

CORVETTE C6.R CHASSIS: A PLATFORM FOR PERFORMANCE

The championship-winning Corvette C6.R race cars that compete in the production-based GT1 class of the American Le Mans Series and the legendary 24 Hours of Le Mans are the products of rigorous testing and development. The Corvette Racing program has produced the most technically advanced sports cars ever developed by General Motors, combining years of experience from their Corvette C5-R predecessors with the technical advancements of the sixth-generation Corvette and Z06 production models.

“The Corvette C6.R is the best sports car we’ve ever built, and it was our privilege to develop it alongside the Corvette Z06 supercar,” said Mark Kent, GM Racing director. “History will remember the C5-R as one of the best sports racing cars of all time, and we’ve raised the bar even higher with the C6.R. The production Corvette chassis and body structure provided a strong foundation for Corvette Racing.”

“Corvette has always been at the cutting edge of sports car performance,” noted Tom Wallace, Performance Cars vehicle line executive and Corvette chief engineer. “The general architecture of the road car contributes to its success at the track. The low center of gravity, optimized weight distribution and efficient aerodynamics that make the Corvette a very stable vehicle at speed also contribute to making it a fast and comfortable street car.”

The Corvette C6.R sprang from production roots. It employs the same hydroformed steel frame rails that are used in Corvette coupe and convertible models. The hydroforming process produces complex shapes using high-pressure hydraulics, replacing conventional multi-piece welded frames with seamless one-piece rails that have exceptional strength.

The C6 production Corvette is shorter in overall length but has a longer wheelbase than the fifth-generation version that provided the basis for the all-conquering C5-R race cars. Consequently Corvette Racing engineers faced a challenge to achieve their goal of faster speeds on the Mulsanne Straight at Le Mans and other high-speed circuits.

“At first glance, the shortened front and rear overhangs on the C6 would seem to present a challenge in developing a race car with maximum aerodynamic downforce,” said Steve Wesoloski, GM road racing group manager. “However, the low-drag features of the C6, such as the sleek body shape and flush headlamps, lend themselves to converting the production design into a low-drag race car.”

Adding a rear wing and a front splitter enabled the team to develop an aerodynamic package for the C6.R that produces a better lift-to-drag ratio than its C5-R forerunner. Through a combination of computational fluid dynamics (CFD) studies and on-track testing, the end result is an aerodynamically balanced package that can be tuned to the low-drag demands of Le Mans and the high-downforce requirements of Mosport.

The advanced technology and resources of the world’s largest automobile manufacturer directly benefited the C6.R program.

“We used many common processes in developing the C6.R,” Wesoloski said. “Sophisticated tools such as finite element analysis, computational fluid dynamics and computer-aided design and manufacturing were used extensively. We also incorporated suppliers for the production Corvette in the racing program.”

The Corvette C6.R race car has the advantage of a pedigree that comes from decades of exhilarating performance and innovative engineering. It’s a tradition that is the heart and soul of the production Corvette, and a heritage that inspires the Corvette C6.R race car.



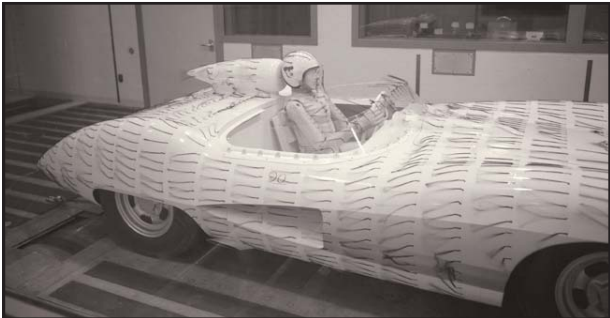
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The Z06 Corvette pays homage to a package of high-performance components developed by Zora Arkus-Duntov in 1963.



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Duntov’s Corvette SS utilized a tubular frame that was state-of-the-art in 1957.



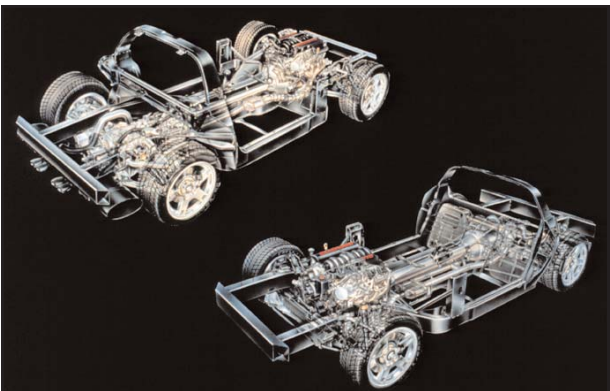
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Early aerodynamic tests were conducted with tufts of yarn to reveal airflow over the Corvette SS body.



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The racing front suspension features a fabricated steel upper wishbone, a cast-aluminum lower wishbone, a machined aluminum upright and coil-over shock absorbers.



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The production Corvette’s hydroformed frame rails provide a rigid structure that allows the Corvette Racing team to tune the race car’s suspension for optimum grip.