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SPECIAL REPORT
HISTORY OF THE ZL1—WHY FRED GIBB BLEW HIS STACK!

INSIDE GM'S SECRET SKUNKWORKS!

PROJECT X UNDER THE KNIFE THEY'RE CHOPPING UP OUR '57 —WHY WE'RE NOT WORRIED!



THE ZL1 RETURNS!
CHEVY'S NOTORIOUS ALL-ALUMINUM 427 BIG-BLOCK IS BACK!

SPECS • DYNO TEST • HOW TO GET ONE (HINT: DON'T WAIT)

PLUS

STREET RACING WITHOUT THE JAIL TIME
WHERE TO PUT THE HAMMER DOWN (IT HELPS TO LIVE IN OHIO)

EDELBROCK DOES SUPERCHARGERS!
NEW BOOSTED CRATE MOTOR—OR BUY THE BLOWER KIT

THE BLOCK THAT ROCKED

The ZL1 aluminum big-block remains a Bow Tie legend.

By Paul Zazarine

Photography by the author and GM Media Services

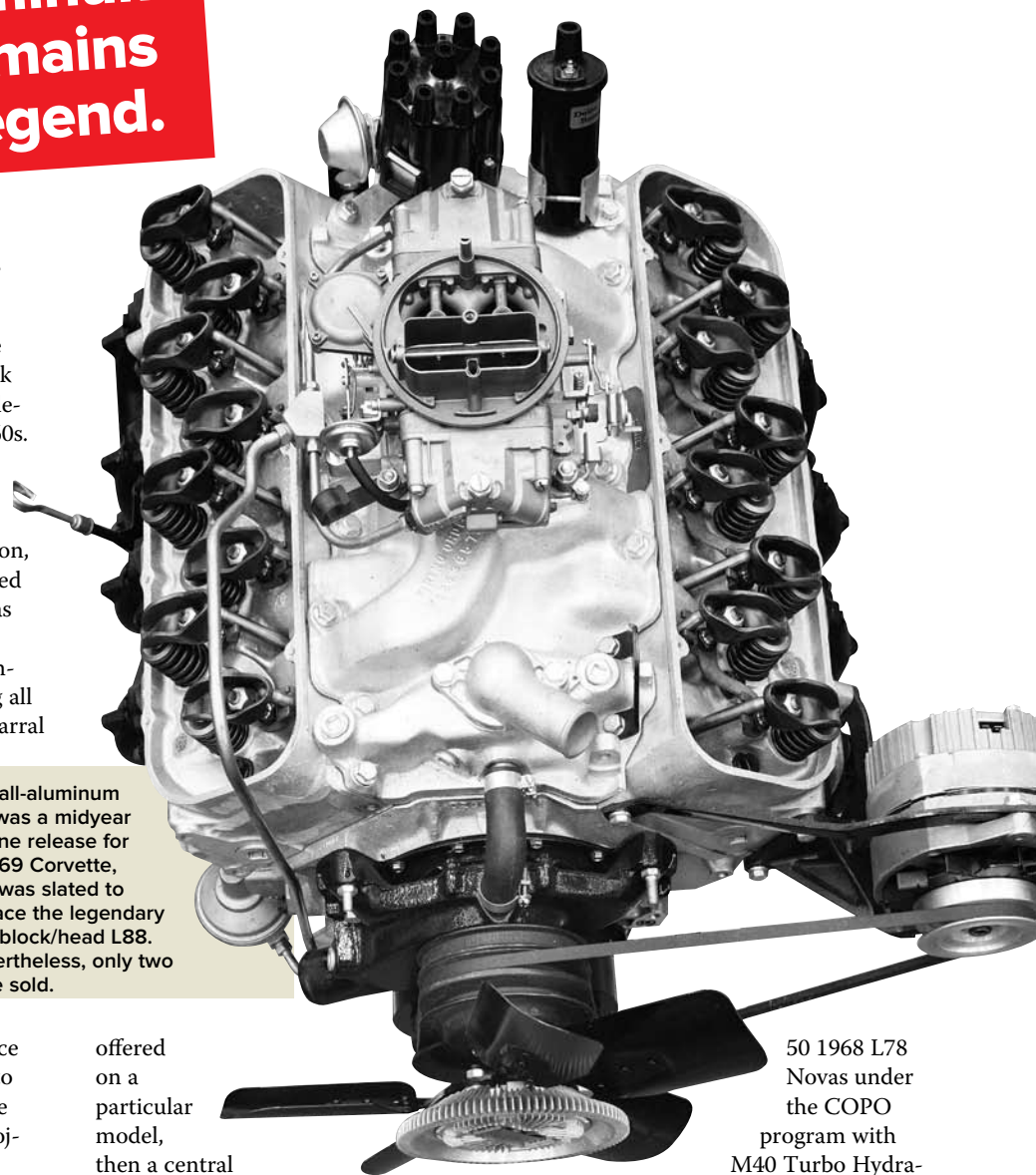
Chevrolet's history is replete with the names of big-block engines that ruled the boulevards and the drag strips in the 1960s. All of them started with the letter "L," and were issued names like L78, L88, and L89. The most brutal of all was a limited-production, exotic powerplant that was produced for all-out drag racing. Its name was the ZL1.

The ZL1 was first born into competition when Jim Hall began using all aluminum 427 engines in his Chaparral Can-Am race cars. The phenomenal success of these road course engines caught the attention of Fred Gibb, a Chevrolet dealer in Kansas City, Missouri, and Dick Harrell, a talented Chevrolet drag racer who had hooked up with Gibb to build drag and street performance cars. They had already found how to make a lot of horsepower out of the Z/28, and were looking for new projects.

Chevrolet's central office had established a program permitting a dealer to place an order for a vehicle that was equipped with options not normally installed. In essence, if a certain mix of regular production options weren't

offered on a particular model, then a central office production order (COPO) was submitted. If engineering approved the new mix of equipment, then a COPO number was issued, and the order for production was placed. In 1968, Gibb ordered

The all-aluminum ZL1 was a midyear engine release for the '69 Corvette, and was slated to replace the legendary iron-block/head L88. Nevertheless, only two were sold.



50 1968 L78 Novas under the COPO program with M40 Turbo Hydra-Matic automatic transmissions in place of the usual four-speed gearbox. It was the first time Chevrolet had ever placed an automatic transmission behind a solid-lifter engine. By building 50 of these, the Nova was qualified to race with an automatic, which Gibb and Harrell knew was badly needed, and could be more than competitive.

They chose to apply this same strategy to the 1969 Camaro. They were aware Chevrolet Engineering was planning to release what was basi-

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cally an all-aluminum version of the 427-cid L88, however it would have open-chamber heads. The engine was designated ZL1, and had been planned for the Corvette.

To ensure reliability, the aluminum block received cast-iron sleeves, which were retained with a 1/16-inch groove at the top of the block. The main bearing bulkheads were beefed, and many of the bolt and stud threads throughout the engine were lengthened for greater strength. The forged steel rods were thicker in the caps and the shank base, with bigger 7/16-inch rod bolts. Along with the open-chamber design, the heads received bigger exhaust ports than the L88, they were round instead of square, and they boasted bigger 1.88-inch valves. That resulted in exhaust valve lift being increased to .600 inch, and the duration shortened to 359 degrees. The ZL1 was the first Chevrolet production use of the 850-cfm double-pumper Holley carburetor on an open-plenum, high-rise intake manifold. Chevrolet rated the ZL1 at 430 hp at 5,200 rpm, and 450 lb-ft at 4,400 rpm; however, dyno tests of factory ZL1s revealed its output was more in the 550hp range.

Chevrolet Engineering's Vince Piggins, Gibb, and Harrell developed the COPO package that would place the ZL1 in a Camaro to qualify it for the 1969 NHRA season. They knew the 150-lb weight savings of the ZL1 would make the Camaro competitive against the Hemi. Designated COPO 9560, the package started with an L78 Camaro replaced by the 427-cid ZL1 with cast-iron exhaust manifolds, 14x7-inch



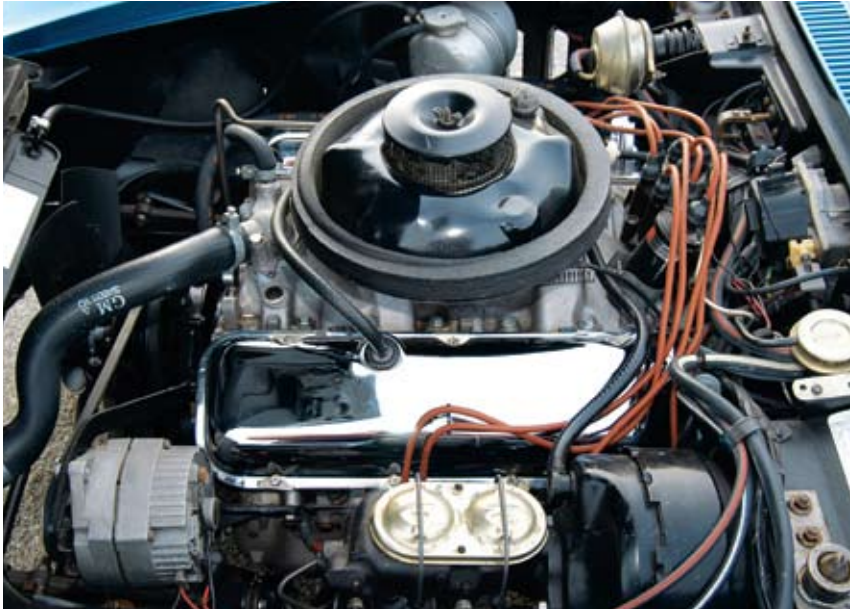
Here's a 1969 427 ZL1. The valvetrain featured 1.70 rockers and specific inner and outer valvesprings for the ZL1. The dual-plane aluminum intake manifold was topped by an 850-cfm Holley four-barrel double pumper with mechanical secondaries.



At roughly 500 lbs, the ZL1 was significantly lighter than the L88, weighing about the same as the L46 small-block. The Camaro ZL1 used a single snorkel air cleaner with an open element and gasket that snugged up to the underside of the ZL2 cowl induction hood.

"... When the invoices showed up in the mail, Gibb was apoplectic ... Instead of absorbing the costs for the research and engineering that went into a COPO order, Chevrolet was now passing those costs onto the dealer."

THE BLOCK THAT ROCKED



In the Corvette, the ZL1 featured a unique air cleaner assembly, with a flat base that fit over the carburetor. It sealed the smaller, round air cleaner up under the open cowl induction hood and fed cold air directly into the engine.



Chevrolet sold 690 of the COPO 9560 ZL1 1969 Camaros. They are acknowledged to be some of the fastest musclecars to ever roam the streets.

wheels, and F41 heavy-duty suspension that included heavy-duty springs with five-leaf rears. The ZL-2 cold air cowl induction hood was included, along with a heavy-duty radiator, transistorized ignition, power front disc brakes, radio delete, and F70x14 white lettered tires. The M40 automatic or the M20, M21, or M22 manual transmission with a special 15-lb nodular flywheel was offered. (The M22 was later deleted.)


The 4.10:1 rear axle with heat-treated ring-and-pinion and posi-traction limited slip was the only rear available.

Each of the 50 cars received a black vinyl interior and was offered in only five colors: Cortez Silver, Fathom Green, Dusk Blue, LeMans Blue, and Hugger Orange. Ten cars were built in each color, and those ten were split between four equipped with M40s, and six with M21 transmissions. The exte-

rior trim was limited to blue Bow Tie emblems on the grille and rear panel, and Camaro badges on the header panel, fenders, and deck lid. The grilles were Argent Silver. And while iron big-blocks were always painted Orange, the ZL1 was left *au natural* aluminum.

The first COPO 9560s were assembled the third week of December. Two Dusk Blue ZL1 Camaros were delivered to Gibb's dealership on New Year's Eve 1968. The rest of the 50-car order began arriving between February and the end of March, and when the invoices showed up in the mail, Gibb was apoplectic. Chevrolet hadn't informed Gibb that, beginning with his COPO order, a new corporate policy was in effect. Instead of absorbing the costs for the research and engineering that went into a COPO order, Chevrolet was now passing those costs on to the dealer. That meant instead of the \$400 option cost for the ZL1 that Gibb had been expecting, he was hit with a whopping \$4,160 addition to the Camaro's base price, resulting in a sticker of over \$7,200. Few dealers could finance that kind of floor plan or sell 50 Camaros that cost more than a \$4,700 Corvette (two ZL1-equipped Corvettes were built, with a sticker price of more than \$9,400).

Gibb felt Chevrolet had ambushed him on the price of the ZL1, and he was able to negotiate a deal to send 37 of the COPO 9560 Camaros back to Chevrolet in late May 1969. It was the first time Chevrolet had even allowed a volume dealer return, however they had no choice since there was no way Gibb could afford to finance the cars or sell them at that extreme price. Chevrolet was able to reinvoice and redistribute the 37 cars into the dealer network, and other dealers ordered 19 additional COPO 9560 Camaros. In total, 69 ZL1 Camaros were built in 1969.

To get an idea of just how fast the ZL1 Camaro was, a stock version was capable of turning 13.16 at 110 mph, while an unmodified Hemi 'Cuda clicked off a 14.25 at 101.0 in *Car Craft* magazine. *Popular Hot Rodding* tested Harrell's race-prepared ZL1 with the M40 in the July 1969 issue, and recorded an 11.78 at 122.5 mph. Harrell took this car, carrying Gibb's dealer name on the doors, to an AHRA world record and was the 1969 AHRA World Points Champion. The 

“Popular Hot Rodding tested Harrell’s race-prepared ZL1 with the M40 in the July 1969 issue, and recorded an 11.78 at 122.5 mph.”