



is corrected in milliseconds. Or the entire thing can be switched off to play "Johnny Drifter," a game the M5 does very well. In truth, the new chassis is so well-balanced even moderately skilled drivers can toss it around without its electronic aids... to a point. But tapping into 560 hp is something that

demands respect. I did not mind a little "help." On a moderate slip setting, I found myself rocketing into a high-speed sweeper way too fast. It was an "oh shit" moment—your brain shifts to hyperdrive, computing run-off paths, damage control, airbag deployment, reputation wounds. A thousand little

things in a few seconds. And then something wonderful happened. The rear end caught itself and dug in. Rather than flying off the top of the berm, the M5 was actually winding itself through the turn. A bit more throttle and I was in a controlled powerslide. I owe a case of beer to the DTC and ESP program-

mers. The brake crew deserves a case as well. Despite its 4,123 pounds, the car's new six-pot fixed calipers appear capable of stopping a battle frigate.

The new M5 is ridiculously fast, the type of fast that finds triple digits quicker than it takes to read this sentence. Although we really liked the thrust of

sends back its response. All this happens within 10 milliseconds, so the car's reaction to a given situation appears seamless to the driver.

As with the differential, the Getrag-built DCT dual-clutch transmission is similar in design to the M3's DCT, but features considerably beefed up internals. This is no surprise as the M3's naturally aspirated 4.0-liter V8 produces 414 hp at 8300 rpm and 295 lb-ft of torque at 3900 rpm, while the M5's 4.4-liter twin-turbo

V8 makes a whopping 560 hp at 6000 rpm and 501 lb-ft of torque from 1,500. With so much more torque on tap, the ratios in the M5's seven-speed DCT gearbox have been made much taller. Where the M3's Seventh gear is a direct 1:1 ratio, that job is left to Fifth gear in the M5, with Sixth and Seventh being over-driven for better highway fuel economy. Another factor is the slightly larger rolling radius of the M5's tires compared to a stock 535i.

"The new gearbox has a 700Nm

torque capacity," Gehring explains. "It was a big challenge to strengthen the gearbox while trying to keep the weight roughly the same. It is, in effect, the M3 DCT unit with stronger components throughout."

The engine is a variation on the 4,395cc TwinPower Turbo V8 first seen in the X5 M and X6 M, but with direct injection and Valvetronic variable valve timing. The new engine also has a revised intake system, bespoke exhaust and larger turbochargers with around 10 percent more flow capacity. "Our target was improved efficiency as well as better economy and emissions," Jürgen Pöggel, head of engine development, says.

"The airbox and intake trumpets are larger, and the diameter of the pipes that bring ram air from the airbox to the turbos were enlarged from 70 to 80mm.

"Valvetronic produces better response. The Double VANOS variable camshaft timing helps low-end torque, but Valvetronic improves cylinder filling and combustion, delivering a smoother transition from low to high engine speeds.

"In the past, you either had swirl or tumble in the combustion chamber, depending on valve lift," he continues. "With Valvetronic, we can achieve both swirl and tumble at the same time, which gives us an efficiency gain of up to eight percent. In combination with Double VANOS, the gains are up to 12 percent."

With less backpressure from the new exhaust, direct injection, Valvetronic and larger intercoolers, the M engineers were able to achieve the same power output with lower boost pressure. "We use just 1.9 bar compared to 2.0 bar on the 555-hp X5/6 M version of this engine," says Jürgen.

The engine lubrication system is uprated, with a second oil pump in the front of the oil pan that sucks the life-giving fluid back to the sump when you are braking and cornering hard. "Initially we considered a dry-sump system," says Pöggel, "but there is no room in the engine bay for a separate oil tank. In any case, we were able to meet our targets with this dual-pump system, which works under 1.3 g of braking and lateral acceleration on a racetrack."

— Ian Kiah

