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## **Dodge Caliber Powertrain and Chassis Offer World-class Performance and Fuel Economy**

- World Engine family targeted to improve fuel efficiency by 5 percent compared with the engines they replace
- Second-generation continuously variable transaxle, CVT2, gives customers improved performance and fuel economy
- 2.0-liter turbo diesel with 2000-bar direct injection delivers excellent performance and fuel economy for markets outside of North America
- Electromagnetically controlled all-wheel-drive system and available Electronic Stability Program provide all-weather driving security and added handling performance

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Dodge Caliber is powered by new global powertrain components engineered to meet the demands of customers around the world. Caliber features innovative engines and transaxles that deliver world-class performance, fuel economy and refinement.

"When we selected and developed the Dodge Caliber engines and transaxles, we focused on four things customers expect from their compact cars: fuel economy, reliability, performance and value," said Larry Lyons, Vice President – Front-wheel-drive Product Team.

The 2007 Dodge Caliber is the first Chrysler Group vehicle to offer a continuously variable transaxle (CVT2), the World Engine family of four-cylinder gasoline engines, a new 2.0-liter turbo diesel engine for markets outside North America and all-wheel drive. Dodge Caliber also is the company's first compact car to offer Electronic Stability Program (ESP) (late availability).

### **World-class Engine Performance**

Fuel economy is a key factor in the four-cylinder gasoline engine market. The Chrysler Group World Engine family, which is based on a joint venture between DaimlerChrysler Corp., Hyundai Motor Co. and Mitsubishi Motor Co., is targeted to improve fuel efficiency by 5 percent compared with the engines they replace — rivaling the best four-cylinder engines in the world.

The 2007 Dodge Caliber is available with three displacements: 1.8-liter, 2.0-liter and 2.4-liter. Performance objectives are targeted to match the best in the segment. The 1.8-liter engine provides 148 horsepower (110 kW) and 125 lb.-ft. (169 N•m) of torque, the 2.0-liter engine provides 158 horsepower (117 kW) and 141 lb.-ft. (191 N•m) of torque and the 2.4-liter engine provides 172 horsepower (128 kW) and 165 lb.-ft. (223 N•m) of torque.

"The World Engine program allows us to build premium features into our engines without a premium price," Lyons said. "We set high targets and achieved these targets to meet customers' high demands for fuel economy, refinement, durability, quality and performance."

Chrysler Group brought its engineering expertise to the World Engine program in the areas of cylinder port and intake manifold design using advanced Computational Fluid Dynamics tools. Chrysler Group engineers led the development work on dual Variable Valve Timing (VVT), as well as an integrated 2:1 oil pump/balance shaft assembly. Chrysler Group engineers also refined the engines for exceptional smoothness and sound quality, resulting in a pleasant engine feel and sound for the customer.

### **2.0-liter Turbo Diesel**

Nearly 50 percent of all passenger vehicles sold in Europe are powered by diesel engines, and some 60 percent of

the Chrysler Group vehicles sold in Europe are diesel powered. For Europe and other key diesel markets, the all-new 2007 Dodge Caliber also is available with an advanced 2.0-liter turbo diesel engine.

"Advanced diesel engine technology is readily available and can dramatically reduce the amount of crude oil consumed worldwide," Lyons added. "European customers especially want modern diesel engines with outstanding performance and efficiency, so from the beginning of the program, our engineers included a diesel engine as part of Dodge Caliber's powertrain plan."

The 2.0-liter engine is a state-of-the-art, direct-injection turbo diesel with high-pressure fuel injection, a variable geometry turbocharger and four valves per cylinder. The injectors are electronically controlled, leading to high power and torque and optimal fuel efficiency. The turbo diesel engine is expected to position the Dodge Caliber sold in Europe among the best in its class for power, torque and towing capacity. Maximum power is estimated at 140 hp DIN (103 kW), and peak torque is estimated at 229 lb.-ft. (310 N•m).

#### **New-generation Continuously Variable Transaxle Improves Fuel Economy**

The all-new Dodge Caliber uses the newest generation of continuously variable transaxles, CVT2, offering several advantages compared with previous CVTs.

The Dodge Caliber's CVT2 continuously varies the transaxle ratio, providing an infinite number of gear ratios and allowing the engine to stay in its most efficient operating range. The transaxle uses two "V" pulleys and a steel push belt to vary the input speed to output speed ratio instead of traditional discrete gear ratios activated by clutches or bands.

Through the use of electronic controls, Caliber's CVT2 provides a familiar engine feel while delivering improved fuel economy. For example, drivers will experience an appropriate rise in engine RPM during acceleration rather than an instant rise to the maximum engine RPM.

"Our engineers have calibrated Caliber's CVT2 to provide a throttle response that will seem very natural to the driver," said Lyons. "We've also created an available AutoStick feature that gives the driver manual control and the feeling of six stepped gears," Lyons added.

Chrysler Group's CVT2 contributes a 6–8 percent improvement in fuel economy compared with a traditional four-speed automatic transaxle. Eliminating upshifts allows the transaxle to engage the torque converter clutch almost immediately when accelerating and to keep it engaged throughout speed changes. This eliminates torque converter slippage common in stepped transaxles and results in more efficient operation, especially during city driving.

The CVT2 also improves vehicle performance compared with a traditional automatic transaxle. Optimized gear ratios, especially in the 30–60 mph range, improve Caliber's passing maneuvers and contribute to a responsive feel.

#### **All-wheel Drive Provides Peace of Mind**

In addition to being the Chrysler Group's first compact car to offer all-wheel-drive, Dodge Caliber is the Chrysler Group's first passenger car to use an electromagnetically controlled all-wheel-drive system that manages torque split from front to rear, based on road surface conditions.

Caliber's all-wheel-drive system works on demand, without need for driver input, driving only the front wheels until power to the rear wheels is needed, which optimizes fuel economy. All-wheel drive also is used between speeds of 25 and 65 mph to ensure precise handling during performance driving. All-wheel drive is available on Dodge Caliber R/T models sold in North America.

#### **ABS and ESP Put the Brakes on Slipping and Sliding**

Dodge Caliber's anti-lock brake system (ABS) maintains directional control by preventing wheel lock-up when the driver brakes on slippery surfaces. This ABS system is standard with the CVT2 and benefits from state-of-the-art electronics that provide faster system response than in the past.

Dodge Caliber also is the first Chrysler Group compact car to offer Electronic Stability Program (ESP) with traction control on SXT and R/T models (late availability). ESP helps the driver maintain stability and does everything within the limits of available traction to keep the Caliber on course. ESP also helps maintain forward traction by constantly monitoring wheel speed sensor signals. If there is any indication of slippage, ESP engages, applying the brakes and, if necessary, closing the throttle as a way to maintain traction.

Hydraulic Brake Assist is bundled with ESP. A pressure sensor in the ESP hydraulic module determines when the driver is making an emergency stop by measuring the amount of pressure the driver applies to the brake. If the driver slams on the brakes, the application causes the ESP system to apply maximum hydraulic pressure to the brakes.

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