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2013 Ram 1500 Features Best-in-class Fuel Economy of 18 MPG City and 25 MPG Highway with Pentastar V-6 and Segment Exclusive Eight-speed Transmissions

- New 3.6-liter-Pentastar V-6 engine (Ward's 10 Best Engines winner) with variable-valve timing (VVT) offers best-in-class standard 305 horsepower with 269 lb.-ft. of torque and best-in-class standard fuel economy
- New V-6 features 42 percent more horsepower, 13 percent more torque and at least 20 percent better fuel economy when compared to the previous 3.7-liter V-6 powertrain
- 5.7-liter HEMI® V-8 with cylinder shut-off technology and VVT provides 395 horsepower, 407 lb.-ft. of torque and best-in-class fuel economy for V-8 trucks, outpacing even competitive V-6 turbo engines
- Class-exclusive eight-speed automatic transmission (TorqueFlite 8), standard equipment with 3.6-liter V-6 Pentastar, doubles the amount of gears compared to previously available four-speed automatic transmission to greatly improve fuel economy and contribute to best-in-class standard V-6 towing
- Coupled with TorqueFlite 8, 5.7-liter HEMI V-8 achieves at least 10 percent better fuel economy when compared to 2012 model
- New TorqueFlite 8 operated by an innovative dash-mounted, rotary e-shift design
- The Company's first application of the new eight-speed with the 5.7-liter HEMI V-8
- First-in-segment: stop-start system, eight-speed automatic transmission, thermal management system, pulse-width modulated fuel pump and cooling fan, active aerodynamics including grille shutters and air suspension
- Interactive Decel Fuel Shut-Off (iDFSO) improves fuel economy in both city and highway driving
- Best-in-class powertrain warranty: 5 years/100,000 miles

Major changes under the hood of the new 2013 Ram 1500 will help deliver best-in-class V-6 fuel economy and substantial increases in power and performance with the Chrysler Group's award-winning Pentastar 3.6-liter V-6 engine coupled with the first use of an eight-speed TorqueFlite 8 transmission in a pickup truck.

The 5.7-liter HEMI® also will benefit with the first use of an eight-speed automatic transmission, besting competitive turbo V-6 engines. The new, TorqueFlite 8 is available with the V-8 engine and features a higher capacity torque converter and is scheduled for availability in early 2013.

Coupled with the debut of an eight-speed transmission, select Ram 1500 models will offer a new stop-start feature that automatically shuts the engine off when the truck comes to a complete stop, conserving fuel. The engine restarts when driving is resumed.

"The coupling of our legendary 5.7-liter HEMI V-8 and Ward's 10 Best Engines, 3.6-liter Pentastar V-6 to a new eight-speed automatic transmission led the way to best-in-class fuel economy for the 2013 Ram 1500," said Bob Lee, Vice President, Powertrain and Electrified Propulsion Systems Engineering — Chrysler Group LLC. "Although the addition of a new eight-speed achieved double-digit percentage gains in fuel economy, we also added a number of segment exclusive technologies such as thermal management, stop-start and active grille shutters to further improve efficiency."

Best-in-class V-6 fuel economy 18 MPG City 25 MPG Highway – Pentastar V-6 engine
With best-in-class standard horsepower rated at 305 at 6,400 rpm and torque of 269 lb.-ft. at 4,175 rpm, the 2013 Ram 1500 goes from zero to 60 mph three seconds faster than the previous V-6 powertrain. The new Ram 1500

becomes the latest vehicle to benefit from advanced technology in the Pentastar engine, delivering best-in-class fuel economy. Features include dual overhead camshafts (DOHC), high-torque over a broad rpm range, low exhaust emissions, E85 capability, exceptional fuel economy, and best-in-class noise, vibration and harshness (NVH).

Introduced less than two years ago, the new V-6 engine has become the workhorse engine across the Chrysler lineup and has replaced seven previous V-6 engines. The Pentastar won Ward's 10 Best Engines award in its debut year of 2011 and repeated this honor in 2012.

The compact, 60-degree, all-aluminum block is constructed of high strength die-cast T380 aluminum with cast iron bore liners. Six bolt main bearing caps contribute to an extremely rigid lower engine structure. Cast aluminum pistons are fitted to forged connecting rods. Aluminum cylinder heads with DOHC and four valves per cylinder include integral exhaust manifolds. High flow, tumble intake ports and a 10.2:1 compression ratio deliver an optimal balance of power, fuel efficiency and refinement.

Despite the high compression ratio, the Pentastar V-6 is designed to run on regular 87-octane fuel to reduce the cost of ownership. The 3.6-liter Pentastar also is E85 compliant across all 50 states.

To help deliver better fuel efficiency and better volumetric efficiency across a wide torque band, the engine also includes variable-valve timing (VVT) with dual-independent cam phasing. Nearly 90 percent of the engine's peak torque is available from 1,800 to 6,400 rpm – an important consideration when towing or hauling a load.

With increases in both horsepower and torque, there is no shortage of capability. For 2013, customers can opt for a V-6 engine with a 4x4 powertrain and in crew cab models.

Best-in-class V-8 fuel economy – 5.7-liter HEMI® V-8 (late availability)
Long associated with power, enhanced fuel efficiency also is provided with the legendary HEMI® through the use of variable-valve timing (VVT) and cylinder shut-off technology. The 2013 Ram 1500 is the first vehicle to combine the new eight-speed automatic and the HEMI V-8 engine (late availability).

With 395 horsepower at 5,600 rpm and 407 lb.-ft. of torque at 3,950 rpm, the 5.7-liter HEMI V-8 delivers impressive towing and payload. Equipped with VVT, the HEMI V-8 is designed to deliver more consistent power across a wide torque band and greater fuel efficiency than competitive turbo V-6 engines.

Fuel enhancing features with the HEMI include cylinder shut-off technology, which deactivates four cylinders of the engine during light acceleration or cruising situations on the highway when full V-8 power is not needed. Depending on the driving, cylinder shutoff can increase fuel economy from 5 to 20 percent. Transparent to the driver, the system operates between 1,000 and 3,000 rpm and provides V-8 power for acceleration and heavy loads and four-cylinder operation when the torque requirement is less than the maximum available from four cylinders, saving fuel.

Additionally, VVT technology improves fuel economy by first reducing the engine's pumping work by closing the intake valve later, and second by increasing the expansion process of the combustion event. This allows more energy to be transferred to the wheels instead of being lost out of the exhaust as heat. VVT also improves engine breathing, which improves engine efficiency and power.

Fuel savings also are realized through an Interactive Deceleration Fuel Shut Off feature (iDFSO), which expands opportunities for turning off fuel to the engine during deceleration events thereby improving fuel economy in both city and highway driving.

Also, the 2013 Ram 1500 features best-in-class standard V-6 of 6,500 pounds and payload up to 1,948 pounds.

TorqueFlite 8 automatic transmissions
The new, 8HP45 eight-speed automatic transmission is the new standard transmission for Ram 1500 with the Pentastar V-6 engine. For HEMI® V-8 - equipped Ram 1500 models, the higher torque capacity version 8HP70 will be available in the first quarter of 2013.

Owners will appreciate an innovative rotary e-shift dial for trucks equipped with the new TorqueFlite 8-speed transmission that replaces both column and floor shifters. The exclusive rotary e-shift enables intuitive operation with

a direct and confident feel, even with gloves on. The convenient, dash-mounted, easy-to-understand and operate system provides total control of the sophisticated eight-speed transmission and is Ram Truck's innovative approach to electronic shifters, already used in Class 6-8 trucks. This new design allows quick blind-shift transitions from “Reverse” to “Drive” when towing or navigating out of mud, snow or busy parking lots and crowded worksites. The new rotary e-shift dial also yields space for more functional and usable storage in the console.

Fully electronic, both the 8HP45 and 8HP70 transmissions feature on-the-fly shift map changing, with manual shifting steering capability using wheel controls. More than 40 individual shift maps for very specific conditions optimize shift quality and shift points for fuel economy, performance and drivability. The intelligent software takes into account variables including engine torque gradients, kick down events, longitudinal and lateral acceleration, hill detection, friction detection and downshift detection to determine the appropriate shift map. Additional parameters integrated into the control strategy include vehicle speed control, electronic stability control interaction and temperature. The result is automatic shifting ideally attuned to the performance requirements of almost any driving demand.

The transmission efficiency and wide ratio spread provide the best possible fuel economy by operating at a lower engine rpm in both city and highway environments. Driving at a lower rpm also helps to effectively reduce emissions by nearly 11 percent. Internally, identical transmission gear ratios are used in both the 8HP45 and 8HP70 transmissions.

The addition of more gear ratios also helps reduce the gaps normally associated with upshifting and downshifting.

Gear changes are nearly imperceptible due to the evenly spaced gear steps between each gear ratio. Internally, both transmissions have four gear sets and five shift elements (multi-disc clutches and brakes). Only two shift elements are open at any time. With fewer open shift elements, drag losses due to multiple parts rotating relative to one another are reduced, improving fuel efficiency.

High efforts in shifting have been eliminated with gear selection controlled by a shift-by-wire system. Shift positions, selected by the driver via a rotary e-shift dial on the instrument panel, are transmitted electronically with no mechanical linkage from the shifter to the outside of the transmission. Elimination of this linkage removes any shift effort from the driver’s gear selection but maintains an intuitive operation with a direct and confident feel. Calibration also is improved for smoother shifting in garages or while parking.

Torque capacity for the 8HP45 is 332 lb.-ft. (450 Nm). The heavy-duty 8HP70 has a torque capacity rating of 516 lb.-ft. (700 Nm).

Thermal management system
Making its introduction, and a segment exclusive on the 2013 Ram 1500, is a new thermal management system that is designed to quickly raise engine and transmission fluid temperatures. By raising fluid temperatures, parasitic losses resulting from low-viscosity engine oil and transmission fluid are reduced, improving fuel efficiency by 1.7 percent.

As the engine temperature increases to pre-determined levels, warm engine coolant is circulated through a thermal exchange unit, which also contains dedicated pathways for transmission fluid and engine oil. As the thermal exchange unit heats up, it also heats up the fluids. This action dramatically reduces warm up time for the transmission, improving fuel economy, drivability and shift quality. In most powertrain configurations, the transmission heats up independently of the engine, delaying warm-up time and reducing efficiency.

Standard on trucks with the TorqueFlite 8, the new thermal management system is primarily used to increase fuel efficiency but assists in preventing the transmission from exceeding operating temperatures in situations when towing or hauling — improving durability and performance.

Stop-start
Adding to industry firsts in a pickup truck is the application of stop-start, another fuel-saving feature available on select 2013 Ram 1500 models. This new system improves fuel economy by up to 3.3 percent, an increase of about one mile per gallon (mpg) to the truck’s city drive cycle.

Stop-start increases fuel efficiency by shutting the engine off when the truck comes to a complete stop. Amenities (radio, gauges, heating or air conditioning, etc.) continue to operate, making the operation transparent to the driver.

The engine restarts automatically when the driver releases the brake, allowing seamless acceleration.

The system monitors brake pedal position and vehicle speed over time to determine appropriate engine shut off, preventing frequent on/off cycling in heavy stop-and-go traffic situations.

Precise powertrain calibration and input from a number of systems determines when to engage the system.

Due to additional high-use and electrical load demands placed on the starter, alternator and battery, these components have been upgraded for heavy-duty operation on models equipped with the stop-start feature. This includes a high-durability starter housed in a stronger case, heavy-duty flywheel teeth and a more robust starter solenoid. During testing, the new starter was subjected to durability testing cycles more than 2.5 times that of a non-stop-start equipped unit – more than 300,000 on/off cycles. The new battery features 800 amps with absorbed glass mat (AGM) technology. An upgraded 220-amp alternator also is included in the charging system.

System voltage is continually monitored through a battery sensor. If the battery's charge is reduced, the truck will discontinue stop-start until the battery is recharged to an acceptable level.

Stop-start is activated automatically and requires no input from the driver. A system disable switch is located on the dash if the operator wishes to suspend the feature.

Transfer cases
Two transfer cases are available on the 2013 Ram 1500: the Borg Warner 44-45, which enables part-time four-wheel drive operation with a two-speed gear system and the Borg Warner 44-44, which enables an on-demand four-wheel drive system, also with a two-speed gear system. Both transfer cases are engaged with a dash-mounted rotary dial (column shifter) or buttons (TorqueFlite 8 rotary e-shifter).

The part-time transfer case provides three operating ranges 2HI (two-wheel drive), 4HI (four-wheel drive) and 4LO (low-range reduction four-wheel drive) plus a neutral position. The 2HI is designed for any road surface at any time. Both 4HI and 4LO are for off-road use or slick surfaces. Operating mode may be switched between 2HI and 4HI while the vehicle is in motion, but the vehicle's transmission must be in neutral to engage 4LO. The low-range reduction ratio for 4LO is 2.64:1, which provides increased low-speed torque capability for pulling power in off-road conditions.

The on-demand transfer case provides four operating ranges: auto, 2HI, 4HI and 4LO. The auto range provides optimum versatility by engaging two- or four-wheel drive depending on road conditions. 2HI, 4HI and 4LO function the same as in the part-time transfer case.

Driveshafts incorporate 1350 series universal joints, two-piece thrust washers with triple-lip seals and improved journal cross strength.

Axles
Two final drive ratios, 3.21 and 3.55, are available on both the 2WD and 4WD models, reducing engine rpm throughout the operating range for better fuel economy.

Four-wheel drive models of the 2013 Ram 1500 use a front axle designed for optional air suspension or standard torsional independent front suspension, incorporating half-shafts that drive front hubs. The axle also has a disconnect system that automatically disengages the axle when four-wheel drive mode is disengaged, for increased fuel economy.
The rear axle uses a new optional air suspension or multi-link mounting design to facilitate a coil-spring setup, with forward-facing shock absorber brackets. Four gear ratios are available: 3.21, 3.55, 3.92 and 4.10.

In addition, an optional helical-gear, limited-slip rear axle is available. The limited-slip function instantaneously divides torque between the rear wheels in proportion to the traction available to each wheel. The system is consistently smooth when turning corners because it responds only to variations in traction.

Unsurpassed Powertrain Warranty – 5 Year/ 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 also includes free towing to the nearest Ram 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.

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