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3.6-liter Pentastar V-6 With eTorque Named to Wards 10 Best Engines List

All-new 2019 Ram 1500 Earns Sweep of Wards 10 Best

- Latest iteration of workhorse Pentastar V-6 engine from FCA US delivers significant gains in fuel economy with innovative eTorque mild-hybrid system
- eTorque combines a belt-driven motor generator unit with a 48-volt battery pack to enable improved fuel efficiency, drivability, performance and value with quick, seamless stop-start functions and energy recovery with brake regeneration used to support increases in towing capacity and payload
- eTorque restarts the engine in half the time of many starter-driven stop-start systems and adds up to 90 lb.-ft. of supplemental torque to the crankshaft during stop-start maneuvers
- Ninth consecutive year and 19th overall that FCA US is represented on Wards 10 Best Engines list

December 13, 2018, Auburn Hills, Mich. - The editors at WardsAuto have named the proven 3.6-liter Pentastar V-6 engine with its innovative eTorque mild-hybrid system as one of Wards 10 Best Engines for 2019.

Making its debut in the all-new 2019 Ram 1500,and rated at 305 horsepower and 269 lb.-ft. of torque, the Pentastar V-6 engine with eTorque helps to improve fuel economy – without sacrificing horsepower, torque or capability – and requires no extra effort by the driver.

Fuel economy is U.S. EPA rated at 20 (city)/25 (highway)/22 (combined) miles per gallon (mpg) in rear-wheel drive and 19 (city)/24 (highway)/21 (combined) mpg in four-wheel-drive Ram 1500 models. The city mpg rating is an 18 percent improvement and the combined mpg rating is improved 10 percent from the previous model.

“The Pentastar V-6 engine with eTorque shows how electrifying components of conventional engines can create magic under the hood,” said Drew Winter, senior content director at WardsAuto. “The all-new 48-volt mild-hybrid eTorque system provides a dollop of electrical propulsion during launch and while shifting gears, creating seamless, buttery smooth power to the wheels and improved fuel economy.

“Our judges recorded 21 to 22 mpg, outstanding for a full-size, four-wheel-drive pickup,” Winter added. “The power of the eTorque system also makes the Ram’s fuel-saving stop-start system work almost imperceptibly. It’s one of the best around.”

The eTorque mild-hybrid system replaces the traditional alternator on the engine with a belt-driven motor generator unit that performs several functions. The motor generator unit works with a 48-volt battery pack to enable improved fuel efficiency, drivability, performance and value with quick, seamless stop-start functions and energy recovery with brake regeneration used to support increases in towing capacity and payload.

With the engine running, eTorque’s motor generator unit feeds 48-volt current to a 430 watt-hour lithium-ion nickel manganese cobalt (NMC)-graphite battery. The battery pack includes a 3-kilowatt DC-to-DC converter to maintain the battery’s state of charge and convert 48 volts to 12 volts to power the Ram 1500’s accessories and charge its conventional 12-volt lead-acid battery.

The Pentastar V-6 engine with eTorque retains a conventional 12-volt starter motor, used for cold starts and the first start of the day due to its greater efficiency in extreme temperatures.

eTorque delivers seamless and nearly unnoticeable engine restarts by sending up to 90 lb.-ft. of supplemental torque

to the crankshaft during stop-start maneuvers. Torque to the wheels travels within 400 milliseconds, more than twice as fast as many starter-motor engine stop-start systems.

In addition to spinning the engine for restarts to help launch the vehicle, eTorque also recaptures energy during deceleration and braking to charge the battery pack. eTorque also enhances the driving experience by adding torque to the crankshaft during gear changes to minimize noise, vibration and harshness (NVH).

The liquid-cooled eTorque motor generator is mounted on the front of the Pentastar engine and employs a pair of belt tensioners to keep the eight-rib drive belt tight when the unit is generating electricity or adding torque to the crankshaft.

The newest Pentastar V-6 engine's advanced technologies, such as wide-range variable valve-timing and two-step variable-valve lift, deliver the optimal blend of power and fuel economy based on the driver's demand. A cooled exhaust gas recirculation system enables improved fuel economy and emissions performance at higher loads.

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, treated with a friction-reducing coating and piston rings, drive forged connecting rods. Aluminum cylinder heads carry dual-overhead cam shafts, four valves per cylinder and use high-tumble intake ports. The exhaust manifolds are integrated with the cast cylinder heads.

A compression ratio of 11.3:1 delivers an optimal balance of power, fuel efficiency and refinement. Despite the high compression ratio, the Pentastar V-6 engine with eTorque runs on regular 87-octane fuel to reduce the cost of ownership.

The two-step variable-valve lift (VVL) system remains in low-lift mode in most driving situations. When the driver demands more power, VVL switches to high-lift mode for improved performance.

The variable valve timing system, with dual-independent cam phasing and 70 degrees of authority, helps reduce pumping losses in the engine.

"The versatility of our workhorse Pentastar V-6 engine family is unquestioned, with more than 9 million produced; and this latest Wards milestone represents the sixth time the 3.6-liter engine has been recognized with three different iterations," said Bob Lee, Head of Engine Powertrain and Electrified Propulsion Systems Engineering, FCA-North America. "With the new eTorque mild-hybrid system, receiving the Wards 10 Best recognition validates our mission to provide customers optimal ownership value without sacrificing performance."

Clean Sweep

With this latest 10 Best Engines recognition, the 2019 Ram 1500 has earned a sweep of Wards 10 Best honors by being acknowledged on all three prestigious lists in a single calendar year, including:

- Wards 10 Best User Experiences for 2018 - September 2018
- Ward's 10 Best Interiors for 2018 - April 2018

Wards 10 Best Engines Honors from FCA US

In the 25-year history of Wards 10 Best Engines, nine engines/systems produced by FCA US and its predecessor companies have accounted for 19 winners, including (engine/latest vehicles tested/years listed) in reverse chronological order:

- 3.6-liter Pentastar Upgrade with eTorque (Ram 1500): 2019
- 3.6-liter Pentastar V-6 hybrid (Chrysler Pacifica): 2017-2018
- 3.0-liter EcoDiesel V-6 (Ram 1500):2014-2016
- 6.2-liter Hellcat supercharged HEMI® V-8 (Dodge Challenger SRT Hellcat): 2015
- 83-kW electric motor (Fiat 500e): 2014
- 3.6-liter Pentastar V-6 (Dodge Avenger, Chrysler 300S, Ram 1500): 2011-2013
- 5.7-liter HEMI V-8 (Dodge Charger R/T, Chrysler 300C, Dodge Challenger R/T, Ram 1500): 2003-2007, 2009

- 5.9-liter Cummins turbodiesel I-6 (Ram HD): 2004
- 4.7-liter SOHC V-8 (Jeep® Grand Cherokee): 1999

About FCA US LLC

FCA US LLC is a North American automaker based in Auburn Hills, Michigan. It designs, manufactures, and sells or distributes vehicles under the Chrysler, Dodge, Jeep®, Ram, FIAT and Alfa Romeo brands, as well as the SRT performance designation. The Company also distributes Mopar and Alfa Romeo parts and accessories. FCA US is building upon the historic foundations of Chrysler Corp., established in 1925 by industry visionary Walter P. Chrysler and Fabbrica Italiana Automobili Torino (F.I.A.T.), founded in Italy in 1899 by pioneering entrepreneurs, including Giovanni Agnelli. FCA US is a member of the Fiat Chrysler Automobiles N.V. (FCA) family of companies. (NYSE: FCAU/ MTA: FCA).

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