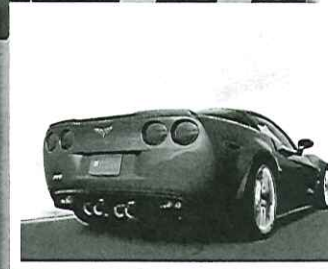
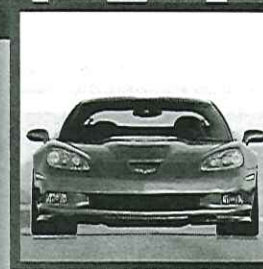


(first look) chevrolet corvette zr1

# the devil's sown



## *the devil's sown*

■ words frank markus ■ photographs richard prince

GM BUILDS  
A SUPER VETTE,  
AND TRASH-TALKS  
PORSCHE,  
FERRARI, AND  
LAMBORGHINI.  
CAN IT WALK  
THE TALK?

## (first look) chevrolet corvette zr1

**ASKED THE** question, "Why do a ZR1?" Corvette Vehicle Line executive Tom Wallace shoots back, "Because we can. We have the technology inside General Motors to do a car that can go up against any supercar from around the world," he continues, punctuating the thought with this threat: "I can't wait to take on any Porsche with

this car, and we're going to be right in there with the Ferrari [599s] and Lamborghini [Murciélagos]." Whoa, ease off the Red Bull, Tom. This is a just a souped-up C6 Corvette, right? Or did you slip a mid-engine V-12 in without the blogosphere noticing?

An hour with chief engineer Tadge Juechter reveals that this is indeed a Z06 upgraded

with the best tech in GM's arsenal. A ZR1 was never part of the original C6 plan, but, at an early program review, the Z06's proposed aluminum frame, carbon-fiber parts, and LS7 engine so impressed CEO Rick Wagoner that he reportedly wondered aloud, "Geez, if that's what you can do with \$80,000, I wonder what a \$100,000 Corvette would look like?"

With no more formal authorization than that, Juechter's posse launched a skunkworks effort dubbed "Blue Devil"—a nod to the boss's Duke alma mater.

They started with turbochargers for efficiency's sake, but switched to supercharging when Eaton unveiled its latest four-lobe Roots-type blower. This new unit

boasts thermal efficiency of nearly 76 percent (up from some 60 in the best three-lobe blowers)—near turbo efficiency with no lag.

To preserve forward visibility, the intercooler sends air from the top of the blower out sideways through separate cooling blocks for each bank. There was talk of allowing the blower to stick out through

## why zr1?

**"DECIDING ON** a name turned out to be one of the hardest parts of the project," Tom Wallace admits. ZL1 was considered, in recognition of the ultrarare 1969 aluminum big-block package (just two were sold). Z07 was postulated, but then, this car is more than "one better than a Z06," so that was rejected. Saint Zora himself said that "all Corvettes are Super Sports," so SS never got much traction. Blue Devil is fraught with meaning inside GM, not out—but it served as great inspiration for all the blue trim accents. Which left ZR1 as the most sensible choice. This is, after all, a spiritual successor to the C4 ZR1 of 1990. That car sold for the equivalent of \$91,000 2007 dollars and represented the state of the automaking art at General Motors in its day. So does this one.

Among the ZR1's many impressive aspects is that it wasn't developed by a nameless engineering squad numbering thousands. It was etched out by a small team of gung-ho gearheads who've worked on this thing 24/7 for the last few years. Gotta like that. We'll have to hold our horses a bit until that all-important first drive, which is several months off yet. It appears worth the wait, however, as the fastest, highest-tech, and perhaps the most unique.

## details, details



### CAR

- CARBON-FIBER FENDERS** feature horizontal "gills" inspired by 1963 Corvette
- CARBON-FIBER HOOD** gets L88-like hood bulge with 19x17-inch polycarbonate "window," revealing intercooler casting
- CARBON-FIBER CHIN SPOILER/SPLITTER** protrudes four inches (up from Z06's one), cuts front lift by a third relative to Z06's, directs air toward brakes via control-arm-mounted fins
- CARBON-FIBER ROCKERS** and rear-wheel-lip extensions keep air out from under the car, help reduced lift
- ROOF PANEL AND ROOF BOW** cover clear-coated carbon fiber. Roof panel saves 6.6 pounds, relative to Z06 panel
- REAR FASCIA** unchanged (no performance benefit to be derived), but wears ZR1 badge—only C6 with tail badging
- FULL-WIDTH REAR SPOILER** slightly taller at the outer edges to catch "cleaner air." Lift reductions at rear corners balance those at the front, so handling behavior doesn't change at higher speeds
- COLOR CHOICES:** Cyber Gray, Blade Silver, Jetstream Blue, Black, Victory Red, Velocity Yellow, and Atomic Orange (no Crystal Red or Arctic White)
- BASE CORVETTE'S** optional handsewn Draexmaier leather interior and navigation system may be standard on ZR1
- INTERIOR** gets boost gauge and ZR1 logos on the tach and headrests

### DRIVELINE

- TREMEC TR6060** architecture gets close-ratio gearset. Overall gearing 16 percent taller than base/Z06 in first (top speed 64 mph), but 26 percent shorter in sixth (good for 200-plus-mph)
- GEAR AND SHAFT** materials strengthened to withstand additional torque
- 260MM ZF-SACHS TWIN-PLATE CLUTCH** supplants Z06's 290mm single-plate unit, reducing inertia for better shift feel. Lower required clamping force reduces clutch-pedal effort
- SPIDER GEAR HOUSING** milled from steel billet to withstand enormous torque
- SAND-CAST DIFFERENTIAL CASE** strengthened

### CHASSIS

- SHARES Z06** aluminum chassis, fixed magnesium roof structure, etc
- NEW VARIABLE-RATIO STEERING** slows responsiveness at high speeds
- BRAKE MASTER CYLINDER**, booster, ABS pump, and controller sourced from Bosch (former supplier was Delphi)
- WHEELS** upsized an inch to 10.0 x 19 front, 12.0 x 20 rear and spun-cast by Speedline in Italy; 20-spoke design supports entire rim. Available painted or chromed
- CUSTOM-TAILORED** Michelin Pilot Sport 2 run-flat tires sized 285/30R19 front, 335/25R20 rear designed for daily-driver duty, unlike fast-wearing Pilot Sport Cup tires
- MAGNETO-RHEOLOGICAL SHOCKS** provide zero jounce and 100-percent rebound stiffness when dragstrip launch detected; induces heavy squat, minimal wheelhop
- MR SHOCKS** allow spring rates to be softened slightly
- ANTI-ROLL BARS** stiffened
- CARBON-CERAMIC FRONT BRAKE ROTORS** designed for Ferrari FXR track car (ground down from 15.75 to 15.5-inch diameter for wheel clearance)
- CARBON-CERAMIC 15.0-INCH REAR ROTOR** designed for Ferrari Enzo front axle
- SIX-PISTON BREMBO CALIPERS** in front
- FOUR-PISTON BREMBO CALIPERS** in back



## (first look) chevrolet corvette zr1

### HOW RICK WAGONER ASKED THE RIGHT QUESTION



BOBBY FAJAN

#### Q. WAS THE ZR1 YOUR IDEA?

A. I was part of a group, but the question came up: "There's been so much enthusiasm for the Z06, is this the most we could do?" I think it got the Corvette team thinking of the so-called super-Corvette. So if I have been given any credit, it would be more of that sort of observation: It's such a great brand, is there anything more we can do with it? Actually, to give credit where it's due, this conversation may have arisen with one of our board members.

#### Q. SO WERE YOU THE GUY WHO RAISED HIS HAND?

A. Success has many fathers. But I did ask the question. It's not the kind of thing where everybody went: "Oh, no, we don't want to do that." It was kind of like putting gasoline on a fire.

#### Q. BUT IT'S ALSO SOMETHING YOU WOULDN'T HAVE DONE 10 YEARS EARLIER.

A. The momentum around the product has got everybody thinking about it more. So it's created an environment. But what the Corvette team has done so well is they've brought out different variations of the car in a successful way. Successful in that first they built the brand; second, they appealed to the lovers of the car; third, it's been a financially attractive strategy. I like all three of those.



a shaker hood, but water intrusion issues drove the clear polycarbonate window dome.

The engine is based on a modified LS3 6.2-liter block (the LST's cylinder walls are too thin to withstand boost) and is expected to produce 100 horsepower/liter. Because tweaks are still being made to the cooling system, final testing won't happen for months. (SAE procedures require a 0-to-60 test be run in a car with instruments measuring intake air temperatures at 60 mph so that air can be supplied at precisely the same temperature during the dyno test.) Expect 620-plus horses and around 600 pound feet.

Because blowers add weight, extensive lightening efforts were concentrated in front. The fenders, hood inner and outer panels, roof panel, and C-pillar roof bar are carbon fiber, the tooling for which caps production at 2000 per year. The fibers are visible on the roof and hood inner, and to prevent ultraviolet light from degrading them a special additive costing over \$60,000/gallon (!) is added at three-percent concentration in the thin clear-coat layer (\$2000/gallon). In all, the new car is expected to weigh about

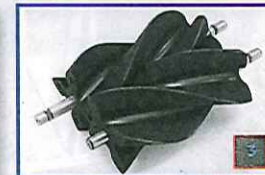
200 pounds more than a Z06 and to nudge the weight bias forward slightly to 52/48 front/rear.

Major developments in the chassis department include Brembo calipers grabbing gigantic carbon-ceramic rotors designed for Ferrari's Enzo and FXX. (At an expected price of near \$100,000, the ZR1 will be the least expensive car with standard CCM brakes.) We're assured the brakes work perfectly well when cold, and they don't squeal. Delphi reengineered its magneto-rheological shocks to withstand the extreme temperatures encountered in track duty, allowing the ZR1 to ride like a base coupe and outhandle the Z51 and Z06.

Will it all work? The ZR1 is undergoing GM's full battery of passenger-car durability tests as well as its motorsport torture regimen (250 miles of autocrossing and a 24-hour endurance race), so it should hold up fine. The hardware and numbers sound impressive and we're rooting for the home team, but can a car with a front weight bias really smoke a GT3 or F430 Scuderia around the 'Ring? And if it does, will the well-heeled queue up to buy one? ■



## details, details



### ENGINE

1. EATON TVS R2300 BLOWER (Twin Vortices Series, 2.3 liters per supercharger revolution) spins at 2.3 times engine speed, produces 10.5 psi of boost with less whine
2. INTERCOOLER'S one-gallon cooling circuit lowers charge temperature by 108 degrees F
3. FOUR-LOBE blower ups thermal efficiency by 27 percent
4. BASIC 6.2-LITER LS3 BLOCK reinforced primarily in the second and fourth bulkhead areas, improving its safety factor by 20 percent
5. 12MM CYLINDER-HEAD BOLTS, up from 11mm
6. CYLINDER-HEAD material upgraded to A356-T6 aluminum-silicon alloy for heat resistance; mold rotated during casting to reduce porosity

7. 55MM TITANIUM INTAKE VALVES; 44.4mm hollow sodium-filled exhaust valves
8. 9:1:1-COMPRESSION PISTONS afford no valve clearance
9. CRANKSHAFT is forged of micro-alloy steel 44MnSiVS6
10. FLYWHEEL attaches with nine bolts, up from Z06's six
11. SPECIAL dual-pressure fuel module delivers fuel at 87 psi under high load (max flow rate is 1.2 gal/min), 36 psi at idle and low load
12. SUPERCHARGER shares 11-rib serpentine belt with power steering and water pumps
13. DRY-SUMP OILING SYSTEM includes second auxiliary tank to feed the oil pickup during peak (1.6 g) cornering; total capacity: 10.75 quarts