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## **2013 Ram 1500 Offers Best-in-class Fuel Economy of 18 MPG City 25 MPG Highway and More Pioneering, Fuel-saving Systems Than Any Other Pickup**

- New 2013 Ram 1500 includes significant upgrades to powertrain, frame, suspension, body, electrical architecture and interior
- First-in-segment, exclusive innovations: eight-speed automatic transmission, stop-start system, thermal management system and active aerodynamics, including grille shutters and air suspension
- New electric power steering system reduces parasitic losses
- Weight reductions allow additional convenience, comfort and entertainment features, and best-in-class fuel-saving technologies
- Class-exclusive air suspension enhances fuel economy, improves ride, gives greater off-road capability and entry/exit convenience
- Pulse-width modulation (PWM) reduces parasitic loss and improves durability of benefitting systems
- Best-in-class powertrain warranty – 5 years/100,000 miles
- New frame features additional noise vibration and harshness reduction measures, weight saving and greater rigidity for improved handling
- New Keyless Enter 'n Go feature and optional remote central-locking RamBox cargo management system and tailgate combined with door locks

Although the new 2013 Ram 1500 boasts numerous segment-exclusive features, most are under the skin, yet certainly help the new truck stand out from the herd, delivering best-in-class fuel efficiency, improved ride and handling.

“For 2013, we looked at available technology and aligned systems with the goal of greatly improving fuel economy,” said Fred Diaz, President and CEO, Ram Truck Brand and Chrysler de Mexico — Chrysler Group LLC. “The Ram 1500 continues to build on segment exclusives, providing everything customers expect in a modern truck, while delivering best-in-class fuel efficiency, more technology, innovation and features.”

### **Aerodynamics**

The new 2013 Ram 1500 retains its ruggedly handsome appearance with a new, bolder and more aggressive front end. Extensive wind-tunnel testing honed the 2013 Ram 1500 exterior shape, resulting in continued best-in-class aerodynamics. Also, the cooperative application of active aerodynamics and modern styling led to a 6 percent aerodynamic improvement on the new truck. The 2013 Ram 1500 Regular Cab 4x2 coefficient of drag (Cd) is 0.360 – compared with a Cd of 0.386 for the 2012 Ram 1500 Regular Cab 4x2.

### **Exterior**

The front air dam of the 2013 Ram 1500 has been extended downward to create a 0.6 percent improvement in fuel economy. Engineers used a new thermo-plastic material, which is much more malleable, preventing breakage due to contact with curbs, rocks or other objects.

A new wheel-to-wheel tubular side-step design offers aerodynamic improvements over the current version by allowing air to pass around the truck more smoothly. The improvement adds 0.5 percent to fuel efficiency and allows customers easy access to the forward portion of the truck bed.

For 2013, select Ram 1500 models feature a segment exclusive, standard, lockable tri-fold tonneau cover. Serving a dual-purpose, the tonneau cover improves fuel economy by 0.8 percent and adds security and weather protection for bed storage. The unique design is flexible, giving owners the ability to utilize one, two or all three sections of the cover by folding the system on top of itself.

### **Active grille shutters**

The new Ram 1500 is the first truck to employ an active grille shutter system, which automatically closes the airflow through the huge grille when cooling is least needed. The system improves fuel economy by 0.5 percent by reducing drag roughly 3 to 5 percent and improves warm-up time/defrost time.

When the active grille shutters are closed, airflow is redirected over and around the front of the truck, enhancing aerodynamic performance rather than creating turbulence in the engine compartment. Engine coolant temperature and vehicle speed determine shutter position. The shutters remain closed when less engine cooling is required and aerodynamic drag is most significant; the system will open the shutters when the truck's cooling demands require additional airflow, for example traveling up a hill or pulling a trailer in high-temperature environments.

### **Air suspension**

Best-in-class ride and handling get even better. The 2013 Ram 1500 is now available with an all-new air suspension system for optimum ride and aerodynamic performance. Another benefit to the new air suspension is the load-leveling capability, which automatically detects load on the suspension from a trailer or payload. The air pressure increases until the vehicle reaches normal ride height, leveling the truck and improving the loaded ride.

The new air suspension system features five height settings that operate automatically or may be controlled manually via console or key fob controls:

- Normal Ride Height (NRH): 8.7 inches of clearance (measured from the base of the door sill) is the default, load-leveled ride height
- Aero Mode: Lowers the vehicle 0.6 inches from NRH. Aero Mode improves fuel efficiency by up to one percent and is activated by vehicle speed, adjusting for optimal performance and fuel economy
- Off-road 1: Lifts the vehicle 1.2 inches from NRH for added height in clearing obstacles
- Off-road 2: Delivers more off-road capability, increasing ground clearance by 2 inches over NRH
- Park Mode: Lowers the vehicle 2 inches from NRH for easy entry/exit and cargo loading

The new air suspension system adds up to 4 inches of lift span, offering best-in-class step-in height of 21 inches, best-in-class ground clearance of 10.7 inches, best-in-class departure angle of 27.8 degrees, and best-in-class breakover angle of 24.2 degrees supported by four-corner air springs that provide a cushioned, premium ride.

The air suspension system also allows for different spring rates depending on the ride height. In Off-road 2, the rate is firmer when compared to NRH, improving the ability of the suspension to soak up obstacles. In Aero mode, the rate is softened to improve the ride on highways.

Additionally, a separate button on the key fob gives the operator the ability to manually lower the truck, allowing for ease of passenger entry and bed loading.

### **Electric power steering**

The 2013 Ram 1500 features electric power steering (EPS). By using an electric motor to power the truck's rack and pinion steering system, the engine is relieved from the task of a constantly turning a hydraulic pump, improving fuel efficiency up to 1.8 percent and adding 5 horsepower. Also, the introduction of EPS reduces complexity by removing the previous hydraulic pump, high-pressure hydraulic hoses and cooling apparatus. This greatly streamlines manufacturing and maintenance. With EPS, each Ram 1500 model can be specifically calibrated to optimize steering effort and precision regardless of body or powertrain configuration. Additionally, EPS senses constant input from the driver, for example a crown in the road, and compensates for improved comfort.

### **Weight reduction**

Weight reduction is an important variable in the fuel economy equation. Reducing the weight of components improves fuel economy and allows for more content without affecting payload or towing capability.

Contingent on the model, a newly redesigned frame benefits from a weight reduction of up to 30 pounds by using

advanced high-strength steels. Also benefitting from advanced metal, new box floor cross-members in the bed eliminates seven pounds and a new front bumper design removes four pounds. Additionally, aluminum lower control arms in the front suspension contribute to weight reduction and handling. The Ram 1500 also features an aluminum hood saving 26 pounds.

Underneath the hood, the combination of the new Pentastar V-6 engine and new TorqueFlite 8 transmission reduce weight by approximately 76 pounds. The V-8 engine and TorqueFlite 8 together reduce weight by more than 30 pounds.

The weight reductions not only allow for more convenience, comfort and entertainment features but also best-in-class fuel-saving technology such as thermal management, stop-start and active aerodynamics.

#### **Pulse-width modulation**

Pulse-width modulation (PWM) is a new fuel-saving technology for the Ram 1500, which reduces parasitic electrical load. The technology not only eliminates unnecessary load on the alternator but also improves the durability of benefitting systems. Fuel delivery and the forward cooling fan are two systems that take advantage of PWM, adding a 0.4 percent improvement in fuel efficiency.

#### **Fuel delivery**

The primary fuel pump is responsible for ensuring a constant pressure of fuel at the engine's injectors. Although the truck is not always at full throttle, the pump must continuously run at operating capacity to compensate for when the engine requires full throttle fuel delivery. The PWM system includes a sensor at the fuel rails dictating fuel pressure requirements, allowing the primary fuel pump to operate on-demand, much like a light dimmer switch. This efficient operation not only results in reduced parasitic loss by relieving the alternator and reducing unnecessary load on the engine, but also greatly improves the durability of the fuel pump system by significantly reducing duty cycles.

#### **Cooling fan**

For 2013, the radiator's electric cooling fan also features PWM, allowing the high-current fan to operate at variable speeds. As in fuel delivery, the fan does not need to operate at full capacity during all drive cycles. Although most automotive fan systems have the ability to function at a variety of speeds, few will closely monitor the engine temperature and make slight changes in speed to compensate for subtle temperature changes. The combination of a PWM fan, active grille shutters, and engine and transmission thermal management system provide an advanced temperature-control solution for the 2013 Ram 1500.

#### **Low-rolling-resistance tires**

The 2013 Ram 1500 features standard low-rolling-resistance tires to minimize wasted energy and decrease required rolling effort. Tread patterns, advanced materials and millions of miles of testing result in greater fuel efficiency.

#### **Chassis**

The 2013 Ram 1500 uses a newly designed frame with improved, low-torsion (stiffness) attributes that increase stability and handling precision while decreasing noise, vibration and harshness (NVH) up to 30 percent, depending on drive cycle. Front rails feature 20 percent increased yield strength from the use of high-strength steel. Among other features, the new frame design incorporates new powertrain, new air suspension and new body mounting technology. Portions of the frame are hydroformed for dimensional accuracy (hydroforming reduces the amount of welding that leads to distortion), and side rails are fully boxed. The front frame section incorporates advanced, high-strength steel that maintains overall strength and durability while saving approximately 30 pounds. To further improve NVH, new larger body mounts are located on the front frame rails and at the C-pillar.

Three frame lengths are available: 120-inch, 140-inch and 149.5-inch.

In 2009, the Ram 1500 introduced an exclusive multi-link, coil-spring rear suspension and the competition has been trying to catch up ever since. Standard on Ram 1500 models, the innovative rear suspension provides improved ride and handling characteristics with no loss of capability. A coil-spring design centralizes and absorbs bumps and impacts, while reducing the amount of friction in the spring system. This design also weighs 40 pounds less than a leaf-spring configuration.

New standard front independent suspension combines redesigned upper control arms, aluminum lower control arms and retuned geometry with coil springs for improved responsiveness and handling. New, more robust ball joints on

the front suspension yield greater durability and are engineered with improved sealing methods.

#### **Brake system**

A new brake system relocates the anti-lock brake (ABS) pump for improved NVH and is engineered for shorter brake pedal travel. Also, a new hydraulic-boost compensation unit enhances brake pedal feel and performance during emergency stop events.

Four-wheel disc brakes are standard on all 2013 Ram Truck models. Front rotors measure 13.2 inches (336 mm) in diameter and are clamped with dual-piston calipers, while rear rotors are 13.8 inches (352 mm) and utilize single-piston calipers.

#### **Additional new features**

For 2013, Ram 1500 customers can enjoy the convenience of power folding mirrors and a power rear-sliding window with defrost. Also available is a new six-foot-four-inch bed option on the Crew Cab model, allowing for maximum passenger and bed hauling capability. For 2013, the central locking system includes the RamBox cargo management system and tailgate power locks, creating a convenient solution for locking down exterior doors and storage with the push of a button. Auto rain-sensing wipers and SmartBeam also find their way into the feature availability list, adding to a truckload of content offered in the new 2013 Ram 1500.

#### **Unsurpassed Powertrain Warranty - 5 years/ 100,000 miles**

The 2013 Ram 1500 is backed with a best-in-class 5-year /100,000-mile Powertrain Limited Warranty. The Powertrain Limited Warranty covers the cost of all parts and labor needed to repair a covered powertrain component — engine, transmission and drive system. Coverage includes free towing to the nearest Ram Truck dealer, if necessary. The warranty also is transferable allowing customers who sell their truck during the warranty period to pass the coverage onto the new owner.

The standard 3-year / 36,000-mile Basic Limited Warranty provides bumper-to-bumper coverage for the Ram 1500, from the body to the electrical system.

#### **Manufacturing**

The 2013 Ram 1500 is built at the Warren Truck Assembly Plant (Warren, Mich.), which has built more than 12.5 million trucks since it started operations in 1938. Regular Cab models of the 2013 Ram 1500 are built at the Saltillo Truck Assembly Plant in Saltillo, Mexico.

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