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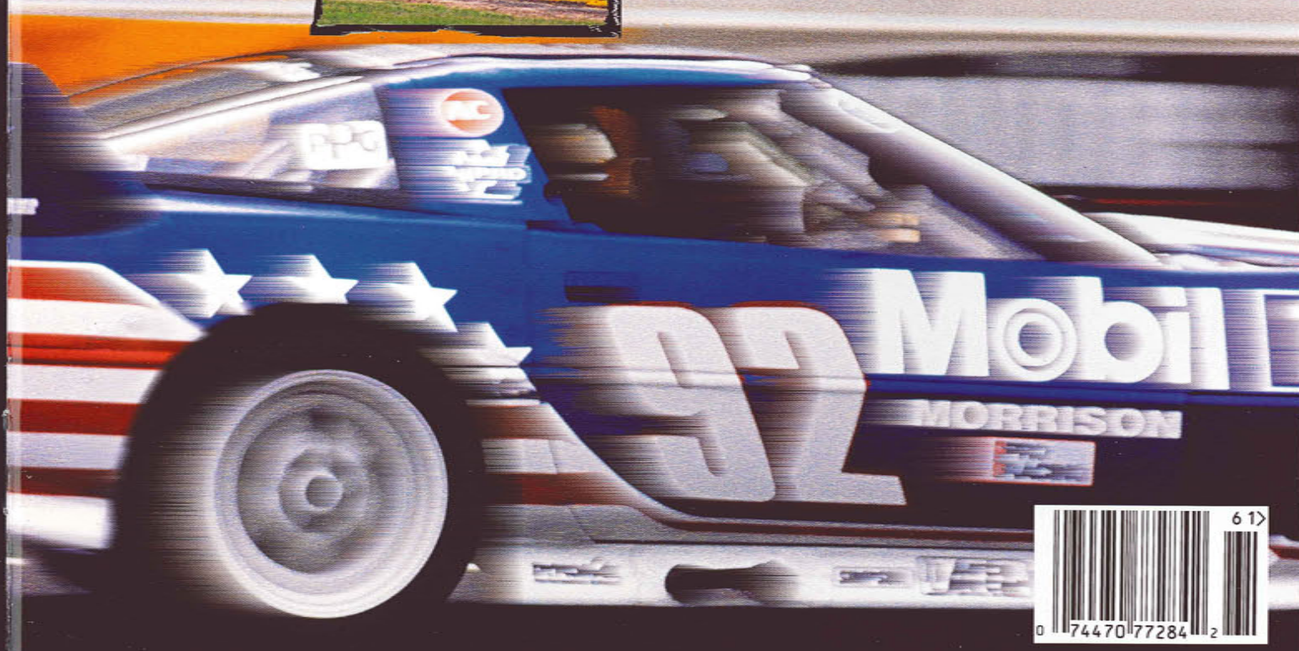

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Back~track 1968

In this fourth article in a series, we meet a new-bodied Corvette whose timeless shark design made it a landmark in automotive history.

BY PETER J. LICASTRO

The 1963 Corvette was a milestone in U.S. automotive history: an entirely new car that attained a world-class standard of performance. Aggressive styling and a competition-inspired chassis launched the Sting Ray into the orbit of genuine sports cars. The split-window coupe was a sensation from coast to coast as buyers eagerly paid full sticker price for the hottest car on the road. "Nineteen sixty-three was a banner year for Corvette," wrote *Car and Driver.* "The Sting Ray is the most sophisticated car made in America, and among the best-engineered sports cars made anywhere in the world."

The Corvette transformation from novelty car to sports car began in 1955, with the debut of the Chevy V8 engine. The success of the highly visible Corvette, promoted by race-bred versions of the classic small-block V8, played a key role in changing the stodgy image of the Chevrolet product line.

Although the Corvette was a showcase for the latest in General Motors styling and high-performance engineering, the low-volume car was subject to a judicious use of corporate funds. Fiberglass continued to be a cost-effective body material, while Corvette chassis and engine components borrowed heavily from existing Chevrolet stock. The performance edge was obtained through detailed configuration and execution, under the direction of Corvette chief engineer and former endurance racer, Zora Arkus-Duntov.

By the mid-1960s, the muscle car era had arrived. Street racing became a national pastime, with Chargers, GTO's and 4-4-2's cruising the boulevards of a socially conscious nation. The

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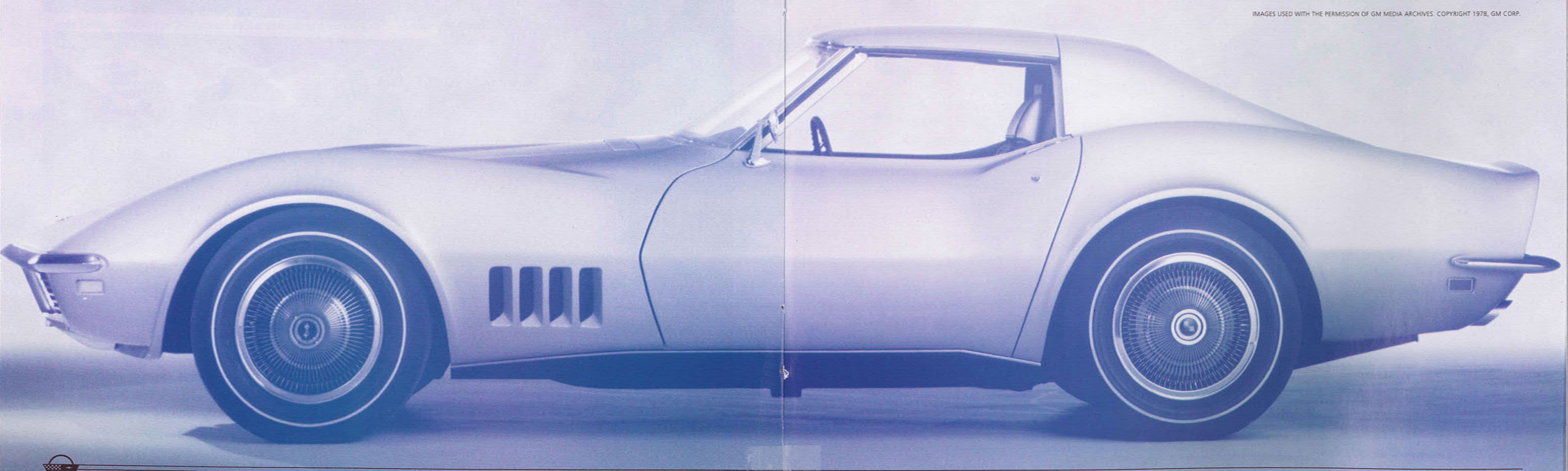

1968 Corvette emerged with a sexy new shape that disguised a proven chassis and a fierce powerplant. Its basic lines would endure, virtually unchanged, for more than a decade.

SHARK ATTACK

The design philosophy of Bill Mitchell, GM vice president of styling, was clearly reflected in the dramatic lines of the Sting Ray racer and, ultimately, the 1963 Corvette.

The flamboyant Mitchell demanded powerful shapes with a razor-sharp look. "I don't like dumpy, boxy things," he explained. Excitement and identity were essential elements in any Mitchell design. "It's important that you give a car some identity," he said. "When you take the antlers off a deer, you've got a big rabbit." Mitchell was a true car lover, and the Corvette had a special fascination for him.

Just as the 1963 Sting Ray was released for production, Mitchell began experimenting with design ideas for the next-generation Corvette. "He wanted a whole new theme," notes former GM stylist Larry Shinoda.

During early 1964, Mitchell described the look he envisioned to a small design group led by Shinoda. He sketched a coupe body with a narrow, selfish center section, prominent fenders and a smooth, integrated roofline. Shinoda's team advanced the prototype design, code name XP-830, in a private, windowless cubicle in the Styling Staff warehouse, across from the GM Technical Center.

The projectile-shaped exotic was dubbed the Mako Shark II and made its public debut at the New York Auto Show in April 1965.

An earlier Sting Ray-genre show car known as the Shark was renamed Mako Shark I. The original Mako II was a nonrunning, full-size model designed to the specifications of the existing Sting Ray chassis. Its shark-inspired color scheme was midnight blue over the upper two-thirds of the body, fading to lighter blue and finally light gray on the bottom.

By October, a fully operational Mako II was completed and shipped to the renowned Automobile Salon in Paris. Powered by Chevrolet's new 427-cubic-inch Mark IV engine, the Mako II toured several European cities, including London and Turin, before returning home.

The Mako II was a radical and expensive design exercise. Equipped with countless 007-style features, such as the retractable rear bumper and spoilers, the show car was created at a cost of nearly $3 million. It generated a tremendous public reaction, and many speculated that it offered a glimpse of the next Corvette.

"As an overall design, it kind of fills the mental outlines of the car Cato always had ready in that seemingly abandoned warehouse for the Green Hornet to rocket off into the night," wrote *Hot Rod* in December 1965, ". . . we may be looking at the '67 Corvette."

The Mako II borrowed several styling cues from a 1964 experimental Corvette known as the XP-819. This rear-engine prototype was the dream car of Frank Winchell, head of research and development for Chevy Engineering, who felt a Corvair-style layout could work for the Corvette.

Shinoda, together with assistant John Schinella, created the XP-819's attractive, lightweight body. The door sections, windshield profile and narrow cockpit with lift-off roof panels all surfaced on the Mako Shark II.

"The XP-819 was an extreme styling concept," recalls Paul Van Valkenburgh, a former research and development engineer. "It wasn't expected to ever reach production."

Other advanced design concepts were developed for the Corvette, including a futuristic mid-engine layout that used a periscope instead of a rear backlight. Although mid-engine Corvette rumors had circulated since the 1950s, "the practicality of the front-engine configuration always won out," observes David R. Holls, former chief designer of the Chevrolet car and truck studios.

A front-engine proposal, with strong Mako II features, was already underway in Shinoda's warehouse studio. When the decision was made to retain the existing chassis, the prototype was moved to the main Chevrolet studio, where Henry Haga's group finalized the Mitchell/Shinoda motif for production as the 1967 Corvette.

The body profile was basically complete by the fall of 1965 (as the Mako II dream car toured Europe), and an engineering prototype was tested at Michigan's Milford Proving Ground.

Aerodynamically, the tapered-nose shape developed lift that was magnified by the downward force generated by the large rear spoiler. At 120 mph, the front-wheel centerline rose nearly three inches.

"The car changed at least three times in front-end configuration that I can remember, for only aerodynamic reasons," explained Holls. The lifting forces were mitigated by positioning a spoiler under the nose and adding functional vents to the front fenders.

Other problems were identified with the new profile. The roofline and prominent rear spoiler, coupled with the high front fenders, impaired driver visibility in both directions. Zora Duntov objected to this shortcoming and felt that introducing the car as a 1967 model was too ambitious. "I had a 1967 pretest car and asked Pete Estes, Chevrolet general manager, to take a ride at the proving ground," he recalls. "When we finished our drive, he said, 'You are right, we should not build this car.'"

According to Holls, the upcoming debut of the Camaro also played a role in postponing the introduction of the new Corvette. "The Camaro became a very important program because we were fighting off this idea that Ford had the Mustang and we didn't have a car . . . so it really took precedence," he says.

> "If you think the Corvette made the chicks go wild before, wait until you pull up in front of the local psychedelic discotheque in a '68."
> —*Hi-Performance Cars*

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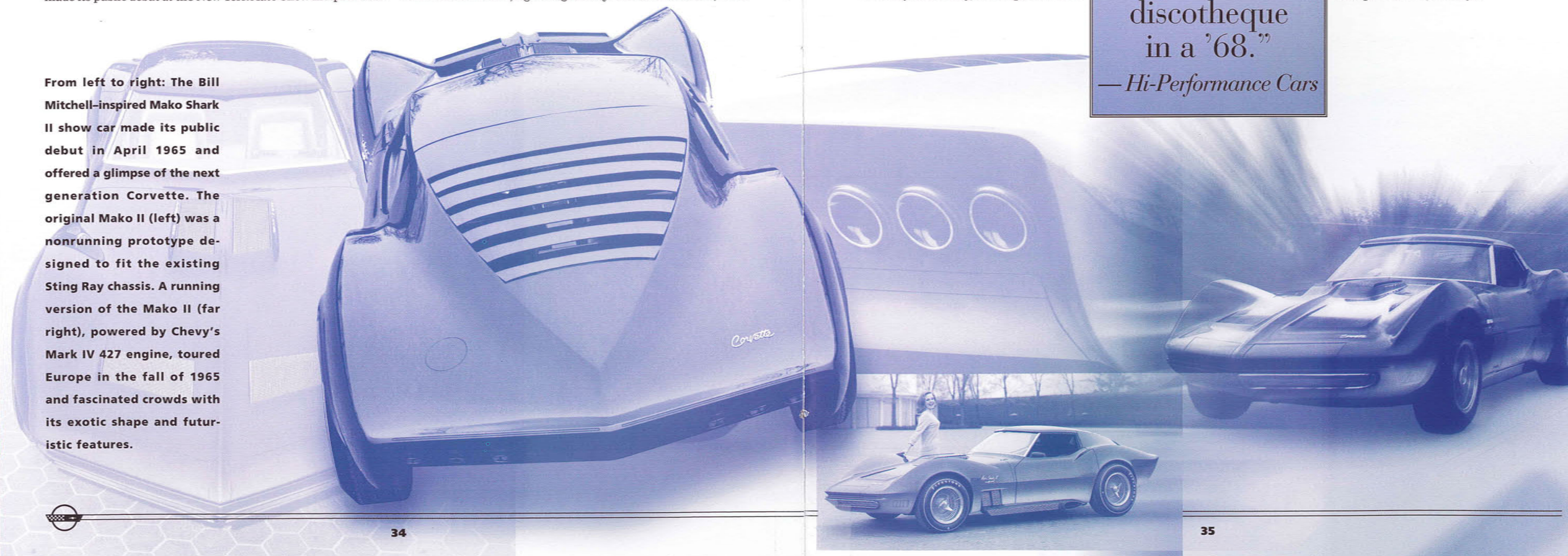


From left to right: The Bill Mitchell–inspired Mako Shark II show car made its public debut in April 1965 and offered a glimpse of the next generation Corvette. The original Mako II (left) was a nonrunning prototype designed to fit the existing Sting Ray chassis. A running version of the Mako II (far right), powered by Chevy's Mark IV 427 engine, toured Europe in the fall of 1965 and fascinated crowds with its exotic shape and futuristic features.

Shinoda and Haga collaborated on the prototype's revision. They toned down the front fenders, reduced the rear spoiler to a slight lip and altered the roofline. The styling changes were evaluated with complete wind tunnel tests of quarter-scale and full-size models. "The results were enlightening," wrote Duntov, "and indicated that we had the basis of a very fine automobile."

At the 11th hour, the one-piece removable roof panel was abandoned due to structural difficulties and replaced with twin roof panels divided by a center strut.

Mitchell disliked the bug-eyed look of the pop-up headlights, and the design staff struggled futilely to develop a pleasing alternative that would meet regulatory approval. "The headlights had to be 24 inches from the ground to be street legal," says Holls.

The final shape was bold and distinctive and resembled the exciting 1964 Ferrari GTO, particularly in the roofline and tail treatment. The streamlined profile and prominently arched front fenders were reminiscent of the Shinoda-styled Corvair Monza GT and Monza SS. The car looked every inch a champion, ready to take on the best.

Complementing the exterior lines was a new cockpit-like interior with round, aircraft-style gauges and a fiber-optic light-monitoring system.

"This was very definitely Bill Mitchell's car," says Holls, who vividly recalls Mitchell's reaction to one of his design ideas. "Kid, don't flatter yourself. I'm the one who does the Corvettes around here."

HOT HORSEPOWER

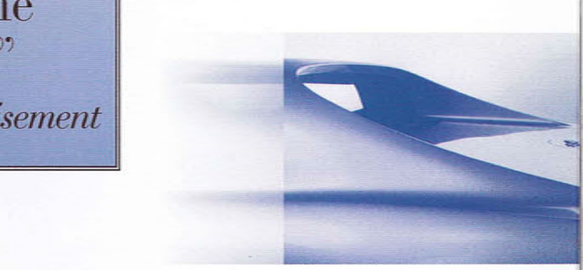
By the mid-1960s, showrooms were bustling with new pony and muscle cars, spawned by the highly popular Ford Mustang and Pontiac GTO. The Corvette retained its competitive edge with a minimal investment in chassis and mechanical changes. "The car fundamentally was designed right (in 1963)," explained Duntov, "with no area of easy improvement that we could see."

Routine testing of a prototype during the winter of 1966–67 revealed inadequate engine cooling, especially with the high-output 427 V8s. The narrow nose design was a shallow breather from the start, and the stowed headlights obstructed air flow through the grilles. "The heat was horrible," recalls Duntov.

The following spring, Duntov fell seriously ill and was hospitalized for several months in New York. Meanwhile, various reassignments were taking place at Chevy engineering.

When Duntov returned to the Tech Center in early July, he found that, despite his instructions, the cooling problems had not been corrected. The 1968 model press preview was less than three weeks away and Duntov was responsible for preparing the Chevrolet test cars. The Corvette selected was a metallic blue coupe powered by the Mark IV big-block engine. The heat was on!

With no time to spare, Duntov cut two oblong holes beneath the front chin to increase the volume of cooling air to the radiator. The chin spoiler was enlarged to encourage air movement upward through the holes. On press day, America's automotive



From left to right: A Chevrolet engineering road simulator shakes down a 1968 Corvette (top left). The prominent front fenders and tapered nose of the '68 (center) were reminiscent of the Mako Shark II. Distinctive shark fins shroud a removable rear backlight (top right) and contribute to the Corvette's razor-sharp profile. Although the basic chassis and suspension were carryovers from 1967 (bottom center), the all-new interior featured round, aircraft-style gauges and a fiberoptic light monitoring system (center background and bottom right).

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journalists were unknowing test pilots for the world's largest automaker. Duntov had not had a chance to evaluate his last-minute handiwork. In spite of temperatures near 85 degrees and a full day of driving, the fixes worked.

Shortly after the press introduction, an organizational change swept through Chevrolet, and Corvette engineering was absorbed into Chevy's passenger car program. "All of a sudden all of Corvette was disbanded," remembers Duntov. "I was transferred to special assignments. My group was suffering because they became Chevrolet people and not Corvette people."

The philosophy of treating Corvette as "just another passenger car" was changed in the wake of the December 1967 issue of *Car and Driver*.

"We had planned to road test the 1968 Corvette we drove up to Watkins Glen for the U.S. Grand Prix, but we won't," wrote editor Steve Smith. "The car was unfit for a road test. No amount of envious gawking by the spectators could make up for the disappointment we felt at the car's shocking lack of quality control."

The story sent shock waves through General Motors with its scathing account of body and mechanical glitches. "It was like the bottom falling out," says Duntov. "My position resumed as chief engineer of Corvette."

> "Something about this one will get you all unglued. Maybe the slippery shape. Or maybe all that energy under the hood..."
> — *Chevy advertisement*

Chevrolet engineers always hoped for a body design that could accommodate larger tires. For 1968, rims were widened to seven inches and shod with low-profile, F70 x 15 performance tires. The geometry of the three-link independent rear suspension was adjusted to ensure adequate traction and handling with the wider wheels.

The wheel and suspension modifications resulted in a noticeably harsher ride. "You pick up harshness with wide rims; there's no doubt about it," explained Duntov, "but stability is increased, so it's well worth it."

The standard three-speed and optional four-speed manual gearboxes, all fully synchronized, were carryovers from designs of previous years. GM's three-speed Turbo Hydra-Matic transmission, however, replaced the ancient Powerglide automatic.

ROLLING THUNDER

Performance-minded Corvette buyers had a choice of five optional engines in 1968. The ultimate in brute strength was RPO L88, a 427-cubic-inch dynamo intro-

duced in 1967. Sporting a 12.5:1 compression ratio and race-ready hardware, such as aluminum heads and 850-cfm Holley carburetor, the durable L88 generated in excess of 500 horsepower with open exhausts. Chevrolet understated the L88's output at 430 horsepower to reduce its appeal to nonracing customers, who would likely otherwise opt for the less expensive L71 package, rated at 435 horsepower.

Although the 1968 L88 engine was not available to the general public until April 1968, *Corvette News* reported an early sighting of "special order'' cars: "At 1600 hours on November 28th, 1967, three identical Le Mans Blue Sting Ray Convertibles were trucked through the St. Louis plant gate destined for delivery to a single West Coast customer. It's significant that each features the L88 engine option. Perhaps we'll be hearing more about these cars in the near future."

Editor Joe Pike must have known something.

The cars were shipped to the American International Racing Team, a California group backed by Hollywood star James Garner, in preparation for the 24 Hours of Daytona in February 1968.

Two of the L88s were entries at Daytona, while the third was intended for promotional purposes. The Sunray DX Oil Company sponsored three Corvettes, including an entry that was fabricated from new body panels and a 1967 race-prepared chassis by Jerry Thompson and Tony DeLorenzo.

"In the winter of '67, we built a car out of parts, a 1968 Corvette roadster,'' explained DeLorenzo. "And it was a great exercise in futility."

Although the Daytona debut of the new Corvettes was disappointing, the '68's hit stride at the 12 Hours of Sebring. The Sunray DX entry driven by Dave Morgan and Hap Sharp placed first in the GT category and sixth overall. The Thompson and DeLorenzo twosome, sponsored for a time by the Owens-Corning Fiberglass company, went on to become a dominant force in American road racing.

the Press Reaction

"The 1968 Corvette is an exciting automobile. Exciting to look at, exciting to drive, exciting to own . . . Longer, lower, wider and sleeker, the new fiberglass envelope should cause a stampede among American sports car purchasers in 1968."

***Car Life*, November 1967**

"Those of us who looked forward to a lighter, more compact and more roadable Corvette will be disappointed with the 1968 car. On the other hand, the car is bound to be a great crowd-pleaser with its voluptuous styling and abundant gadgetry . . . it is one of the world's best values in a sporting automobile."

***Road & Track*, October 1967**

"The totally new appearance inside and out is the work of the GM styling department who have obviously had an unusually free hand to give the car the kind of way-out shape that appeals to modern buyers."

***Autocar*, 28 September 1967**

THE EXCITEMENT GENERATOR

The 1968 Corvette was chosen Best All-Around Car in the *Car and Driver* annual readers' poll. They wrote, "In its own category, the super strong, super trick new Corvette had a hell of a battle against the epitome of automotive exotica, the Lamborghini Miura. But when it got down to the nitty-gritty of deciding the Best All-Around Car, where price plays more of a part, Ferruccio Lamborghini's $25,000 dohc V12 sex symbol was no match for the latest from Chevrolet."

Some critics found the Corvette's styling offensive, while others took a more lighthearted approach. "What disturbs us most," complained *Road & Track*, "is that the car is an assemblage of independent styling clichés . . . true advances in automotive styling are made when a new chassis or component grouping demands a really fresh solution to surface form."

Hi-Performance Cars said, "If you think the Corvette made the chicks go wild before, wait until you pull up in front of the local psychedelic discotheque in a '68."

At an April 1968 meeting of the International Motor Press Association, Duntov declared that the entire scheduled production of the 1968 Corvette had been sold. He also noted that the fiberglass sports car was more than a prestige car for Chevrolet, it was a profitable venture both for dealers and General Motors alike. "One Corvette sale, to a dealer, is like selling three big Impalas," he explained.

Despite frequent criticism over assembly quality, a sign of the times for a quantity-conscious Detroit, a record 28,566 '68 Corvettes were sold.

The timeless shark design of the 1968 Corvette survived one of the most dynamic and politically charged periods in modern American history. Corvette maintained its niche as America's only true production sports car. And it generated the kind of excitement that Bill Mitchell always looked for.

Peter J. Licastro is a Pittsburgh-based freelance writer and the author of *Birthplace of Legends, The Story of Corvette Production at the St. Louis Assembly Plant, 1953–1981.*

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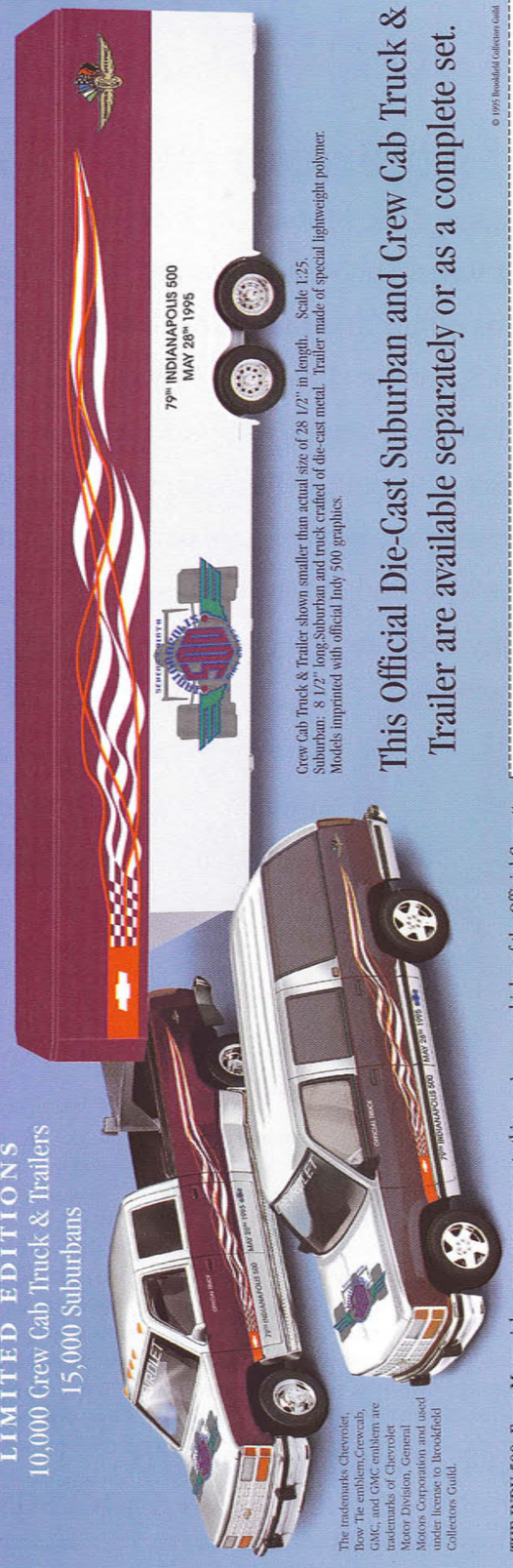

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