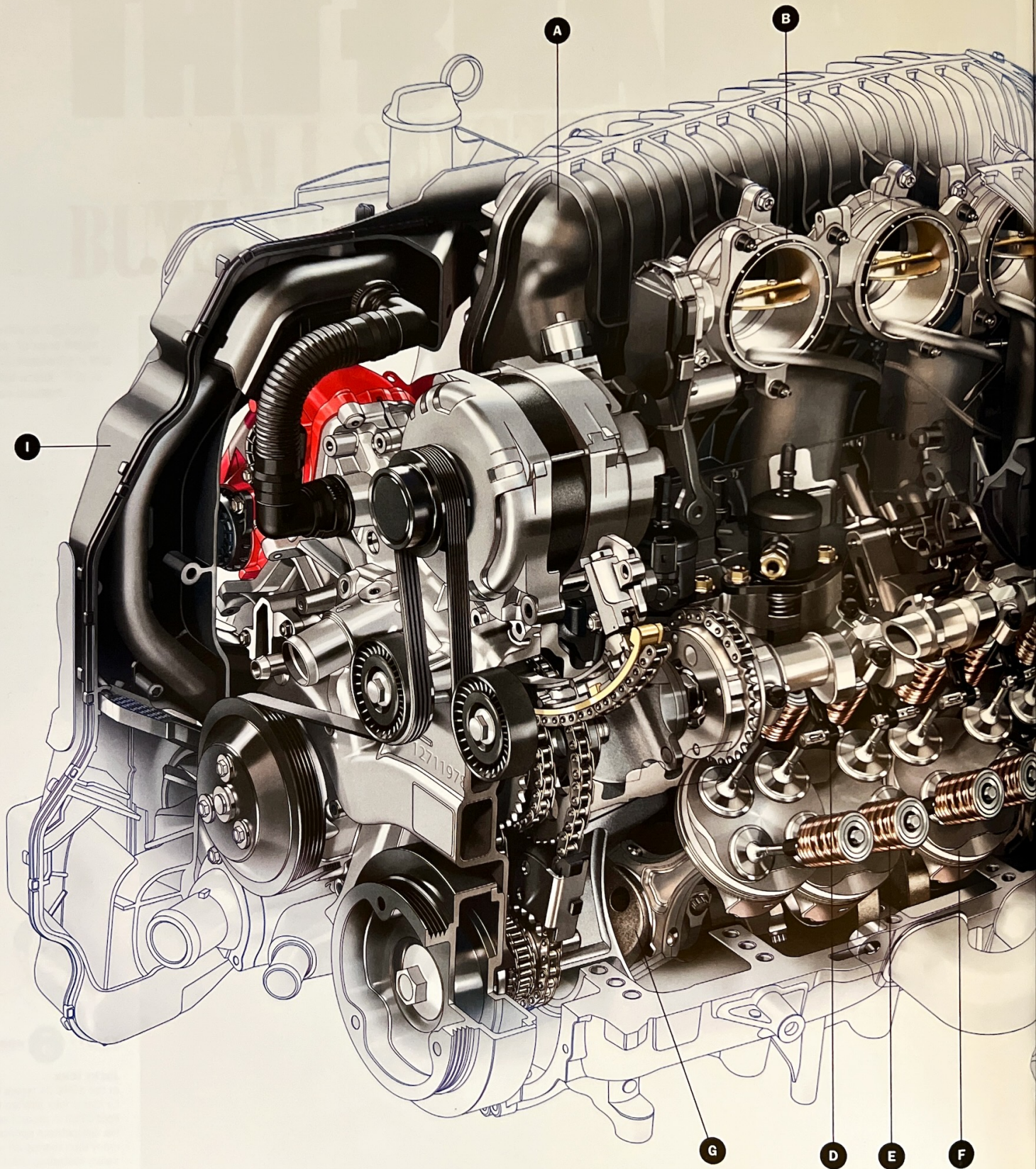


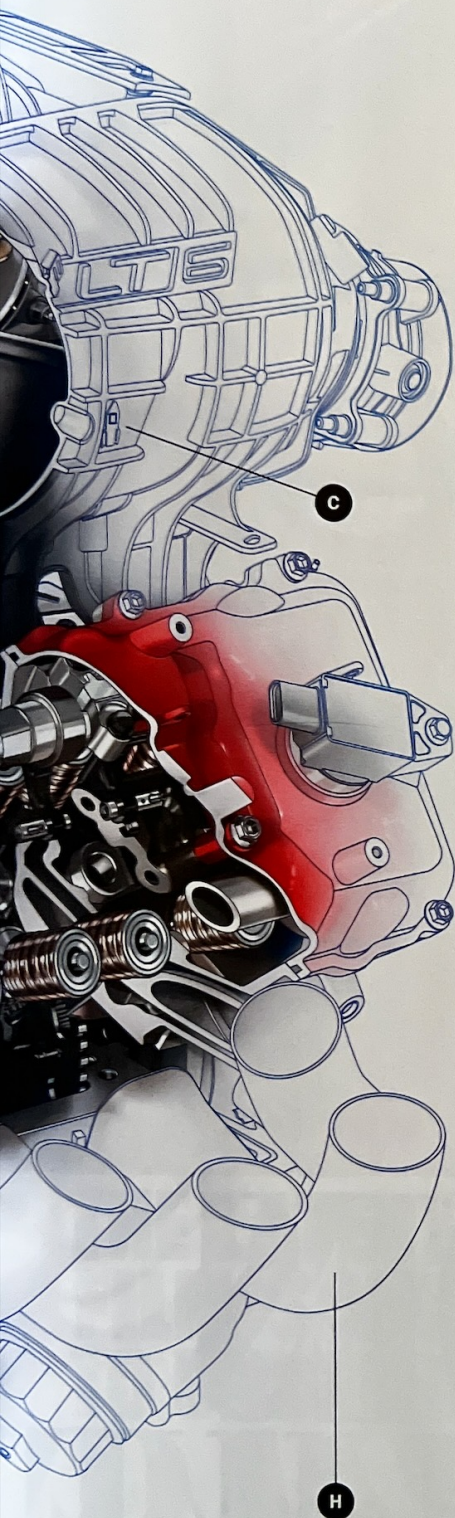
ROAD & TRACK





MR. NATURAL

IN A TURBOCHARGED WORLD, THE CORVETTE Z06'S NEW POWERHOUSE INHALES ONLY ATMOSPHERIC PRESSURE.



SOMEHOW THE CORVETTE has always been an underdog, despite being produced by one of the world's biggest automakers. The old cliché reads something like “blue-collar brawler asks the fancy Eur-oh-pee-uns to step outside.” Given that history of punching up, one imagines the Corvette team relishes its status. So it goes with the latest Vette, which, like many of its rivals, could have leaned on forced induction for power. Instead, General Motors did something extraordinary with the Z06.

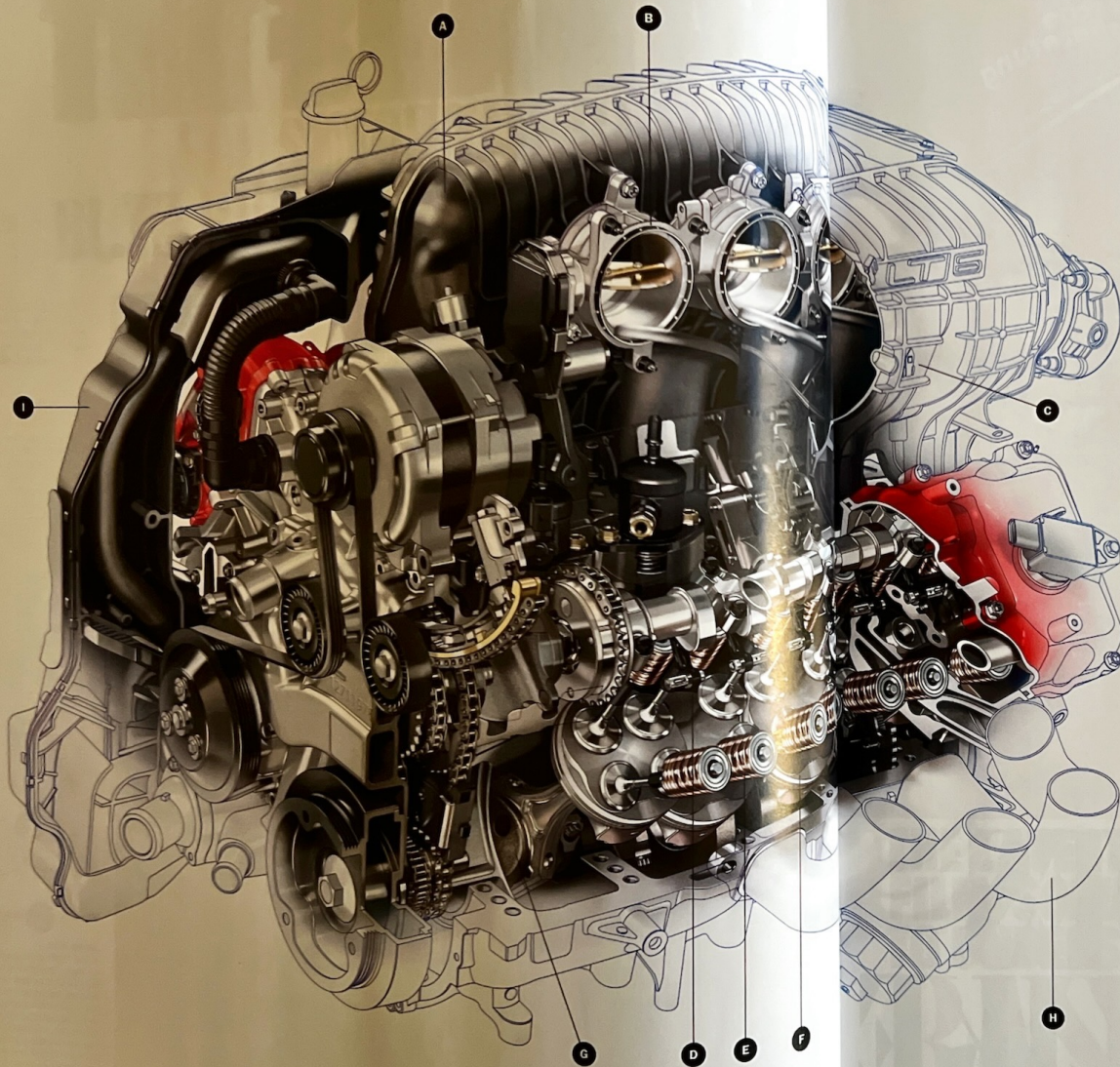
“A lot of people said, ‘Why can’t you do naturally aspirated?’ Well, nobody’s ever done a 650-horsepower naturally aspirated V-8. It’s considered impossible,” says Tadge Juechter, the Corvette’s chief engineer. “But there it is.”

“It” is the Corvette Z06’s LT6 engine, the most powerful naturally aspirated roadgoing V-8 ever. To create the LT6, the Corvette team broke with decades of pushrod tradition and built a flat-plane, 32-valve DOHC monster with 670 hp and an 8600-rpm redline.

“It’s a frenzy, the way it goes through the gears,” Juechter says. “It’s just crazy. You can’t feel it rolling off at all. It just charges into the redline. Then you’re up again, like on a sport bike.”

A version of this engine has powered the Corvette C8.R race car for two seasons now, so its existence was no secret, but no one expected these numbers. Juechter’s team calls the engine Gemini, evoking the big ol’ rockets that put us into space well before those fancy Eur-oh-pee-uns. (L)

- A.** The LT6 has 87-mm throttle bodies feeding into two intake plenums. Each cylinder has its own intake trumpet.
- B.** Three separately adjustable “tuning valves” effectively change the length of the intake path, allowing for low- and mid-range tractability and high-rpm breathability.
- C.** The team nicknamed this engine Gemini, because a flat-plane V-8 is essentially twin four-cylinders sharing a crank—and because it was a moonshot. Engineers incorporated rocket Easter eggs throughout the LT6.
- D.** For LT6 duty, Chevy replaced traditional bucket-and-shim tappets with finger followers. This rigid valvetrain requires no adjustment and allows for higher lift and shorter duration without valve float.
- E.** Dual-coil valve springs help improve flexibility. Intake valves are made from titanium. Exhaust valves are sodium-filled steel.
- F.** At 104.3 millimeters, the bore is unusually large for a flat-plane V-8. The pistons are made from forged aluminum, and the rods are lightweight forged titanium.
- G.** Unlike a cross-plane design, a flat-plane V-8 fires a cylinder once every 180 degrees of crank rotation. The result is more vibration but a lighter rotating assembly, allowing higher revs and making more horsepower.
- H.** Thanks to its unique firing order, this V-8 sounds more Ferrari than traditional Corvette, accentuated by a four-two-one header.
- I.** The dry-sump tank holds eight quarts of oil, staving off oil starvation.



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