

DEEP TORQUE

JEEP® BRINGS ECODIESEL GRUNT TO WRANGLER—WITH MANNERS

by Joe Sage

It's been two years since the new Jeep Wrangler (JL) launched, visually similar to the prior JK (immediately recognizable—spotter's guide!—by the way its headlights curve into the grille's outer slots), but new in every major from body materials, to form, to drivetrains, to creature comforts and tech features.

Models at launch included Sport, Sport S, Sahara (on the Four-Door only) and Rubicon. Engines were the familiar 3.6L Pentastar V6 (with 6-speed manual standard and 8-speed automatic optional) and a new 2.0L turbo four (automatic only). The 2.0L turbo provides not only higher fuel economy, but more torque—15 percent more, earlier and across a wider band. Also introduced were new tops, including the Sky One-Touch powertop. Tech was expanded to include available blind-spot monitor, rear cross path alert, dynamic back-up camera, ESC with electronic roll mitigation and more. Much was done to improve highway ride, with improvements to aerodynamics including an increase in windshield rake.

The new Wrangler retains its usual spot as king of the hill and king of the Jeep brand, but it inspired its ever faithful and ever eager following to clamor for three more things: a Jeep pickup (done!); a new Grand Wagoneer (stay tuned!) and a diesel for the Wrangler.

FCA already had a basis for a Jeep diesel

powerplant—the 3.0L V6 EcoDiesel that was added to their all-new Ram 1500 pickups last summer. Quite a bit is different in the Wrangler version (see photo at lower right)—“it's a cousin, not a brother, to the Ram version,” says EcoDiesel engine chief engineer Mauro Puglia (as is a third Grand Cherokee engine). “It's not a facelift. It's a brand new engine.”

JEEP WRANGLER ECODIESEL

The 24-valve DOHC 3.0L V6 EcoDiesel has cylinder banks at a 60-degree angle and a cast compacted graphite iron block—strong to dampen vibrations but weighing less than gray cast iron—and a compacted graphite iron bedplate adding rigidity. Crankshaft and connecting rods are forged steel, while pistons are oil-jet-cooled aluminum. Cylinder heads of heat-treated aluminum have individual bearing caps to reduce friction and NVH. Chain-driven camshafts have roller-finger followers. A charge air cooler (CAC) is mounted in front of the base of the radiator (the same position as in the gasoline turbo engine, simplifying build). A 5.1-gallon diesel exhaust fluid (DEF) tank is immediately behind the fuel tank, with fillers side by side. DEF refills are on engine oil cycle, up to 10,000 miles, and levels are monitored on a new DEF gauge in the front cluster.

New technologies in this “cousin” in pur-

suit of best efficiency, responsiveness and NVH include its next-gen water-cooled VGT low-friction turbo; redesigned higher flow intake ports; an updated low- and high-pressure dual loop EGR system to minimize energy losses; high-pressure direct-injection nozzles matched to new optimized combustion chambers; new lightweight aluminum alloy pistons with thinner carbon-coated rings and carbon-coated pins offset 0.3 millimeters for quieter running; quiet, lightweight polymer-metal lower oil sump; and a dual vacuum pump system that's both electric and low-friction mechanical.

The EcoDiesel engine is available on the Wrangler Four-Door only, in all trims, all with an eight-speed automatic.

As with the 2-liter 4-cylinder gasoline turbo, the diesel positions itself with more torque, higher fuel economy and greater range. But whereas the 2-liter turbo adds \$4500 to your purchase, the diesel adds just \$3250. And though the 4-cylinder turbo's 295 lb-ft of torque compares well with 260 from the bigger gasoline V6, the diesel's 442 lb-ft of torque blows both away. The EcoDiesel also anticipates a range of “well over 500 miles,” per Jeep brand chief Jim Morrison, and although fuel mileage ratings have not been finalized yet, extrapolating from Ram 1500 numbers, he expects about a 30 percent boost for Wrangler—best-ever numbers for Wrangler in both measures.

All that turbo plus diesel torque gives you tremendous acceleration and pull in a smaller-displacement engine, with torque on tap from an extremely low 1400 rpm.

All trims have third-gen Dana 44 front and rear heavy-duty axles with a 3.73 ratio. Two transfer cases are offered, one for Rubicon, one for Sport and Sahara (see sidebar).

To find out how this all performs both off-road and on, we took about an hour-long flight to St George, Utah (alternately about an hour's drive northeast of Las Vegas).

ON-ROAD

The road manners of a modern diesel are already well established, not least by the recent introduction of the Ram 1500 EcoDiesel and by our drive last year of new Ram 2500/3500 HD diesels (see March/April 2019).

The road manners of the Wrangler JL are also already in place, from aerodynamics to suspension to NVH efforts from powertrain NVH to suspension and body aerodynamics.

Put those together and add all the above performance- and NVH-optimizing technologies of the new Wrangler EcoDiesel, as well as suspension retuned for the heavy duty nature of the diesel powertrain, and it's time to try the daily driving experience in this do-everything Jeep.

After an overnight in Springdale, an enclave almost completely surrounded by Zion National Park and the park's south gateway, we spent the first half of our day driving on pavement.

We started with a pass through the park—including switchbacks through dramatic elevation changes and a run through Zion-Mt Carmel Tunnel (built from 1927 to 1930, a one-of-a-kind 1.1-mile dig, with its side wide open in spots). We emerged at the park's east entrance and continued 15 miles on Utah High-

KEEP RIGHT >>



JEEP® WRANGLER ECODIESEL

BUILD.....ladder-type frame, open steel and aluminum body
ASSEMBLY...Toledo Supplier Park, Toledo OH
ENGINE.....Cento, Italy
MODELS...Sport, Rubicon, Sahara (4-dr only)
ENGINE.....3.0L 24v 90° turbo diesel V6, compacted graphite iron block, aluminum alloy heads; chain-driven DOHC, hydraulic lash adjusters w roller fingers followover; common rail 29,000 psi, solenoid injectors; compression ratio 16.0:1; max 4600 rpm
HP/TORQUE.....260 hp / 442 lb-ft
TRANSMISSION...8HP75 8-spd-overdrive auto
ELECTRICAL.....ALTERNATOR: 180A
BATTERY: 650 CCA mntnce-free
DRIVETRAIN.....4WD
TRANSFER CASE.....SPORT, SAHARA: NV241 Command-Trac part-time 2.72:1 low
RUBICON: NV241OR Rock-Trac part-time 4.0:1 low, 4.10 axle
OPTIONAL SAHARA: MP3022 Selec-Trac 4.0:1 low, 4.10 axle
AXLES.....FRONT: 3rd-gen Dana axles, open diff (Sport, Sahara) or Tru-Lok electronic locking (Rubicon)
REAR: 3rd-gen Dana axles, open diff (Sport, Sahara) or available Tru-Lok anti-spin, Tru-Lok electronic locking (Rubicon)
RATIO: (F/R, EcoDiesel) 3.73
SUSPENSION.....F: solid axle, link coil, leading arms, track bar, coil springs, stblzr bar (electr sway-bar disconnect on Rubicon).
R: solid axle, link coil, trailing arms, track bar, coil springs, stblzr bar
SHOCKS.....SPORT: gas-charged twin-tube w full displacement Multi-Tuned Valve tech
SAHARA: high-pressure gas-charged monotube shocks w MTV tech
RUBICON: high-pressure gas-charged monotube shocks w MTV tech and hydraulic rebound stop
STEERING.....electro-hydraulic power: ratio (EcoDiesel) 14.3:1, turns lock-to-lock (EcoDiesel) 3.13
TURNING CIRCLE.....(2-/4-door) 34.5 / 39.4 ft
TOW CAPACITY.....3500 lb
FUEL.....ultra low sulfur diesel
FUEL CAPACITY.....18.3 gal
MPG.....tbd



way 9 to the White Mountain Trading Post in Mt Carmel, at the junction of US 89, then retraced our route back to Springdale.

From there, we took a combination of two-lane roads and four-lane highways south toward St George.

The net experience: other than its stance, which is the Wrangler's core being, you'd forget you were in an off-roader, and other than its acceleration, you'd forget you were driving a diesel. An "A-plus" for road manners.

OFF-ROAD

About 12 miles from St George and 10 from Hurricane is Utah's Sand Hollow State Park, at Sand Hollow Reservoir, which features a large off-highway vehicle (OHV) area on its south side—and this is where we spent the second half of our day, rock crawling, sand running and everything in between.

Wrangler and Gladiator chief engineer Pete Milosavljević (simply "Milo" to most) says the EcoDiesel Wrangler is "the most capable factory-built off-road vehicle ever built." To back this up, he points to its approach-break-over-departure angles and ground clearance (all strong, all varying by trim level), its gear ratios, terrain modes, axles including disconnect features, and an "astonishing" 70:1 crawl ratio. (The diesel also has all the typical skid plates plus additional protection for the urea tank and fuel-water separator.)

Test routes for a Jeep Wrangler launch are always chosen for an extremely high level of exhilaration and challenge, and this was no exception. From bare rock outcroppings to deep sand washes and scrubby double-tracks, we pushed all dimensions, and we experienced the remarkable high-torque slow crawl maximized in the EcoDiesel version.

The EcoDiesel Wrangler weighs about 400 pounds more than gasoline models, and the engine itself is about 375 pounds of that, with the rest rounded out by NVH features and interior upgrades.

Brand chief Morrison likes to say the diesel power train has "a nice rumble" but isn't loud—pointing out that Wrangler owners "like being noticed, anyway."

The Jeep Wrangler EcoDiesel (available in North America only, for now) started arriving at dealerships in December. ■

