

MOTOR TREND



First Drive: 2006 Chevrolet Corvette Z06

Red Roar: From Detroit to Germany and back: Flat-out in the fastest, baddest production Corvette in history

By Chris Walton

Photography by Gus Gregory

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Let's settle the barroom arguments right now. Here's what you need to know about the new Z06: It's raw. It's loud. It'll run 11-second quarters, pull almost 1.2 g through a turn, and, if you're brave enough, reach as near as dammit to 200 mph on the road. Oh, and here's the best bit: It'll cost you less than a Volkswagen. Okay, that's a \$70,000 Volkswagen Phaeton we're talking about, but the fact remains this new Z06 is the hottest supercar you can buy anywhere for the money. There, we said it. The King of the Hill is dead. Long live the King of the Hill.

Designed and developed alongside the Le Mans class-winning C6R racer, the Z06 shares much of its technology and construction techniques. In some cases, the Z06's use of exotic materials exceeds that of the race version. But for all that, it's Chevy's astounding old-school LS7 engine (Overhead cams? Four valve heads? Who needs 'em?) that really defines the Z06. A true 427.6-cubic-inch V-8 small block, it's the first engine in the world to be certified under the new SAE (J2723) standard. The official results returned 505-horsepower at 6300 rpm and 470 pound-feet of torque at 4800 rpm.

The first, and most lasting, impression of this ultimate Corvette comes the moment the

LS7 booms into life. A slight lifter "tick-tick" at idle erupts into big-block fury under hard acceleration, thanks to butterfly valves in two of the four exhaust tips that are there mostly for drive-by-noise regs, but, once open (from 3500-rpm up to the 7000-rpm redline), allow the engine to howl at full song.



You won't have heard anything like it since they stopped running production-car-based Trans-Am races in the 1970s. We bolted our own test equipment to a car at GM's Milford Proving Ground and found it had grunt enough to hurl this 3147-pound coupe to 60 mph in 3.5 seconds, and nail the standing quarter in 11.5 seconds at 127.1 mph. That 7000-rpm redline is almost superfluous, by the way, because the weapons-grade torque seam is so rich and flat that third gear is about all you need for most occasions. But it does mean the Z06 will hit 60 mph in first gear (albeit just past redline).

In a straight line, then, this Corvette is Ferrari-fast, turning numbers quicker than the \$192,000 F430 F1 we tested in Italy (MT, June 2005). But what happens when you throw some turns into the equation? A sledgehammer powertrain is one thing, but a supercar also needs finesse in the handling department. Which is why we've come to the Nürburgring--not the legendary, scary-fast 13-mile, 73-turn Nordschleife version, nicknamed the Grune-Holle (Green Hell) by generations of wide-eyed, white-knuckled racers, but the adjacent F1 circuit built over the remnants of the old Sudschleife in 1983.

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The Nürburgring F1 track is a good place to get to know the behavior of the Z06. Sight lines are more or less direct, there are few tricky bits or surprises, and the front straight is lengthy enough to stretch the car's long legs. Nail the gas, and the Z06 catapults onto an acceleration curve that pulls harder at 100 mph than does a Honda Accord at 50. Thundering past start/finish flat in fourth gear, we recorded 144 mph before braking for turn one. The revised Tremec T56 six-speed transmission's shift gates are now more distinct and the throws are shorter, but because the internals had to be strengthened to

handle the LS7's prodigious 470 pound-feet of torque, each shift feels like you're overcoming the inertia of 50 pounds of spinning metal. It requires the deliberate movements of an endurance racer, not the lightning jabs of a drag racer.

Slowing the Z06 are monster 14.0-inch vented and cross-drilled front discs, clamped by six-piston calipers (13.4-inch, four-piston rears) with individual pads in each pot for a total of 20 (count 'em) identical brake pads. Sounds complex, but using numerous small pads aids cooling and reduces the tendency of a long single pad to wear a greater amount at its leading edge. Ducts (under-chin for the front rotors, and on the side for the rears) are designed to keep everything cool. The system works: Multiple forays into triple-digit speeds around the Nürburgring F1 circuit never ended with the terror of a mushy pedal; you could confidently push the car deeper and deeper into each corner. The Z06's brakes have anti-lock modulation, but the feedback through the pedal is so concise, and the massive tires have so much grip, you have to be in an awful lot of trouble to need them on a dry surface.



Nürburgring's few low-speed corners probed the balance and lateral limits of the chassis. While understeer is theoretically possible, you'd have to purposely cook a corner and yank the wheel to find it. More often, g-loads high enough to separate platelets from whole blood (we recorded a peak 1.18g) give way to a gentle drift followed by throttle-induced oversteer--not the fast way out of a bend, true, but a helluva lot of fun. It's easy to find the give-and-take interplay between front and rear grip with the Z06's throttle because the car's balance is phenomenal--not necessarily due to its near 50/50 weight distribution, but the way the tires' grip is distributed and, once exceeded, released so gradually and predictably.

The most entertaining part of the Nürburgring F1 track is the high-speed kink called Hatzenbach Bogen. While F1 cars routinely see 180 mph and 2g-lateral loads, the Z06--without the aid of thousands of pounds of downforce--managed a respectable 120 mph

while delivering a 1.0-g force, sustained for a second and a half. It's that combination of unflappable grip and seemingly endless grunt the Z06 manages so well. Nothing seems too great a task, and only your instinct for self-preservation gets in the way of attempting the impossible.

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Which brings us to Spa-Francorchamps, or simply Spa, about which many racers have said, "It gets your attention and demands your respect." Yeah, no kidding: Draped over the undulating hills and through the forests that separate Germany from Belgium, Spa is very fast and constantly moving. There are blind crests, off-camber corners, double-apexes where the exit is concealed until it's too late to do anything about correcting your line, and perhaps the most famous corner in all of Formula 1: the soaring left-right-left kink known by the name of the stream you cross at its lowest point, Eau Rouge.

We never did get what we'd call a representative lap of what the Z06 could really do, though Belgian racer Didier Theys encouraged me to find a good line through Eau Rouge at about 115 mph, just fast enough to squeal the tires at the top of the hill while drifting to the outside of the turn. The car got light, but still dug its claws into the track like a scared cat clinging to drapery. There must've been some front-splitter downforce at work because it didn't behave like a standard C6. On the same lap, we whisked through the double-apex at Pouhon--inside curb, outside curb, and back to the inside curb--without moving the steering wheel one degree. On a subsequent and less successful lap, the Z06's tremendous grip allowed it to make mid-corner adjustments despite Pouhon's off-camber inclination.



On a racetrack, the tautly sprung Z06 is smooth and predictable. But on real-world roads, the ride is tolerable at best, skittish at worst. The stiff suspension sometimes skips like a stone over sharp pavement seams--first at the front, then at the rear--which can erode the confidence it exhibits at the track. The lack of sound-deadening materials fills the cabin with the whine of gnashing gears, road noise, and (mostly intake) engine roar. It feels a

lot like a race car made just street legal enough to get a license plate, a bit like a 21st-century Ferrari 250 GTO. And with a claimed top speed of 198 mph--though 191 mph is the number for now until further certification is completed--it's certainly fast enough.



Fewer than 10,000 Z06s will be produced in 2006, and a good chunk will be headed to Europe. Make no mistake, it's not a car for somebody who simply wants to drive the fastest Corvette ever to work. A standard C6 is far more livable, much quieter, and still able to scare the khakis off your neighbor in less than a city block. The 2006 Z06 is a specialized car for a specialized buyer: Somebody who can appreciate its more-than-tangential relationship to the C6R race car, a person to whom 6.2 pounds per horsepower means something more than a power-adjustable passenger seat. A Z06 buyer won't mind paying \$65,800 for the privilege of yelling to his passenger above 60 mph.

Naturally, the hard-core Corvette faithful will be lining up to buy the Z06. However, there just might be some Viper, F430, or 911 Turbo converts out there who could easily satisfy their performance hunger at a huge-percent discount. Ferrari performance at a Chevy price: That's what makes the Z06 such a standout.

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Anatomy Of An All-American Supercar

What makes the Z06 a supercar?

In simple terms, a big engine and low mass. But there's more to it than that. Let's start with the engine. The LS7 is an aluminum small-block with big-block holes: The giant 4.125-inch bores are so close together the pressed-in iron liners touch, leaving less than 0.02 inch of material that can be safely bored out. The four-inch stroke requires extra-short pistons that come out of the block far enough to require skirts on the liners that protrude below the block.

The forged-steel crank is held in place by six-bolt main bearing caps. The flattop pistons are connected to it by stiff titanium rods that weigh 30 percent less than those in the regular 6.0-liter LS2. Lubrication is by way of a race-style dry-sump circuit that holds eight quarts and uses two pumps: one to pressurize the oil and the other to suck it out of the sump and into an aluminum storage cylinder.



The cylinder heads look a lot like those from the C5R race car. The ports are computer-milled, and valves stand up at a 12-degree angle, three degrees more vertical than those in an LS2. The monstrous valve seats (56mm intake and 41mm exhaust) are siamesed; the intake valves are titanium and the exhaust valves sodium-filled.

Larger-diameter pushrods open the valves 15 mm, up from the 13.3 mm of the LS2. This enables the LS7 to ingest 100 cubic feet more air per minute.

The Z06 weighs about 50 pounds less than a base C6. The aluminum chassis is 136 pounds lighter than the regular C6's steel one, and removing comfort items such as electric seat adjustment and sound-deadening material, has cut a further 33 pounds. Cast magnesium structures are used to support the engine and the fixed roof (making it removable would've required 44 pounds of added structure). The floor is made of balsa wood sandwiched between carbon-fiber layers. These weight savings have been partially offset by things like bigger brakes, wheels, and tires, the dry-sump oiling system, and three-inch exhaust, which all weigh more than standard C6 parts.

Big engine, low mass: The bottom line?

A weight-to-power ratio that's genuine supercar stuff

	Weight (lb)	Power (hp)	(lb/hp)
Ferrari Enzo	3254	651	5.0
Porsche Carrera GT	3258	605	5.4
Corvette Z06	3147	505	6.2
Mercedes-Benz SLR	3858	617	6.3
Ford GT	3468	550	6.3
Ferrari F430	3200*	483	6.6
Dodge Viper	3410	500	6.8
<i>*Manufacturer spec</i>			

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2006 Chevrolet Corvette Z06	
Base price	\$65,800
Price as tested	\$65,800
Vehicle layout	Front engine, RWD, 2-pass, 2-door coupe
Engine	7.0 L/505 hp/470 lb-ft, OHV 3 valves/cyl V-8
Transmission	6-speed manual
Curb weight, F/R dist	3147 lb, 51/49%
Wheelbase	105.7 in
Length x Width x Height	175.6 x 75.9 x 49.0 in
0-60 mph	3.5 sec
Quarter Mile	11.5 sec @ 127.1 mph
Braking, 60-0 mph	104 ft
Lateral Acceleration	1.05 g avg
EPA City/Hwy Fuel Econ	19 / 28 mpg



