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Chevy: 7 Vehicles with Top NHTSA Ratings

Seven Chevrolet models have received 5-Star Overall Vehicle Scores for safety from the National Highway Traffic Safety Administration (NHTSA).

That's more than any other brand and more than Ford and Toyota combined, said Sharon Basel, GM Communications manager for Environment, Energy and Safety.

In New Car Assessment Program testing, NHTSA gave its highest possible 5-star overall score to the Chevrolet Sonic, Cruze, Volt, Impala, Traverse, Camaro Coupe and Silverado 1500 Crew Cab. Sonic is the first and only car in the subcompact class to receive a 5-Star overall score, said Basel.

Federal motor vehicle safety standards and safety regulations are included in the design and performance requirements for every new Chevrolet vehicle, Basel said.

About 40 percent of the crash load cases are based on regulatory requirements, with the remaining 60 percent based on General Motors' internal requirements for vehicle safety and crashworthiness, which exceed federal requirements.

According to GM research, safety ranks among the top 10 reasons for purchase. The 2012 calendar year sales data shows that 54 percent of Chevrolet, Cadillac, GMC and Buick buyers surveyed listed safety features as an "extremely important" purchase consideration. The same percentage of buyers industry-wide also listed safety features as "extremely important."

"We design safety and crashworthiness into our vehicles very early in development," said Gay Kent, GM's general director of Vehicle Safety and Crashworthiness. "We are committed to offering advanced safety technologies on a broad range of models, not just on the most expensive vehicles. All of our vehicles are designed to provide continuous protection for customers before, during and after a crash."

Active safety technologies, including forward collision alert and lane departure warning, are designed to help the driver avoid a crash before it happens, Basel said. These and other advanced technologies are available on many new Chevrolet vehicles – from small cars to big trucks. Silverado offers the new Safety Alert Seat that pulses to alert the driver of potential hazards.

Passive safety features, such as Cruze's 10 standard air bags and the available industry-first front center air bag in the Traverse, are designed to help protect occupants during crashes and rollovers, Basel said.

Sonic was the first subcompact to have 10 standard airbags. OnStar, available on all Chevrolet models, enables occupants to get help from emergency services after a crash through automatic crash response.

2014 Chevy Camaro Coupe

2014 Chevy Impala

2014 Chevy Traverse

Meteorology Tools Aid Efficiency of Cadillac Twin-Turbo V6

Talk about thinking outside the box.

The techniques meteorologists use to create weather reports also help ensure optimal performance from Cadillac's new Twin-Turbo V6 engine.

"Just as a meteorologist uses high-tech sensors to detect barometric pressure, humidity, air flow and temperature, our system can detect these conditions and modify engine performance and efficiency accordingly," said Richard Bartlett, assistant chief engineer of General Motors' twin-turbo engine.

"In the same way the tools for meteorology have become more precise over the years, so have the technologies for monitoring engine operation."

The power-dense engine – available on the 2014 CTS Vsport mid-size luxury sedan and XTS Vsport full-size luxury sedan in the U.S. this fall – is equipped with a set of sensors that monitor air pressure, intake humidity and throttle intake temperature, said Tom Read, Technology and Powertrain Communications spokesman for GM.

The sensors, said Read, act as an "onboard weather station" to continuously send data to the engine's wastegate and compressor bypass control system to make the most of engine efficiency.

One of the conditions monitored by the Twin-Turbo V6's sensor set is compressor surge, an air flow phenomena leading to flow reversal that can limit power output and increase unwanted noise, Read said.

To reduce surge, he said, the system sensors continually measure air pressure in the compressor, and optimize the wastegate position to produce maximum power and eliminate unwanted noise.

The wastegate regulates the pressure at which exhaust gases pass to the turbine by opening or closing a vent to the exterior.

"Co-surge" is another phenomenon unique to twin-turbo engines that results when an air flow imbalance exists between competing compressors, leading one compressor to surge, Read said.

Co-surge is most common in high altitudes, where low barometric pressure can more adversely affect vehicle performance.

Compressor air flow sensors allow the Twin-Turbo V6 to correct air imbalances by repositioning a pair of vacuum-actuated wastegates on each turbocharger, Read said. This process allows the exhaust to bypass the turbocharger's turbine wheel and merge into the exhaust stream, allowing for the ideal turbine speed throughout the rpm band.

During spirited driving, compressed air temperature can exceed 265 degrees Fahrenheit.

Cadillac's sensors, acting as an onboard weather station, detect temperature conditions.

The "weather station" then ignites a unique charge air cooling system that reduces the temperature by more than 130 degrees.

The temperature reduction increases the air density to provide maximum power and performance, Read said.

Likewise, he said, the Twin-Turbo V6's humidity sensor monitors moisture in the air to modify combustion spark and cam timing, making the most of engine efficiency and performance, whether you're driving in often-wet Seattle or desert-dry Las Vegas.

Speaker to Offer Financial Advice

The Warren Public Library is helping residents learn more about maintaining their financial health, thanks to a program that will be held on Wednesday, Oct. 9, at 6 p.m. in the conference room next to the Civic Center Library branch.

The speaker, Heidi L. McCarroll, regional vice president of Primerica, will discuss how people "can build a solid financial house."