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## **All-new Clean 3.0-liter EcoDiesel V-6 and Eight-speed Automatic Transmission Result in 30 mpg Jeep® Grand Cherokee**

*Fuel economy significantly improved in all powertrain options*

- Best-in-class fuel economy, estimated 30 miles per gallon (mpg), and unmatched driving range of more than 730 miles
- Clean diesel with low CO2 emissions
- New eight-speed transmission increases fuel economy across lineup; increases crawl ratio
- Pentastar V-6 delivers best-in-class driving range for gas-powered full-size SUVs
- New Eco Mode optimizes Grand Cherokee for superior fuel economy
- Gasoline-driven engines deliver best-in-class towing capability of 7,400 pounds for V-8 and 6,200 pounds for V-6

January 13, 2013, Auburn Hills, Mich. - Among all of the many new 2014 Jeep® Grand Cherokee features, two in particular contribute to vastly improved fuel economy and driving performance: a new, clean, 3.0-liter EcoDiesel V-6 engine and a new eight-speed automatic transmission.

The result: Jeep has taken the most awarded SUV in history and raised the benchmark even further, achieving fuel economy up to an estimated 30 miles per gallon (mpg) in EcoDiesel form, and improved fuel economy, drivability and overall performance across the Grand Cherokee lineup.

“Grand Cherokee customers are very demanding – they want superior capability and efficiency,” said Bob Lee, Chrysler Group Vice President and Head of Engine and Electrified Propulsion Engineering — Chrysler Group LLC. “The clean 3.0-liter V-6 diesel engine coupled with the eight-speed transmission meets the tough Jeep customer requirements by providing an exceptional combination of high torque across the rpm range and outstanding fuel economy.”

Jeep Grand Cherokee's new 3.0-liter EcoDiesel V-6 engine is expected to achieve 30 mpg highway with a driving range of more than 730 miles. The award-winning Pentastar V-6 engine delivers an estimated 25 mpg, with a best-in-class range of more than 600 miles. And the legendary 5.7-liter V-8's fuel economy improves 10 percent, now achieving an estimated 22 mpg.

### **All-new clean 3.0-liter EcoDiesel V-6 engine**

Enthusiasts in North America have been clamoring for a diesel-powered Grand Cherokee and Jeep has delivered. Producing a class-leading 240 horsepower and massive 420 lb.-ft. of torque, the 3.0-liter EcoDiesel is capable of towing 7,400 pounds — more than any competitor's V-8 equipped SUVs. With a 30-percent increase in fuel economy and a nearly 62-percent increase in torque versus the Pentastar V-6 engine, the EcoDiesel achieves an estimated 22 mpg in the city and 30 mpg on the highway in 4x2 models. This allows for a best-in-class driving range of more than 730 miles. Full-time 4x4 models are estimated at 21 mpg city and 28 mpg highway.

The new, 50-state legal, clean 3.0-liter EcoDiesel engine produces low CO2 emissions. MultiJet II common-rail injection and Selective Catalyst Reduction (SCR) help this new engine achieve these results.

The 24-valve, dual-overhead-cam engine features a block and bed plate crafted from strong compacted graphite iron (CGI), which contributes to stiffness without penalizing performance.

The clean 3.0-liter EcoDiesel's 60-degree cylinder banks enable more efficient packaging, while effectively balancing the potent inertia generated by torque-rich diesels.

Driver and passengers alike can expect a smooth, quiet ride on any journey. The new engine's 1-4-2-5-3-6 firing order helps manage rotation so neatly it needs no balance shaft to deliver the level of refinement for which the Grand Cherokee is known.

Further contributing to quieter performance, as well as optimal fuel economy and emissions reduction, is the clean diesel's common-rail fuel-injection system. Its 29,000-psi (2,000-bar) pressure is unmatched by any solenoid-based system.

Swirl-control intake ports benefit from a variable-geometry turbocharger and intercooler that ensure the required engine response, whether merging on-road or surging off-road.

Temperature extremes are also addressed. The new engine's turbo is water-cooled to handle searing heat, while low-voltage ceramic glow plugs accommodate quicker cold-weather starts.

Other key features and benefits include:

- Finger-follower actuated valves with hydraulic adjusters
- Chain-driven camshafts
- Piston-cooling oil jets
- Water-cooled exhaust-gas recirculation (EGR) for Tier II, Bin 5 and ULEV II compliance
- B5 biofuel compatibility
- 50-state emission compliance

#### **All-new eight-speed transmission**

All three Jeep Grand Cherokee engines are now attached to Chrysler Group's new eight-speed automatic transmission, which provides better fuel economy, quicker acceleration and smoother shifting. Another benefit is a lower crawl ratio of 44.1:1 to aid in climbing over – or through – tough obstacles when equipped with a two-speed transfer case. This is a 46 percent improvement over the previous model's crawl ratio.

"The eight-speed transmission – with a wide ratio spread, high numerical first-gear ratio, quick shifting and aggressive torque-converter lockup – is a major contributor to meeting the Grand Cherokee's ambitious performance targets," said Mircea Gradu, Vice President and Head of Transmission Powertrain and Driveline Engineering. "And it does so without compromising fuel economy."

Robust enough to accommodate the Grand Cherokee EcoDiesel's prodigious torque, the new-for-2014 gearbox delivers not only the promise of durability, but its precise shift schedule enhances ride quality to luxury-car levels.

Fully electronic, the eight-speed automatic features on-the-fly shift map changing, with manual shifting capability and Electronic Range Select using steering-wheel paddle controls. More than 40 individual shift maps for 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, grade changes, 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. 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, the transmission has 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.

#### **Award-winning 3.6-liter Pentastar V-6 engine**

Twice named one of Ward's 10 Best Engines, Grand Cherokee's standard 3.6-liter Pentastar V-6 engine boasts an estimated 25 mpg on the highway for 2014.

The standard flex-fuel 3.6-liter Pentastar V-6 engine generates 290 horsepower and 260 lb.-ft. of torque. Combined with the new eight-speed transmission, Pentastar-equipped Grand Cherokees are now able to tow 6,200 pounds, a 24 percent increase over the previous year. The transmission also helps the V-6 models to achieve an estimated 17 mpg city and 25 mpg highway on 4x2 and 17 mpg city and 24 mpg highway on 4x4 models. This allows the Grand Cherokee to have best-in-class driving range of more than 600 miles for gasoline-powered SUVs.

Grand Cherokee's 3.6-liter V-6 engine features a double-overhead cam (DOHC) and high-flow intake and exhaust ports, which in combination with variable valve timing (VVT) via dual independent cam phasing, allow optimum volumetric and combustion efficiency over the full speed and load range. This results in an exceptional, flat torque curve along with high specific power. The engine's torque exceeds 90 percent of its peak value from 1,600 to 6,400 rpm, which provides customers outstanding drivability and responsiveness.

Structural, intake and exhaust areas of the 3.6-liter V-6 engine are designed to deliver low levels of overall noise and achieve specific sound quality goals that meet discerning customer requirements.

An environmentally friendly oil filter system with optional integrated oil cooler is used to help protect the environment via incineration of the filter element. The use of long-life spark plugs and a high-energy coil-on-plug ignition system also helps reduce cost of ownership.

#### **Celebrated 5.7-liter V-8 engine**

Fuel economy improvements are not exclusive to Jeep Grand Cherokee's V-6 powertrains. The 5.7-liter V-8 engine produces 360 horsepower and 390 lb.- ft. of torque, and boasts best-in-class towing capacity of 7,400 pounds. Now mated to the new eight-speed transmission, and owing in part to VVT and Chrysler Group's seamless Fuel Saver cylinder-deactivation technology, the V-8 models now offer improved estimated fuel economy of 14 mpg city and 22 mpg while 4x4-equipped models get a bump to 14 mpg city and 20 mpg highway.

The 5.7-liter engine's VVT improves fuel economy in two ways. First, it reduces the engine's pumping work by closing the intake valve later. Second, it increases the expansion process of the combustion event. This allows more work to be transferred to the crankshaft instead of being rejected out of the exhaust port as heat. VVT improves engine breathing, which further improves engine efficiency and power.

The 5.7-liter engine's Fuel Saver Technology with cylinder-deactivation seamlessly alternates between smooth, high-fuel-economy four-cylinder mode when less power is needed and V-8 mode when more power is in demand. This optimizes fuel economy when V-8 power is not required, without sacrificing vehicle performance or capability.

#### **Eco Mode further improves fuel efficiency**

The 2014 Jeep Grand Cherokee features a new Eco Mode that contributes to its improved fuel economy. Eco Mode optimizes the Grand Cherokee transmission's shift schedule and – in V-8 models – Fuel Saver Technology with cylinder deactivation as well as throttle sensitivity to maximize fuel economy. The Eco Mode also manages interactive deceleration fuel shut-off (IDFSO), which cuts fuel delivery when the vehicle is coasting to reduce fuel consumption.

In addition, the Eco Mode activates the vehicle's air suspension system (if so equipped), lowering the Jeep Grand Cherokee to "Aero Ride Height" earlier to improve fuel economy.

Eco Mode is automatically engaged upon vehicle startup. A button on the center stack allows driver's to disengage Eco Mode if more spirited performance is desired.

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*\*Fuel economy estimates are based on manufacturer's testing and are correct at time of publication .*

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