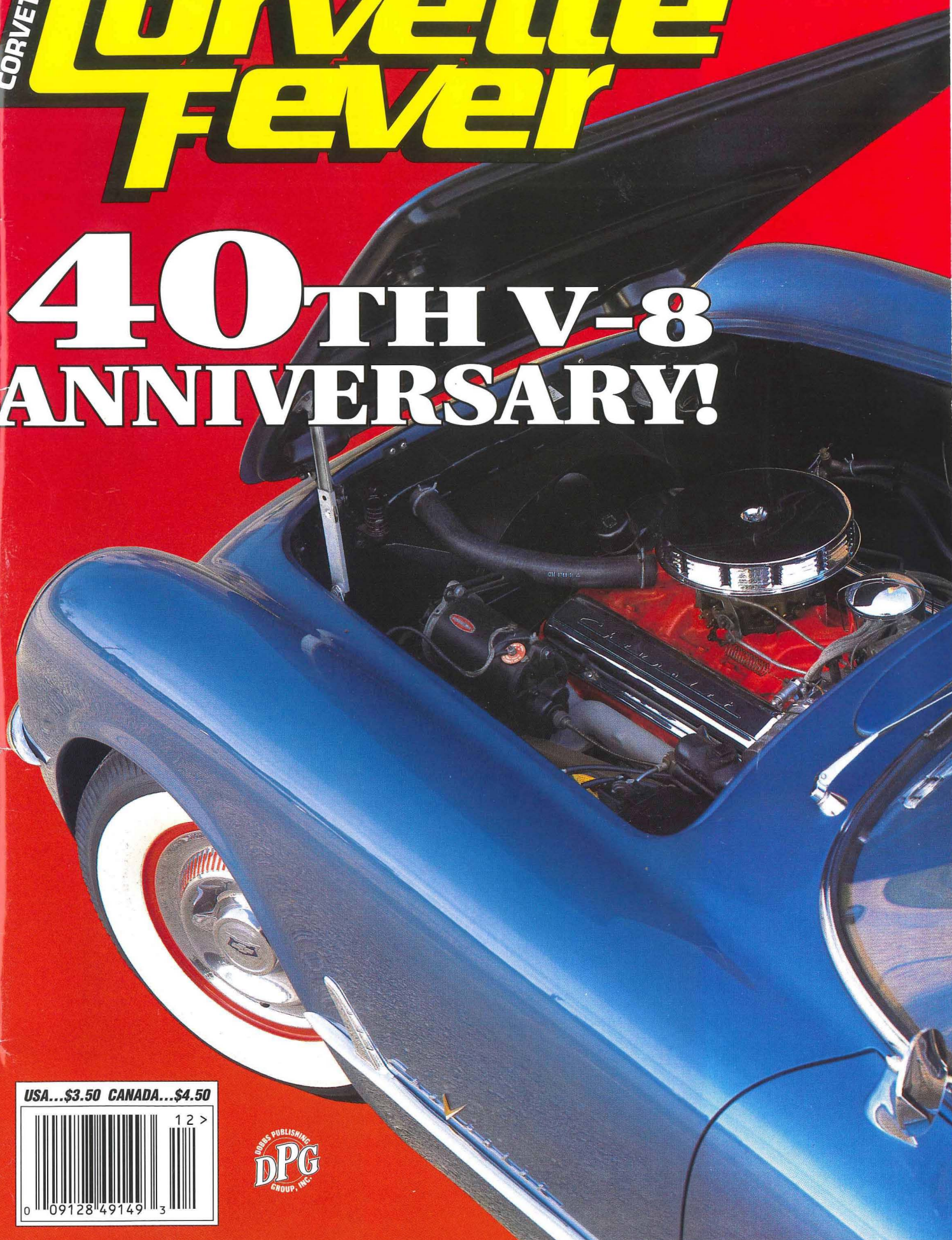




CORVETTE **Corvette Fever**

40TH V-8 ANNIVERSARY!



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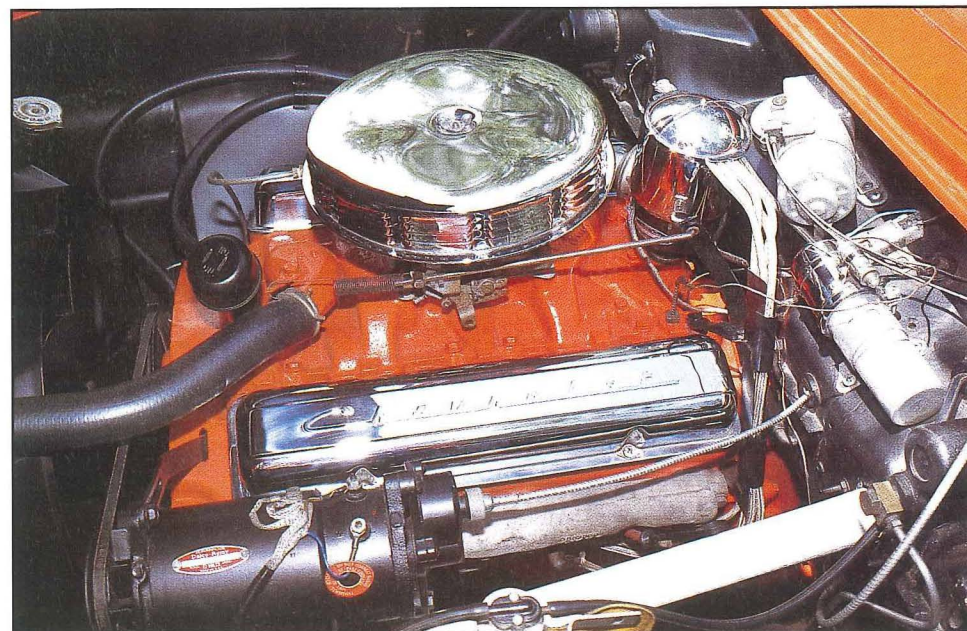


Fabulous At Forty

Corvette celebrates four decades of small-block supremacy

text by Thomas Glatch

photography by Thomas Glatch and Paul Zazarine



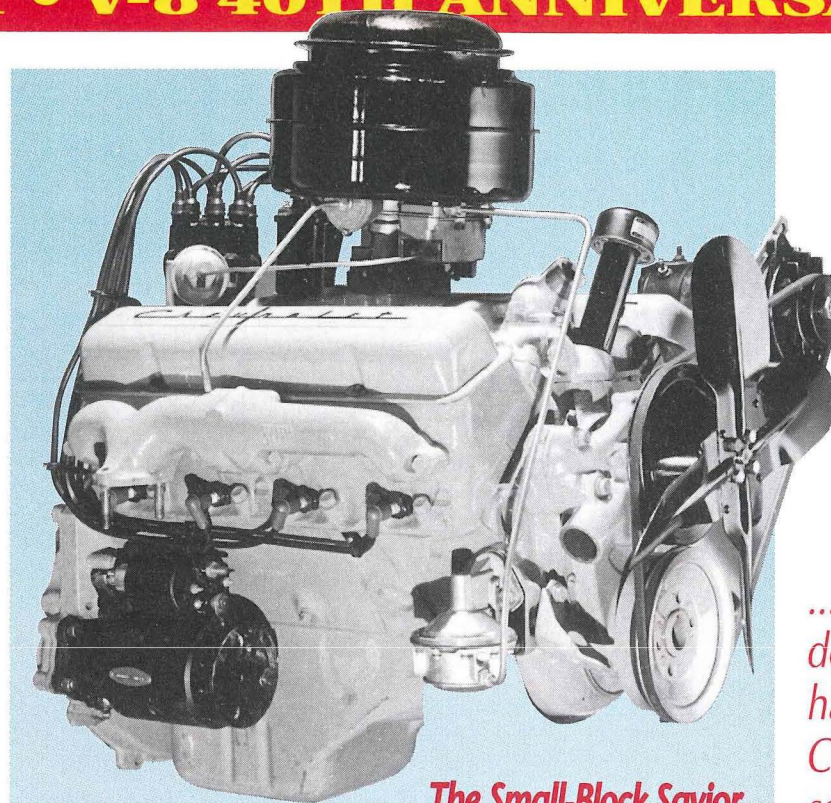
When it was introduced, they called it "the Hot One." But who would have thought that forty years later Chevrolet's small-block V-8 would be hotter than ever.

Look at all that has happened since 1955: the Arab oil embargoes, the Clean Air Act, the Corporate Automobile Fuel Economy standards. Yet consider that no automotive engine, with the possible exception of the Volkswagen air-cooled flat-four, has enjoyed a longer life in the marketplace. But while the VW engine is still built for only a few third-world markets, the Chevy small-block is on the cutting edge of automotive technology and powers some of the most exciting cars in the world. The people that created the Chevy V-8 in 1955 knew they had a winner, but for forty years? Incredible!

V-8 engines were standard fare in model year 1955 when the 265 cubic-inch small-block was launched. Ford brought the V-8 from the ultra-luxury market to the common man in 1932 with its 85-horsepower "flathead" engine. Cadillac and Oldsmobile gave the world the first modern overhead-valve V-8s in 1949. Chrysler introduced

its first-generation Hemi in 1951, and Lincoln, Mercury, Studebaker, Packard, Ford, Dodge and Plymouth followed suit with OHV V-8s of their own. When Pontiac and Chevrolet brought their V-8s to the game they were late indeed. Why the delay? In the General Motors' scheme of things, Cadillac was usually the technology leader, with mid-priced Oldsmobile and Buick receiving those innovations a year or two later. Bread-and-butter Pontiac and Chevy often had to wait years to benefit from GM's advances. And so it was with the V-8 engine. But while the delay may have cost Chevrolet sales in the showroom, it allowed them to utilize all of the technology the others already developed, and then some.

Chevrolet engineers were already developing a 231 cid V-8 in 1952 when Edward N. Cole and Harry F. Barr joined the firm. Cole was a plant manager for Cadillac when he was assigned as Chief Engineer at Chevrolet. Cole brought Barr with him from Cadillac to be his assistant. Their years of experience working on the Cadillac V-8 would prove invaluable at Chevrolet.



The Small-Block Savior

"The Hot One" turned the 1955 Chevy into a screamer both on and off the race-track. But what did installing the greatest V-8 ever do for the Corvette?

Building the V-8 Corvette was easy. The small-block was more compact than the original Blue Flame 6 and was installed with little modification to the original car. Both sixes and eights were built in 1955, and not surprisingly, the vast majority were powered by the 265.

Adding the small-block did wonders for the Corvette. The new engine actually weighed 41 pounds less than the six-cylinder, improving handling. It added 45 more horsepower, too, something the first Corvette was certainly short on. *Road & Track* magazine compared the '55 with a '54 and remarked: "Quite naturally the more powerful V-8 gives vastly improved performance, as the following comparison table will show.

Speed	1954 Six	1955 V-8
Top speed (best)	107.1 mph	119.1 mph
0-30 mph	3.7 sec	3.2 sec
0-60 mph	11.0 sec	8.7 sec
0-80 mph	19.5 sec	14.4 sec
0-100 mph	40.0 sec	24.7 sec
Quarter Mile (avg.)	18.0 sec	16.5 sec

Despite the improvement in performance, economy has not been sacrificed. On the contrary, the new low-friction engine yielded 2 to 3 miles more per gallon than last year's test of the 150-horse 6 gave."

So why were so few of these fine sports cars built? The same problems that made the six-cylinder Corvettes so unpopular also hurt the '55 V-8s. The complex ragtop, the lack of roll-up side windows and outside door handles, the two-speed Powerglide transmission and the marginal suspension and brakes for spirited driving all made the car less than desirable. *R&T* summed it up: "The amazing thing about the Corvette is that it comes so close to being a really interesting, worthwhile and genuine sports car — yet misses the mark almost entirely."

That all started to change late in '55, when a three-speed manual transmission became available. Roll-up windows, exterior door handles and a real folding top came in 1956, as did better performance. A fully-refined suspension and brake system and the famed addition of the optional 283-horsepower fuel-injected V-8 brought the 1957 Corvette world-wide respect and more than enough sales to keep away the corporate grim reaper.

Knowing that 1955 was their target for introducing the Chevrolet V-8, Cole and Barr made a dramatic shift in direction. They threw out the 231 en-

gine that Ed Kelly had begun and started from scratch. In a paper written for the Society of Automotive Engineers, Russell F. Sanders, Chevrolet's

...while the delay may have cost Chevrolet sales in the showroom, it allowed them to utilize all of the technology the others already developed, and then some.



About Our '55s

The 1955 roadsters pictured here are both award-winning, eye-popping examples of the first V-8 Corvettes.

The Pennant Blue roadster is owned by Walt Cunny of Sycamore, Illinois, and shares room in his extensive automotive collection with cars like Packards, Duesenbergs and Auburns as well as a few mid-year Corvettes and other musclecars. The '55 is Bloomington Gold Certified and one look proves that it is a pristine member of an elite group of originals.

The other '55, a Gypsy Red roadster, is from the *Corvette Fever* archives, having been photographed as a feature car in 1989. The celebrated convertible is the past winner of a Bloomington Gold Certificate, two NCRS Top Flights, and an NCRS Duntov Award. When photographed, the car was owned by Charles Amos of St. Petersburg, Florida, but the car was subsequently sold through a broker and its whereabouts today are unknown.

'The Hot One' History

Displacement	Years Offered	Bore	Stroke	Highlights
265 cid	1955-1956	3.75 in.	3.00 in.	1956 RPO 469 240-hp (SAE gross)
283 cid	1957-1961	3.87 in.	3.00 in.	1962 RPO 354 FI 315-hp (gross)
327 cid	1962-1968	4.00 in.	3.25 in.	1965 L-84 FI 375-hp (gross)
350 cid	1969-1991	4.00 in.	3.48 in.	1970 LT-1 370-hp (SAE gross)
				1991 L98 250-hp (SAE net)
350 cid Gen II	1992-Present	4.00 in.	3.48 in.	1995 LT1 305-hp (net)

Further Reading

Chevrolet Small-Block V-8
by Anthony Young
Motorbooks International, 1992

head of chassis design, explained: "In our research over a period of years we have investigated many types of V-8 engines. During the early stages, we developed an engine with 231 cubic inches of displacement, but with changing conditions, a greater displacement was considered desirable. At one of our group meetings we sketched some basic outlines to indicate what we wanted in height, displacement, length and so forth. We began thinking about a 245 cubic-inch engine, but when we got further into this study we found we could just as well go to about 260 or 265 with no penalty of extra weight, knowing

that ample displacement is fundamentally the most economical way to ensure high torque and resultant good performance economy." Then the order came down from Ed Cole: Make it as small and as light as possible.

Chevrolet's powertrain engineers began to pare away at the design on the drawing board — a few inches here, a few pounds there. For example, they discovered there was no need to extend the block much past the centerline of the main bearings; the caps would be strong enough without additional support. Harry Barr and crew decided to cast the valley cover into the intake manifold, eliminating one more component. The cylinder heads, too, were chipped away until a lightweight, free-flowing design remained. Complex assemblies like the rocker arms were replaced with simple stamped steel arms mounted on a common shaft. On and on the designers went until an engine evolved that was 41 pounds lighter than the 6-cylinder of the time, yet produced 45 more horsepower. Today's engineers might call this discipline "DFM/DFA" — Design for Manufacturing/Design for Assembly — but

back in those less-competitive times it was just Ed Cole's passion for doing things lighter, stronger, cheaper, better. Louis Cuttitta, a carburetion technician in the engine lab at the time, related to writer Anthony Young: "When Ed Cole walked down the hall, the dyno operators, technicians and engineers would clap. That's what you call respect."

But perhaps the greatest innovations that made the small-block what it is took place not in the quiet of the drafting room or the development lab, but in the hellish environment of the foundry. It was here that Chevrolet revolutionized the industry with some of the first "thin-wall" casting techniques. Russell Sanders wrote in his SAE paper: "Fewer cores mean that our section thicknesses can be controlled much more accurately, and we have less sand to handle. The end result is a precision casting which is lighter, as well as lower in cost." It took only 12 sand cores to cast a Chevy block, compared to over 20 at other manufacturers. That same precision allowed designers to make the cylinder heads smaller than anyone thought possible.

As soon as the new Chevrolets began hitting the showrooms in late 1954, the word began to spread. "New Look! New Life! New Everything!" the ads shouted. "Chevrolet's got it! Enough high-powered punch to run the pants off the competition — all the competition, including most of the so-called 'hot' high-priced cars!" On the racetrack the hot new Chevys began performing like never before. They set records at the Daytona Beach Speed Trials, won the Pikes Peak Hill Climb and captured the NASCAR Short Track championship. To cap off a great season of racing, on Labor Day weekend Herb Thomas won the granddaddy of all stock car races, the Southern 500. To make 1955 even more special, a Bel Air convertible was selected to pace the Indianapolis 500.

You'll notice one car that was left out of all the hoopla in '55, the Corvette. Of course the Corvette benefited greatly from the new 265 V-8, but there was a glut of leftover '54 Corvettes in the showrooms, and only 700 of the '55 models were built. Public interest in the 3-year-old sports car was waning, and many within GM wanted to kill the project. But the Cor-

vette had a champion in Ed Cole, and with the help of a young engineer, Zora Arkus-Duntov, the Corvette would survive, and soon thrive.

Improvements grew by leaps and bounds and in 1957 the small-block was producing in fuel-injected form an unheard of 283 horsepower (SAE gross) from its now 283 cubic-inch displacement, with most of those engines being installed into the updated Corvette. By 1965 the small-block displaced 327 cubes, and the last of the Corvette "fuelies" delivered 375 horsepower. Big-block power stole the spotlight in the late Sixties, but the small-block found new life from 1970 through 1972 with the high-performance LT-1 350. Despite stricter pollution and fuel economy laws, the 350 continued to be the top performing powerplant throughout the 1970s and into the latest generation Corvette. In its final form, the L98 Corvette small-block delivered 250 horses (SAE net), and in various forms is still in use in many GM vehicles.

After 37 years the small-block was reborn, bringing the latest in innovations to the original design. Introduced in the 1992 Corvette, the new LT1 Gen-

eration II small-block has redefined the term "world class." Not one casting from the original engine was used on the "Gen II," yet the same layout, heritage and design philosophy remains. Loaded with such advances as reverse-flow cooling and "Opti-Spark" ignition, the LT1 delivers 300 horsepower with 20 mpg-plus fuel efficiency. It also boasts the flattest torque curve of any engine on the market. Powertrain engineer Anil Kulkarni, the Harry Barr of the 1990s, can brag that the Gen II small-block surpasses any V-8 in the world for power, torque and efficiency for its displacement — including the multicam, multivalve engines from Japan, Europe and the USA. Again Chevrolet's engineers have done more with less, and the small-block V-8 still remains the class of the world.

That impressive performance is not good enough in today's marketplace. Look for a new Generation III 350 cid V-8 to power the 1996 Corvette, taking the small-block one step beyond, and guaranteeing it many more years of life. After 40 years the Chevrolet small-block is still fabulous. And Ed Cole would still be proud.

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