

/// FIRST DRIVE ///



chances are the M5 will do a better job, especially on the downshifts. The system seems to stay one step ahead of the car's next move. You're never wanting for a gear change.

The M5 can be programmed with its full array of electronic stability systems on high alert, meaning any misstep

## F10 M5 FROM THE INSIDE

**KNOWING THAT THE M5'S BITURBO V8 AND ITS ANCILLARIES WOULD ADD WEIGHT, THE ENGINEERS AT BMW M SOUGHT TO REDUCE WEIGHT WHEREVER THEY COULD IN OTHER AREAS.** According to Helmut Gehring, head of suspension engineering: "Lower weight was the main objective when we redesigned the suspension for the new M5."

If you look very closely at a front suspension strut, you will see the letters AlMgSiCu discretely stamped on its outer casing. Depending on various heat treatment regimes, this combination of Group 1 aluminum alloy comprised of aluminum, magnesium, silicon and copper is frequently used in the aircraft industry because of its low weight, high strength and good corrosion resistance.

The suspension arms and knuckles are made from forged

aluminum, making them lighter and stronger than the standard 5 Series equivalents. With so much more power and torque going through the rear axle, the rear floorpan and subframe had to be beefed up. When the engineers were done, the uprated M5 suspension weighed around the same as a standard suspension, which is what they set out to achieve.

The kinematics and elastokinematics are unique to the car, whose ride height is about 20mm (0.8 inch) lower than a 535i. The 52/48 front/rear weight distribution is close to the 50/50 ideal, but the 0.33 drag coefficient is very average these days.

The new M5 has a lot of systems that add weight just by being there. The Dynamic Damper Control, the Brembo front brakes that use 15.7-inch vented discs with pin-decoupled alloy hubs and six-pot calipers, and the 9x19 and 10x19 alloy wheels and tires, all add up. When all is said and

done, the new M5 tips the scales at just over 4,100 pounds.

The active limited-slip differential is similar in design to the M3's, but is significantly strengthened to handle the M5's power. It runs as an open diff when not under load, and has a locking range of 0 to 100 percent. Its casing is a combination

of a cast-iron top housing, required to absorb the huge forces involved, and a cast-alloy lower housing with integral cooling fins. A gasket compensates for the differential expansion of the two metals used in this hefty 100-pound unit.

The M Differential uses sensors to detect yaw moment, yaw angle, throttle position, differential speeds between the two rear wheels and road speed. The information is fed to the controlling ECU, which compares inputs against its 3D maps, and

