THOSE WHO WORSHIP THE BIMMER BIBLE SAW THE NEW V-8 M3 IN THE SCRIPTURES.

The V-8 block's bottom is reinforced by a stiff aluminum and iron bedplate that keeps the forged-steel crankshaft happy at its work. Under that, there's a dual-sump oil pan straddling the car's steering and structural components. An extra pump transfers lubricant from the front reservoir to the main storage sump at the rear, where the oil is sucked up to serve as the engine's lifeblood with no loss of pressure when the driver flings the M3 through the inevitable high-g maneuvers.

Cylinder heads embody Formula 1 practices, in no small part the result of BMW's team-ownership role in top-echelon motorsports. Two chain-driven hollow camshafts bear directly against the hydraulic bucket-type tappets that open four valves per cylinder. Computer-controlled drive mechanisms vary intake and exhaust event timing on cue to optimize smoothness, output, and combustion efficiency over the full operating range. Each pair of short, straight intake ports is fed by one fuel injector, one close-coupled servo-activated throttle, and a molded-plastic air trumpet.

The astute engine aficionado will notice a couple of minor technological lapses here. The first is the old-fashioned indirect (into the port, not the combustion chamber) fuel injection. While BMW has several four-, six-, and twelve-cylinder direct-injection engines, that technology has not yet graced the company's gasoline-powered eights and tens. Another venial crudity is the use of speed-density calculations for airflow, versus the more precise mass-measurement method. Calculating instead of measuring intake flow, however, avoids the restriction imposed by a mass-air meter in the induction system.

The M3's powertrain control computer will offer two control programs: normal and extra spicy. One innovation BMW developed for the V-10 and passed on to the new V-8 in second-generation form is ion-flow detonation-sensing technology. Fluctuation in the flow of charged particles across the spark-plug gaps at the onset of detonation causes variations in ignition coil current. When those variations are detected by the powertrain controller, it