

Cadillac to Unveil Twin-Turbo V6 at New York Auto Show

A new Twin-Turbo V6 engine and eight-speed transmission – firsts for the brand – and signature features of the 2014 Cadillac CTS midsize luxury sedan debuts this week at the New York Auto Show.

Cadillac officials say the Cadillac Twin-Turbo V6 is the most power-dense six-cylinder engine in the midsize luxury segment – a 3.6L with 118 horsepower per liter – and the eight-speed automatic enhances fuel economy and acceleration over a six-speed automatic.

“The new Cadillac Twin-Turbo brings a new dimension of technologically advanced performance to the all-new 2014 Cadillac CTS sedan,” said David Leone, executive chief engineer. “Delivering power and sophistication, it marks another large step forward in the product-driven expansion of Cadillac.”

Rated at an SAE-certified 420 horsepower and 430 lb.-ft. of torque, GM officials say it is the most powerful V6 ever from General Motors.

They say it also has 15 percent greater power density than BMW 535i’s turbocharged 3.0L six, which is rated at 300 horsepower, for a ratio of 100 horsepower per liter – and even the BMW 550i’s TwinPower 4.4L V8, rated at 400 horsepower (298 kW), or 91 horsepower per liter.

A pair of smaller turbochargers and an efficient charge air cooler, say GM officials, help provide more immediate power delivery. Additionally, they say that approximately 90 percent of the 3.6L Twin-Turbo’s peak torque is available from 2,500 rpm to 5,500 rpm, giving the engine a broad torque curve that aids in almost all driving conditions, such as accelerating or overtaking traffic on the highway.

Those features help the new CTS sedan reach 60 mph from a standstill in an estimated 4.6 seconds and achieve an estimated top speed of 170 mph.

The new Cadillac Twin-Turbo, say GM officials, will expand the performance envelope of the upcoming 2014 CTS midsize luxury sedan, which will be launched this fall in the United States. The engine will also be offered in the 2014 XTS large luxury sedan this fall.

The new engine, GM officials say, is a comprehensive upgrade on the 60-degree, 3.6L DOHC V6 offered in today’s SRX, XTS and ATS. However, they add, almost every component is unique.

New features include all-new cylinder block casting, all-new cylinder head castings, strengthened connecting rods, machined and domed aluminum pistons with top steel ring carrier for greater strength, a 10.2:1 compression ratio and patented, integrated charge air cooler system with low-volume air ducts.

Two turbochargers produce more than 12 pounds of boost, while vacuum-actuated wastegates with electronic control valves, all-new direct-injection fuel system, tuned air inlet and outlet resonators, aluminum cam covers and other features contribute to exceptional quietness and smoothness, say GM officials.

The 2014 CTS sedan will also feature the naturally aspirated 3.6L V6 rated at 321 horsepower, as well as a 2.0L turbocharged engine rated at an estimated 272 horsepower.

Because the Cadillac Twin-Turbo is based on the same architecture as the existing naturally aspirated 3.6L V6, it benefits from many proven technologies, including dual-overhead camshafts, variable valve timing and direct injection.

The cylinder block casting is unique to the turbocharged engine with cast-in provisions for turbocharger coolant and oil connections, as well as positive crankcase ventilation passages. It uses nodular iron main bearing caps for greater strength to manage the higher cylinder pressures that come with turbocharging. The cylinder heads are also unique to the Cadillac Twin-Turbo.

As with the naturally aspirated 3.6L, the heads feature integral exhaust manifolds, although upper and lower water jackets were added to the heads to provide uniform temperature distribution and optimal heat rejection.

On top of the heads, new aluminum cam covers enhance quietness and are designed with greater positive crankcase ventilation volume to support the turbo system.

Another unique feature of the Cadillac Twin-Turbo is its efficient manner of processing the pressurized air charge through the cylinder heads and into the combustion chambers. A single, centrally located throttle body atop the engine controls the air charge from both turbochargers after the temperature is reduced in the intercooler.

This efficient design fosters more immediate torque response, for a greater feeling of power on demand, and reduces complexity by eliminating the need for a pair of throttle bodies.



Twin-Turbo V6 engine

Suppliers Exceed GM Expectations

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tified diverse suppliers and 46 are repeat winners from last year.

Ideal Contracting of Detroit was one of the Overdrive winners. Robert Kohut, director of Estimate – New Business for Ideal Contracting, said it was a great honor.

“We heard that we won one of the four Overdrive winners on March 13, the day the awards were given out,” Kohut said. “We knew we were going to receive an award for being a top supplier but we didn’t know we would get this award.”

In fact, Kohut said, when the GM speaker was describing what the Overdrive Award was, Dan Kovoch, an Ideal vice president, said the company should try to win that award in the future.

When GM announced Ideal was one of the four Overdrive winners, everyone at Ideal was stunned.

“It was very humbling to win the Overdrive Award,” Kohut said. “We are now one of four companies out of 18,000 GM suppliers to have won this award. I must say it’s nice to be recognized for the hard work we’ve done and be told that we’ve done a great job for the company.”

Ideal is a general contractor, Kohut said. It has a “blanket order” contract with GM to manage 43 million square feet of GM’s buildings.

“We do anything from hanging a door to building a factory,” Kohut said. “We even have people at facilities, including the Tech Center to make repairs and fix things. Most of the work we do is in Southeast Michigan.”

Patent Workshop For Inventors

The U.S. Department of Patents and Trademark Office has opened its first-ever satellite office in Detroit.

To celebrate, the Macomb County Planning and Economic Development Department will be holding a special two-hour workshop from 3 to 5 p.m. on Tuesday, April 2, at the Velocity Collaboration Center, 6633 18 Mile Road in Sterling Heights.

The workshop will show attendees how and when to get the patent process started with their inventions.

Speakers include Ram Shukla of the Elijah J. McCoy Satellite Office as well as Thomas Helmboldt, director of the Wayne State University Patent Procurement Law Clinic.

Also speaking will be Gunther Evanina, a patent attorney at Butzel Long, and John Swiatek, president and CEO of Coliant Corporation who is the inventor of the Powerlet.

There is no charge for the workshop. To reserve a seat, email macINC@oakland.edu or call 586-884-9324.

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