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2021 Ram 1500 TRX Engineered to Handle the Most Punishing Conditions With Extreme Capability and to Outperform Every Other Truck

- 2021 Ram 1500 TRX is engineered to handle the most punishing conditions with extreme capability and durability, significantly outperforming every other truck
- New frame extensively uses high-strength steel for greater rigidity, providing improved handling and durability
- All-new, unique suspension system with active damping, inspired by desert off-road racers, incorporates forged aluminum front upper and lower control arms with special attention to caster and camber angles during suspension cycling
- New front upper and lower control arms designed with a focus on additional wheel travel and axle track width
- New independent front suspension system with active damping uses high-strength aluminum to maintain overall strength and durability
- Ram TRX uses a Dana 60 solid rear axle with a 3.55 ratio, featuring full-floating shafts and axle-hop damper for improved traction and axle control on rough surfaces. An electronic locking rear differential is standard for increased off-road performance
- Designed exclusively for TRX, new front and rear 2.6-inch Bilstein adaptive performance shocks provide fast reaction time, unbeatable damping and improved heat dissipation for traversing harsh terrain at speeds greater than 100 miles per hour (mph)
- Five-link coil suspension tuned to deliver the best combination of ride, handling and comfort no matter the road surface
- Wheel travel is greater than 13 inches at all four corners, an increase of more than 40 percent compared to the rest of the Ram 1500 lineup
- Full-time active transfer case features upgraded internals for improved strength and durability
- Available as a standalone option, Trailer Reverse Steer Control allows the driver to enter a few measurements before the camera tracks the trailer position. Trailer Reverse Steer Control uses a dial to point the trailer in the desired direction while the system controls the steering wheel
- Aggressive 35-inch Goodyear Wrangler Territory All-Terrain 325/65/R18 tires are designed exclusively for TRX and maximized for off-road capability and on-road performance
- Ram TRX features a 2-inch ride height increase over Ram 1500, providing 11.8 inches of ground clearance, and is capable of up to 32 inches of water fording
- Ram TRX offers the largest front brakes in the segment at 15 inches
- Ram TRX provides a maximum payload of 1,310 pounds and maximum trailer tow of 8,100 pounds
- Ram TRX underwent testing in extreme environments across the continental United States

August 17, 2020, Auburn Hills, Mich. - The all-new 2021 Ram 1500 TRX expands the brand's light-duty truck lineup and sets the benchmark for extreme performance pickups. Designed bolt by bolt to significantly outperform every other truck, the 2021 Ram TRX has been rigorously tested to handle the most punishing conditions with extreme capability and durability.

“The 2021 Ram TRX can move across miles of rough terrain at incredible speeds, effortlessly absorbing impacts, and truly defines what a high-performance off-road pickup truck is,” said Darryl Smith, Vehicle Line Executive, SRT Performance Vehicles. “Engineering a truck with such a high tolerance for punishment keeps the focus on chassis development and durability.”

An approach angle of 30.2 degrees, breakover angle of 21.9 degrees, departure angle of 23.5 degrees and a ground clearance of 11.8 inches allow the Ram TRX to go anywhere.

The 2021 Ram TRX benefits from up to 32 inches of water fording, up to 8,100 pounds towing and a maximum payload capacity of 1,310 pounds.

Frame

The 2021 Ram TRX’s frame is composed of 98 percent high-strength steel that uses low-torsion attributes to increase durability, stability and handling precision. Sections of the frame are hydroformed for dimensional accuracy, reducing the need for welding, and the side rails are fully boxed. The front rails use high-strength steel and hydroformed sections to set a strong foundation to better handle the front suspension load. Galvanized frame components are used for improved corrosion protection.

The Ram TRX boasts a ground clearance of 11.8 inches due in part to a 2-inch ride height increase when compared with the rest of the 1500 lineup, along with 35-inch tires. This combination enables TRX to clear surface obstacles easily and at high speeds.

To protect critical components, including the front axle, transfer case, transmission pan and fuel tank, TRX employs five skid plates. A separate skid plate sits at the bottom of the front fascia, mitigating potential damage, and doubles as a belly pan. Heavy-gauge steel rock sliders are also an available option.

The use of lightweight, high-strength aluminum closures, including the hood and tailgate, helps reduce weight and boost fuel economy. Ram TRX also uses aluminum engine mounts, front axle center section, front suspension and transmission cross-members, front upper and lower control arms, front skid plate, transmission skid plate and steering system gear.

Front suspension

An all-new independent front suspension system with active damping uses high-strength aluminum to maintain overall strength and durability. The all-new independent front suspension system includes new upper and lower control arms made of forged aluminum with special attention paid to the case and camber angles during suspension cycling. This new suspension system features upgraded components to provide more performance and improved endurance. The front half shafts feature a new ball spline design to deliver smooth operation and high strength over extreme suspension travel. Overall, front-wheel travel is increased to more than 13 inches from the standard 9 inches, more than 40 percent when compared to the rest of the Ram 1500 lineup.

New 2.6-inch Bilstein adaptive performance shocks use precision-machined, single-piece construction comprised of rigid aluminum to reduce and dissipate heat and to continuously adjust damping forces for optimal body control and terrain isolation. The performance shocks feature robust corrosion protection with a durable finish and directional-machined cooling fins aligned with air flow for more effective cooling.

The Bilstein adaptive performance shocks have been tuned to demonstrate optimum balance between on-road handling and class-leading, off-road capability. Ride comfort, body roll control and handling are significantly improved with new shock tuning, hard points and body-mount strategy.

Dual Electronic Proportional Valves continuously adjust damping forces for precise, independent control of compression and rebound damping. A nitrogen-charged remote reservoir uses a hot formed, zero leak tube closure to ensure maximum durability during extreme on- and off-road events.

A pressure-activated Triple Rod seal has been field tested for long-lasting durability against contamination and leaks. Ram TRX uses stainless steel braided high-pressure hose to combat corrosion and abrasion while being able to

resist up to 5,800 PSI. A 7/8-inch case-hardened steel piston rod features best-in-class hardening depth and chrome thickness for superior reliability and durability that combines fast reaction time, unbeatable damping and improved heat dissipation for traversing harsh terrain at speeds greater than 100 mph. A high-strength rock shield defends the piston rod against incoming rubble with a custom-molded escape path for debris.

Ram TRX's Bilstein front adaptive performance shocks employ three vibration sensors and travel sensors at all four wheels for maximum detection and control. These sensors also work to minimize the trade-off of on- versus off-road comfort. Different suspension modes allow different amounts of pitch, roll and heave control.

In addition to a standard urethane jounce bumper, the internals of the Bilstein adaptive performance shock feature a Jounce Cut Off to create three zones for progressive bottom-out control during extreme compression events. All modes are capable of reaching peak compression damping for the most extreme events.

Rear suspension

Out back, the Ram TRX's rear suspension had to clear packaging barriers and the engineering team took that into consideration with this unique application. The result is an innovative and durable solution that produces greater wheel travel without reducing cargo area in the bed.

The 2021 Ram TRX uses an all-new rear suspension system with active damping and an exclusive five-link coil system for incredible ride characteristics and durability. The frame's hard points for the five-link suspension system differ when compared to a standard-issue Ram 1500 and allow the Dana 60 rear axle to travel up to 13 inches. Overall, rear-wheel travel is increased to more than 13 inches from the standard 9 inches, an increase of more than 40 percent when compared to the rest of the Ram 1500 lineup.

New 2.6-inch Bilstein performance shocks allow for increased wheel travel while reducing and dissipating heat. The new Bilstein performance shocks feature Dual Electronic Proportional Valves that continuously adjust damping forces for optimal body control and terrain isolation. Like the front shocks, the rears also use a nitrogen-charged remote reservoir, stainless steel braided high-pressure hose, and a 7/8-inch case-hardened steel piston rod for enhanced reliability and durability. All of this combined achieves a fast reaction time, unbeatable damping and improved heat dissipation for traversing harsh terrain at speeds greater than 100 mph. A high-strength extended rock shield defends the piston rod against inbound debris.

The 2021 Ram TRX uses the proven five-link coil suspension configuration and provides better articulation over obstacles than a leaf spring system. The robust coil springs are more than up to the task of handling a maximum payload of 1,310 pounds and towing capability of 8,100 pounds.

The five-link coil design incorporates support at all major points of force and functionally resists unwanted axle rotation. More robust link bushings increase durability while continuing to deliver the most comfortable ride and handling in a full-size pickup truck. The unique five-link axle control and natural rotation enable the U-joints in the driveshaft to run smoothly and with less vibration through the suspension's range of motion. Additionally, links are engineered in-line with the frame rails, so overall packaging is better while weight is reduced.

The standard rear coils are swapped out for performance springs located in the factory-set positions. The upper links are 55-by-38 millimeters, the lower links are 84-by-38 millimeters and use high-strength steel drawn over mandrel that is 4 millimeters thick. The Panhard bar is constructed from SAE 1541 forged steel for increased strength and the four upper and lower links use a heavy-duty rubber bushing at both the frame mount and axle to improve movement while maintaining the isolation from road noise and vibration. The link placement carefully rotates the axle during full cycle without overextending the U-joints or slip joint of the driveshaft.

Rear axle

The 2021 Ram TRX is a high-performance pickup truck built to handle the most punishing conditions with extreme capability and durability. In order to clear the elevated benchmarks and performance figures that TRX presents, a Dana 60 rear axle with full-floating axle shafts is standard equipment and handles the increased torque output, rear electronic locking differential and 35-inch tires. The Dana 60 rear axle uses an axle-hop damper that enables improved traction and axle control on rough surfaces. A new rear axle center section provides balanced performance

and a locking differential for increased performance off-road. New tube assemblies support the added track width, increased loading and suspension changes. New rear axle shafts support the track increase and increased loading. A new rear prop shaft features a slip-between-centers design for increased travel and strength.

Transfer case

The Ram TRX is equipped with a BorgWarner 48-13 full-time active transfer case that enables TRX to go through any off-road obstruction or weather condition. This modified transfer case features upgraded internals for improved strength and durability courtesy of extra clutch plates, a heavier-duty clutch apply bearing, six-pinion planetary low-range gear and a 20 percent wider, more robust chain. Other improvements include a new main shaft, new longer rear case half shaft to accommodate component changes and a rear output flange that replaces the slip yoke. There are six different drive modes – Auto, Sport, Snow, Tow, Mud and Baja – that employ a unique calibration. All modes use active slip control that prevents binding and excessive slip from front to rear. Ram TRX features a low range of 2.64:1 for rock crawling and has the ability to be flat-towed while in neutral. TRX's off-road prowess is bolstered by a rear electronic locking differential.

Selec-Speed Control

Selec-Speed Control is standard with the eight-speed automatic transmission and manages vehicle speed in "4LO" while traversing off-road terrain without requiring throttle or brake input, allowing the driver to focus on steering. Selec-Speed Control is activated using a button on the dashboard and can be adjusted from 0.6-5 mph simply by using the Auto Stick shift control or paddle shifters mounted behind the steering wheel.

Sway bar

The front sway bar is located at the factory mounting points, but uses extended and more robust links to accommodate the longer wheel travel. Although the Ram TRX sits higher than a standard Ram 1500, engineers were careful to minimize resistance at the sway bar to keep left-to-right articulation in check and to assist in keeping the tires on the ground.

Steering

The Ram TRX features a new SRT-signature flat-bottom steering wheel with enhanced hand grips, aluminum paddle shifters and electric power steering (EPS), like the rest of the Ram 1500 lineup. The use of electric power steering takes the burden off of the engine having to constantly turn the hydraulic pump. Instead, the electric power steering uses an electric motor to power the rack-and-pinion steering system. The use of electric power steering also reduces complexity by removing a pump, high-pressure hydraulic hoses and cooling apparatus. EPS allows for TRX's steering to be specifically calibrated to optimize input and effort regardless of vehicle speed. EPS is constantly sensing input from the driver or undulation in the road surface, then compensates for improved comfort. Ram TRX offers three different steering modes - Street, Sport and Rock - for different levels of effort, feedback and control.

Trailer Reverse Steering Control

Trailer Reverse Steering Control is an available standalone option and, when equipped, is located below the Uconnect 4C NAV 12-inch touchscreen. This new system, debuting on a Ram Truck model for the first time, allows the driver to enter a few measurements before the camera tracks the trailer position and the driver is backing up and guiding the trailer. The driver simply rotates the dial left or right in the direction they want the trailer to go while the system controls the steering wheel.

Tires and wheels

For the 2021 Ram TRX, engineers found that to maximize capability, it would call for a 35-inch tire. Developed exclusively for the Ram TRX, 35-inch Goodyear Wrangler Territory All-Terrain 325/65R/18 tires, featuring an aggressive tread and sidewall with D-load rating, are assigned the task. All TRX models feature full rear wheel liners to help with road noise and to protect from gravel and sand.

There are two different wheel designs that are available on TRX, including an 18-by-9-inch optional beadlock-ready wheel straight from the factory.

Beadlock-capable wheels are a functional upgrade for vehicles that spend the majority of their time in the rocks and sand. The beadlock design provides additional tire-holding strength by pinching the outside of the tire's sidewall to

the rim. Beadlock wheels allow for low-pressure use and improved off-road traction without having the tire separate from the wheel.

Like the desert trucks that were studied during conception, Ram TRX can hold a full-size spare tire with an optional dedicated rack in the bed of the truck. This available option includes the mount, wheel and tire. A full-size spare mounted under the bed, between the rear axle and tow hitch, comes standard.

Brakes

Off road, the 2021 Ram TRX will race to 100 mph with ease, and the segment's largest brakes bring it to a composed halt. Ram TRX relies on a four-wheel disc brake system and a hydraulic compensation unit to enhance brake pedal feel and performance during emergency maneuvers. Up front are two-piston monoblock calipers clamping down on 15-inch inverted hat (outboard venting) rotors for improved cooling. The rear uses single piston calipers with 15-inch rotors to provide incredible stopping power. An electronic parking brake holds the truck steady when applied and is standard.

Aerodynamics

Extensive wind-tunnel testing was conducted to fine-tune TRX's exterior shape and air vent placement. Time spent in the wind tunnel paired with modern styling afforded a coefficient of drag of .489.

The body of the new 2021 Ram TRX is the product of design and engineering cooperation at its best. Delivering an extreme pickup truck required an aggressive approach from both teams to effectively route cooling through the front end. Adequate cooling is important for extreme off-road performance, towing and assuring proper airflow to the induction and supercharger.

The Ram TRX relies on a new, aluminum hood with an integrated hood scoop that is responsible for 50 percent of air entering the 6.2-liter supercharged HEMI V-8 engine while the other 50 percent enters through the grille. The air induction system features the largest area air filter in the segment and uses two inlets to send clean, cool air into the engine. A functional air curtain just outboard of the headlamps relieves high-pressure zones at the front corners, allowing air to pass through the fenders.

The R-A-M badge on the grille is bigger when compared to the rest of the Ram 1500 lineup and features a new "flow-through" design that also assists with airflow.

The new Ram TRX's elevated hood better directs air away from the wiper area, improving overall aerodynamics and reducing wind noise. The bed-to-cab execution is sub-flush to reduce disturbance alongside the body. Ram TRX uses the Venturi roof design first seen on the latest Ram 1500 and directs air back to the rear spoiler.

Unsurpassed Powertrain Warranty – five years/60,000 miles

The 2021 Ram TRX is backed with a five-year/60,000-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. The warranty is also transferable, allowing customers who sell their truck during the warranty period to pass the coverage onto the new owner.

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

Thousands of miles of extreme testing

The new 2021 Ram TRX has undergone thousands of miles of testing. Extreme environmental testing occurred at various sites, including in the scorching Arizona heat, the blistering cold of northern Michigan and Minnesota and thousands of feet above sea level in Colorado, for weeks at a time. In addition to all laboratory and standardized tests, the new Ram TRX scaled sand dunes, crawled rocks in Moab, Utah, and traversed two-lane tracks all over the United States.

An all-new, high-speed, desert durability test track was developed for the Ram TRX to far exceed the standard half-ton pickup truck requirements. Engineers subjected development trucks to thousands of miles of desert off-road

testing to ensure that TRX has the strength, durability and reliability the extreme off-road customer expects and demands.

Manufacturing

The 2021 Ram TRX is built at the Sterling Heights Assembly Plant (SHAP) in Sterling Heights, Michigan.

Ram Brand

In 2009, the Ram brand launched as a stand-alone division, focused on meeting the demands of truck buyers and delivering benchmark-quality vehicles. With a full lineup of trucks, the Ram 1500, 2500/3500 Heavy Duty, 3500/4500/5500 Chassis Cab and ProMaster vans. Ram builds trucks that get the job done and families where they need to go.

Ram continues to outperform the competition, setting the benchmark in the most important areas for truck buyers:

- Segment-first 1,000 lb.-ft of torque with Cummins Turbo Diesel
- Most luxurious: Ram 1500 Tungsten with air suspension, 24-way massage seats and 540 horsepower
- Best ride and handling with a double wishbone front suspension and five-link solid rear axle with available, segment-exclusive, active-level air suspension
- Best-in-class available rear leg room
- The most cargo space available in any traditional full size cargo van
- Most capable full-size off-road pickup – Ram Power Wagon
- Most awarded light-duty truck in America
- Highest owner loyalty of any half-ton pickup

The latest [J.D. Power APEAL study](#), which rates the emotional bond between customers and their vehicles, named the 2023 Ram 1500 as the best full-size light-duty pickup.

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