 330d still will not quite out-sprint the hottest of the hot hatches or, more likely, to get back the performance edge blunted by BMW's superbly slick Steptronic five-speed automatic. Good as this box is, it still wastes a few valuable horsepower through the torque converter so that the 0-60mph dash is not quite as nippy as a good stickman can achieve in the manual.

The automatic does have other advantages, though, such as preventing even more wasteful over-revving if you are slow to change up during a snatched overtaking attempt. Under hard acceleration the auto box is tuned to make the best of the engine's strong but inherently narrow 3,500-4,400rpm power band. It is reluctant to stray up to the redline at 4,600rpm, and though you can force it closer to this limit using the Steptronic manual override it does nothing to improve the acceleration time.

The stopwatch recorded some vital acceleration benchmarks for the standard 330d which was to be submitted for the Superchips treatment – 0-60mph in 8.2 seconds; 30-50mph in 3.2 seconds, the gearbox kicking down to first and slurring through to second during the run; 50-70mph, with a shift to third, came up in 4.6 seconds. You may well wonder why would anyone would ask for more. The simple answer is that, like Everest, more is there – and, unlike scaling Everest, it is very easy to achieve.

Specialists in upgrading engine management computers to deliver more power, Superchips has developed a particularly straightforward method of rewriting the BMW 330d's fuelling map. The process does away with the normal operation of physically removing the controlling programme chip and replacing it with an enhanced version.

The new procedure takes advantage of late-generation engine management systems which enable the controlling microchip to be accessed and adjusted through a diagnostic port. The port is there to allow service mechanics to read the computer's memory to diagnose and rectify any faults that have developed in any of the car's computer-controlled functions. This also enables Superchips to enhance the car's performance without touching the computer.

Plugging into the diagnostic port, Superchips downloads the original performance programme and replaces it with a rewritten version that boosts torque, mainly in the lower and mid-ranges, but significantly improves top-end performance too.

The operation typically takes under half an hour to perform. With the bonnet up the diagnostic port is accessed, the Superchips computer plugged in and the information transfer takes place. The programmes are designed to optimise fuel injection according to a whole variety of paramaters, including temperature, load, gear and throttle position. Their complexity shows in the 10 minutes it takes for the data transfer in each direction.

The original programme is not discarded into cyberspace, however, it is burned into a key fob-sized EPROM module which is returned to the car's owner in the form of a 'customer key'. So, if at any time the owner wants the engine management programme returned to normal – such as when selling the vehicle – they can visit any Superchips dealership to have the procedure reversed.

The improvement in performance brought about by the reprogamming is not immediately obvious. In a car that is already quick it takes a quantum jump for a performance upgrade to leap out at you. However, the stopwatch confirmed a worthwhile power boost.

For a start, getaway acceleration fell to 7.8 seconds, matching the performance of the manual car. The 30-50mph time dropped to 2.7 seconds and the 50-70mph time to 4.1 seconds, half a second quicker in each case.

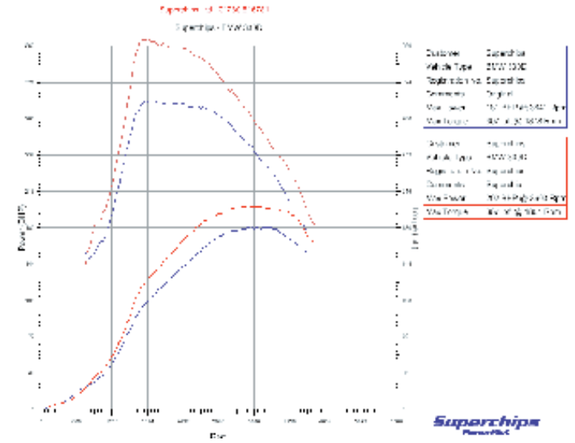
The engine still will not rev past 4,600rpm, so the acceleration runs included slurred-through gearchanges, the bigger torque available simply cutting down the time between shifts.

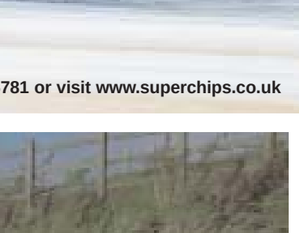
The extra torque also showed up in cruising, when the auto showed less inclination to kick down for overtaking, presumably having judged electronically that there was plenty of torque available to accelerate the car in a higher gear. Of course, this also has the advantage of not losing precious momentum by changing up halfway through a manoeuvre.

By the same token, using the Steptronic manual function also becomes more enjoyable. Flicking the box down a gear elicits a strong response, whereas the standard car may call for two downshifts to achieve similar results. And, because Steptronic sometimes annoyingly overrides your gear selection if you take the revs too high, the ability to get more acceleration in a higher gear, at lower revs, means this tendency is reduced.

Most telling of all, though, is the potential for better fuel economy. The 330d is already remarkably frugal considering its performance potential, our road test of the standard car in July 2000 returning 40mpg. But more low-rev torque means less need to shift down during, for instance, overtaking or hill climbing, particularly with an automatic transmission with which the decision to change gear is often out of your hands. In general driving, if you can resist putting GTi posers in their place at every opportunity, a consumption improvement of 4-5% is on the cards.

The Superchips treatment costs £470 and is available from any of the many dealerships nationwide. Visit the website at **www.superchips.co.uk,** or telephone 01280 816781 for details.





Rewriting the 330d's fuelling parameters requires no component changes and takes half an hour

Data in brief

MODEL	BMW 330d auto
Upgrade cost	£470 (inc fitting & VAT)
Max power	211bhp (std 184)
Max torque	345 lb ft (std 288)
0-60mph	7.8secs (std 8.2)
30-50mph	2.7secs (std 3.2)
50-70mph	4.1secs (std 4.6)