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Engineering the All-new 2009 Dodge Challenger

- Five-passenger, two-door coupe derived from proven Dodge Charger and Chrysler 300 platform
- New-generation 5.7-liter HEMI® V-8 delivers increased fuel economy (on average 4 percent) with improved horsepower (more than 30 hp) and torque (up to 20 lb.-ft.)
- SRT's exclusive 6.1-liter HEMI V-8 engine is the highest naturally aspirated specific output V-8 engine ever offered by Chrysler (69.8 horsepower/liter)
- First-ever manual transmission option on a new-generation HEMI-powered car
- Tremec TR-6060 six-speed manual transmission with standard Hill Start Assist (HSA) aids driver when launching on inclines
- Finely-tuned acceleration, braking and ride and handling civilized enough for everyday commuting, but fully capable in spirited driving and track environments
- To ensure quality, Dodge Challenger engineers logged nearly 3.2 million customer-equivalent miles in the development process

August 16, 2008, Auburn Hills, Mich. - The all-new 2009 Dodge Challenger has the makings of a new legend without leaving behind highlights from the past. In addition to bold, nostalgic styling, Dodge Challenger offers three powerful engine options, available manual or automatic transmissions and suspension attributes that match a range of driving demands.

“Our all-new 2009 Dodge Challenger is a modern-day muscle machine,” said Larry Lyons, Vice President – Car and Minivan Product Team, Chrysler LLC. “From its manual transmission option — the first available in a new-generation HEMI®-powered car — to finely-tuned ride and handling characteristics, the all-new 2009 Dodge Challenger will delight even the most die-hard muscle-car fans.”

The two-door, rear-wheel-drive coupe is based off the proven Dodge Charger and Chrysler 300 sedan platform. The 116-inch wheelbase makes the all-new 2009 Dodge Challenger coupe four inches shorter than the Dodge Charger sedan.

Three Powerful Engines

The all-new 2009 Dodge Challenger offers a lineup of proven powertrains that deliver power and performance.

3.5-liter V-6

The 3.5-liter High Output V-6 engine powers the Dodge Challenger SE and provides 250 horsepower (186 kW) @ 6400 rpm and 250 lb.-ft. of torque (339 N•m) @ 3800 rpm.

A dual-tuned intake manifold with electronically controlled manifold short-runner valves (SRV) assures high power and torque over the full engine operating speed range. The coil-on-plug ignition system reduces maintenance costs and exhaust emissions while increasing fuel economy.

New-generation 5.7-liter HEMI V-8

The all-new 2009 Dodge Challenger R/T features the new-generation 5.7-liter HEMI V-8 engine that produces 372 horsepower (277 kW) @ 5200 rpm and 401 lb.-ft. of torque (544 N•m) @ 4400 rpm when paired with the five-speed

automatic transmission and 376 horsepower (280 kW) @ 5150 rpm and 410 lb.-ft. of torque (556 N•m) @ 4300 rpm when paired with the six-speed manual transmission. The 2009 Dodge Challenger R/T can go from zero to 60 mph in less than six seconds.

For 2009, the HEMI engine is upgraded to get on average a 4 percent improvement in fuel economy, an increase of more than 30 horsepower and up to 20 lb.-ft. of improved torque over a greater range of engine speeds; particularly at lower engine RPM for an improved off-the-line feel. This is achieved with variable-valve timing to improve torque and an increased compression ratio (10.5 from 9.6). These allow for greater use of Chrysler's fuel-saving multi-displacement system (MDS) technology available on vehicles equipped with the 5.7-liter HEMI V-8 with an automatic transmission.

The new-generation HEMI engine features dual ignition (two spark plugs per cylinder) which increases peak power and torque, reduces exhaust emissions, increases fuel economy and smooths the idle. A refined combustion system and robust structure with direct-mount accessories help make the engine quiet.

Fuel-saving MDS Technology

The 5.7-liter HEMI V-8 with the five-speed automatic transmission includes fuel-saving multi-displacement (MDS) technology. MDS is well suited for vehicles like the Dodge Challenger with an automatic transmission because of its dual nature: a powerful and smooth engine for acceleration that is economical when cruising.

SRT-exclusive 6.1-liter HEMI V-8

The 2009 Dodge Challenger SRT8® features an SRT-exclusive 6.1-liter HEMI V-8 engine that generates 425 horsepower (317 kW) @ 6200 rpm and 420 lb.-ft. of torque (569 N•m) @ 4800 rpm.

The normally aspirated 6.1-liter HEMI V-8 engine is the highest naturally aspirated specific-output V-8 engine ever offered by Chrysler. Its 69.8 horsepower-per-liter rating exceeds even that of the legendary 1966 "Street HEMI."

The 2009 Dodge Challenger SRT8 can go from zero to 60 mph in less than five seconds.

Manual and Automatic Transmissions

Four-speed Automatic Transmission Offered with 3.5-liter V-6

The 2009 Dodge Challenger SE offers a four-speed automatic transmission that provides fully adaptive electronic control of all shifting for smooth operation. The four-speed automatic transmission features an electronically modulated converter clutch (EMCC) that nearly eliminates torque converter slippage and enhances fuel economy up to 3 percent when compared to a non-EMCC converter.

With electronic throttle control, torque management is more sophisticated than previous implementations of this concept. On the four-speed automatic transmission, this improves wide-open throttle up-shifts and down-shifts.

Five-speed Automatic Transmission

Featured on the 2009 Dodge Challenger 5.7-liter HEMI and 6.1-liter HEMI V-8 engine options, the five-speed automatic transmission with Auto Stick provides world-class efficiency while enhancing fuel economy.

An aggressive first-gear ratio provides outstanding launch performance. Auto Stick gives the driver the ability to select a higher or lower gear while the transmission controller calibration prevents situations that might overspeed the engine. Fully adaptive electronic control of all shifting makes the powertrain more responsive without harshness.

Six-speed Manual Transmission

The all-new 2009 Dodge Challenger is the only modern-day car with the 5.7-liter or 6.1-liter HEMI engines to offer a six-speed manual transmission. A derivative of the transmission featured in the all-new 600 horsepower 2008 Dodge Viper SRT10®, the Dodge Challenger's gearbox carries over Viper SRT10 features including triple cone synchronizers in first and second gears and dual cone synchronizers for third through sixth gears, but also has

modifications including new gear ratios to meet fuel economy and performance targets.

“Offering a manual transmission in our all-new 2009 Dodge Challenger was a must,” said Lyons. “Borrowing Dodge Viper SRT10 manual transmission technology, our engineers were able to develop a six-speed manual that meets fuel economy and performance targets for Dodge Challenger’s weight class.”

The clutch for the 2009 Dodge Challenger manual transmission package uses Dodge Viper SRT10’s twin-disc design to ensure exceptional torque capacity and clutch life, low pedal efforts, excellent engagement qualities and optimized spinning inertia.

Hill Start Assist (HSA) is standard with all Dodge Challengers equipped with a manual transmission in order to aid the driver when launching the vehicle on inclines. This unique feature holds the brake for approximately three seconds and allows the driver to seamlessly apply torque via throttle for an effortless start. The brake system automatically releases when the system senses engine torque.

Dodge Challengers equipped with a manual transmission feature a unique performance-tuned dual exhaust that optimizes engine back pressure and exhaust throatiness. This is accomplished by removing the stamped underfloor muffler and replacing it with two low-restriction bottle resonators.

Finely Tuned Chassis

While the 2009 Dodge Challenger shares the suspension geometry of the Dodge Charger, chassis components are re-tuned to support more spirited driving and handling performance.

In the front, the all-new 2009 Dodge Challenger features an independent short- and long-arm (SLA) front suspension to provide excellent ride and handling. The multi-link SLA suspension allows bushing compliance to be tuned for a dramatic reduction in road noise, while maintaining Challenger’s dynamic handling performance.

In the rear, Dodge Challenger’s five-link independent suspension with coil springs allows independent tuning of handling and ride comfort so that each can be maximized. The Dodge Challenger’s rear suspension complements the performance of the front suspension, resulting in a balanced ride.

The Dodge Challenger SE features a touring-tuned suspension with a standard rear stabilizer bar that balances everyday driving comfort with a feeling of control and confidence. Seventeen-inch all-season touring tires are standard on the Dodge Challenger SE. Eighteen-inch touring tires are included with an upgrade to the Dodge Challenger SE Popular Equipment Package.

Dodge Challenger R/T features a sport-tuned athletic, nimble suspension and steering via increased suspension damping, spring rates, steering responsiveness and lower-aspect-ratio all-season performance 18- and 20-inch tires. Reduced body roll, precision steering and well-damped ride provide enthusiast levels of handling without compromise to ride and comfort.

The Dodge Challenger SRT8 offers unique performance tuning developed at race tracks throughout the United States including Nelson Ledges, Grattan and Willow Springs. SRT-exclusive 20-inch fully-forged Alcoa aluminum wheels with Goodyear Eagle RSA four-season tires are standard on the Dodge Challenger SRT8 for 2009. Three-season Goodyear F1 Supercar tires are optional.

Power Rack-and-pinion Steering

Power rack-and-pinion steering has an overall ratio of 16.1:1 on all 2009 Dodge Challenger models. The steering effort is varied to balance comfort and ease-of-operation with road-feel and responsiveness requirements.

Dodge engineers tuned Challenger’s steering system to deliver light parking efforts, without compromising steering performance at speed. In addition, the systems are tuned to match the unique handling capabilities for each of the Dodge Challenger models.

The Dodge Challenger R/T with a manual transmission features a variable displacement power steering pump which reduces fluid temperatures while decreasing the parasitic losses to achieve improved fuel economy (0.2 mpg).

Brakes

Four-wheel disc brakes are standard on Dodge Challenger SE. These feature single-piston aluminum calipers and vented rotors in the front and single-piston aluminum calipers with solid rotors in the rear. These brakes have a larger effective radius than many competitive systems, providing excellent braking power for the Dodge Challenger. The Dodge Challenger SE has a 60 to zero mph stopping distance of approximately 130 feet.

Four-wheel disc brakes are also standard on Dodge Challenger R/T models. They feature twin-piston aluminum calipers and vented rotors in the front and single-piston aluminum calipers with vented rotors in the rear. The Dodge Challenger R/T has a 60 to zero mph stopping distance of approximately 125 feet.

The Dodge Challenger SRT8 features a specially designed braking system that slows and stops the car quickly, safely and predictably. All four wheels on the Dodge Challenger SRT8 are equipped with Brembo calipers that feature four pistons for even clamping performance. Vented and slotted front rotors measure 360 x 32 mm, while vented rears are 350 x 28 mm. With a 60 to zero mph stopping distance of approximately 110 feet, the Dodge Challenger SRT8 offers benchmark braking.

Ducts located in the front fascia of the Dodge Challenger direct cooling airflow to the front brakes, which reduces front-brake temperatures by as much as 15 percent in heavy use for enhanced performance and longer life. Brake pads are tuned to match the performance characteristics of each Dodge Challenger model.

Quality

When the 2009 Dodge Challenger goes on sale in the fall of 2008, nearly 3.2 million customer-equivalent miles will be logged by Dodge Challenger engineers.

Dodge Challenger engineers have conducted approximately a quarter of a million miles of full-scale vehicle and system testing for durability and reliability of the all-new 2009 Dodge Challenger. Testing and validation included driving in the hills of San Francisco; the desert of Death Valley, Calif.; the salty air of Key West, Fla.; and burning rubber on the drag strip in Milan, Mich.

In addition, the 2009 Dodge Challenger has gone through more than 1,200 hours of wind noise and aerodynamic evaluations in Chrysler LLC's state-of-the-art aerodynamic and acoustic test facility in Auburn Hills, Mich.

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