

CLASSIC DRIVER

Driven: BMW M550d xDrive

Lead

This would have been considered impossible a few years ago. An output of 127bhp per litre is a respectable figure by the standards of petrol engines, but when a turbodiesel reaches these levels you know something special is going on.

Please meet, then, the BMW M550d, whose 3.0-litre, straight-six turbodiesel generates an astonishing 381bhp and, even madder, 546lb ft of torque.

These outputs hurl this second-maddest of 5-series models to 62mph in just 4.7 seconds, yet the official average fuel economy is 44.8mpg and the CO2 output 165g/km. It is, frankly, a miracle. How can these figures all occupy the same sentence?

Because this engine is force-fed by not one, nor even two, but three turbochargers according to speed, load, the status of the various interconnecting ducts and flaps and probably the alignment of the planets. The whole aluminium-blocked hotbed of explosive torque is the work of BMW's M division, whose first diesel engine powers the first in a new line of M Performance cars.



So far we've had the M cars themselves at the top of the pile (M3, M5 - the first-maddest 5-series - and so on) and the M Sport packs at the bottom (racy cosmetic changes, big wheels, firmed suspension). M Performance cars occupy the middle ground, closer to the standard article than the full-on M cars but still with major dynamic improvements designed by the M - that is, Motorsport - people themselves. It's akin to the M535i and M635 CSi ideas of the 1980s.

The 2968cc engine is derived from BMW's regular 3.0-litre turbodiesel, but it is greatly strengthened where needed to cope with the huge combustion pressures. An aluminium cylinder block is relatively unusual in any diesel engine, never mind one as potent as this. So, after casting and while still close to melting point, the block is hydraulically squeezed to force any porosity out of it and so make it stronger.



As for the triple turbos, two are small, high-pressure units and the third is a large, lower-pressure one. The first small turbo's blades start to spin as the engine moves off idle, and at around 1500rpm there's enough exhaust gas to start powering the large turbo as well. From 2700rpm the now-even-greater flow of exhaust gas brings in the second small turbo via a vacuum-operated flap, so allowing the engine to breathe well enough to produce its prodigious maximum power on a plateau from 4000 to 4400rpm, torque having scaled its own plateau 2000rpm earlier. Only at 5400rpm does the force finally abate.

The effect of all this is to give astonishingly crisp response from low engine speeds, with no detectable lag, and to maintain this instantly-available energy torrent right through the rev range with no evidence to the driver of the different turbochargers' efforts at different times. The energy is directed through BMW's now-usual eight-speed automatic transmission, modified by the M people for extra-quick response without ruining the smoothness of shifting. It feels like a good double-clutch system.



From the gearbox, all those bhp and lbs ft are fed not to just the rear wheels but to all four, albeit with a rearward bias most of the time. That's why the new car's full name is M550d xDrive, and it's also why it won't be sold in the UK. The drive from the transfer box to the front wheels passes through the place in the crowded

engine bay that is occupied by the bottom of the steering column on right-hand drive cars, so no can do.

But, you might think, couldn't BMW simply do without all that four-wheel drive stuff and just make a rear-drive M550d? And wouldn't *that* be fun? It would, and BMW could, but BMW won't (in the short term, at least) because there's not enough of a business case. If Japan, South Africa and Australia were keener on diesels, there might have been.





So I'll just have to tell you what you're missing, and make you rue the lack. Obviously the M550d has some visual M-type treatment outside and in, with sporting seats, larger air intakes and sharpened suspension, but it's still quite discreet. It's also very easy to drive very quickly, thanks to the combination of a huge torque spread and all those intuitively-shifting gears. It steers and handles with poise and precision, it rides in a civilised fashion even when in Sport mode, and there really is nothing not to like.

Except this, maybe. Let me say, first, that this is the most undiesel-like diesel I have ever driven, especially in the sound it makes. Somehow this straight-six manages to sound like a potent V8, that of an Aston Martin V8 Vantage perhaps, and in Sport mode it becomes quite loud. But only in the cabin, for the M550d uses similar technology to that which gives the M5 its unexpected soundprint.





It's the vibration of the loudspeaker grilles that gives the game away. The sound system replays the engine noise but takes away some parts of it, leaving (for example) the fifth-order harmonics which apparently can produce that V8-like sound. It's quite fun but ultimately contrived, especially as a straight-six is supposed to sound creamy and beat-free. The illusion is helped by the very effective insulation of unwanted sounds, achieved by soundproofing individual noise sources instead of draping acoustic blankets over acreages of body panels. So it becomes easier for the sound sensors to pick up pure inputs for in-car processing, without interference from other sources.

So that's the M550d, the car the UK can't have. But British buyers will be able to have the engine, mounted in the nose of an X5 M50d (£60,325) or – for the terminally-insensitive/under-endowed/lottery-winning/outta-my-way buyer – an X6 M50d at £62,260. I have never driven an X6 and have vowed never to do so, but this engine would give it at least some merit.



For this engine is truly a magnificent thing. M power strikes back, you might say.

Photos: BMW

Gallery

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