RESTYLED 2009 TOYOTA RAV4 DEBUTS NEW FUEL-EFFICIENT FOUR-CYLINDER ENGINE AND ADDS NEW SAFETY, CONVENIENCE AND USER TECHNOLOGY FEATURES

Toyota has restyled its popular RAV4 compact sport utility vehicle for 2009. The new standard 2.5-liter four-cylinder engine is more powerful than the previous 2.4-liter engine and is more fuel efficient. In addition, all RAV4 models feature interior upgrades and a comprehensive new Sport Appearance Package is available for the 4WD V6 model.

All RAV4 models receive enhanced safety and security features with standard front seat active headrests and an engine immobilizer. Comfort, convenience and user technology are also significantly enhanced in 2009 RAV4 models. The Limited grade adds a new standard Smart Entry system that allows the driver to open the vehicle by simply carrying the key fob and grasping the door handle. The Sport and Limited grades offer an available new rear backup monitor. Integrated satellite radio is newly available for 2009, and the Sport and Limited grades offer a new low-cost navigation system. All RAV4 models gain new standard seat fabric, and the Sport grade exclusively offers a new, unique Charcoal leather option.

Externally, the 2009 RAV4 sports new front and rear styling with a restyled grille and front bumper, improved fog light trims and redesigned tail lamps. All models, except the 4WD V6 with the new Sport Appearance Package, receive a redesigned rear step bumper with a black protector molding. The Sport Appearance Package receives a clear rear bumper protector. The Base and Limited grades feature a new 17-inch alloy wheel design, and the Limited also gains new turn signal side mirrors and chrome accents on the grille and overfenders. The Sport grade adds a unique rear spoiler.

The Sport Appearance Package available for the 4WD V6 RAV4 model includes an exclusive look with a redesigned rear door featuring chrome accents and no spare tire. The package equips the RAV4 with run-flat tires. Other external cues include color-keyed power heated side mirrors with integrated turn signals, a stainless steel exhaust tip, unique badging and the choice of an exclusive exterior color, Elusive Blue Metallic. Inside, the Sport Appearance Package adds a chrome accented shift knob with a leather insert, chrome interior door handles, parking brake and vent trim, and unique steel doorsills.

Performance and Efficiency

The 2009 RAV4 is offered in three distinct grades – Base, performance-oriented Sport and top-of-the-line Limited – and with a choice between the new 2.5-liter four-cylinder or the V6 engine with either front-wheel drive or electronic on-demand four-wheel-drive.

The RAV4's standard 2.5-liter four-cylinder engine is a low-friction design optimized for performance and fuel efficiency. The new engine produces 179 horsepower at 6,000 RPM, along with 172 lb.-ft. of torque at 4,000 RPM (versus 166 horsepower and 165 lb.-ft. of peak torque of the previous 2.4-liter engine). The 2.5-liter engine employs dual independent Variable Valve Timing with intelligence (VVT-i), which controls timing on both the intake and exhaust camshafts (compared to the intake-only previous 2.4-liter engine).

Toyota engineered every aspect of the new 2.5-liter engine for low friction performance. Key low-friction technologies include an offset crankshaft, roller rockers for the valvetrain, a three-stage variable oil pump, reduced-tension piston rings and auxiliary belt drive. Even with the higher compression ratio (10.4:1), the 2.5-liter engine uses regular-grade fuel, thanks to optimized cylinder head and piston cooling.

The Acoustic Control Induction System (ACIS) switches the length of the intake tract in two stages, based on RPM and throttle angle, to ensure strong torque across the engine speed range. New tumble control valves enhance combustion when the engine is cold, helping to warm the catalytic converters quickly. The tumble control valves, along with new 12-hole high-atomizing long-nozzle fuel injectors, help to maximize fuel economy and control emissions by reducing the amount of fuel that adheres to the intake ports.

The redesigned four-cylinder engine is partnered with a new four-speed electronically controlled automatic transmission that is more compact, lightweight and efficient than the previous four-speed transmission. The new transmission is not only smoother in operation than the previous one, but more responsive as well. Integrated twin balance shafts reduce noise and vibration. Fuel efficiency is excellent for its class, with EPA MPG estimates of 22 city/28 highway on 4x2 models and 21 city/27 highway on 4x4 models.

In particular, new uphill/downhill shift control significantly reduces "hunting" between third and fourth gears during winding uphill driving. Braking on the downhill automatically causes a downshift, which enhances engine braking for better control. A

flex lock-up torque converter continuously controls lock-up switch slippage to enhance fuel economy. New Toyota WS automatic transmission fluid operates with low viscosity across the potential operating range, reducing resistance and enhancing economy.

The available 3.5-liter V6 is the powerhouse of its segment, generating 269 horsepower at 6,200 RPM and 246 lb.-ft. of peak torque at 4,700 RPM. The V6 is also equipped with dual independent VVT-i to maximize performance and efficiency while reducing emissions. Equipped exclusively with a gated-shift five-speed automatic transmission, the V6 RAV4 models offer greater fuel efficiency compared to less powerful competitors. The shift logic reduces the frequency of gear shifting during winding uphill and downhill driving. The V6 RAV4 can accelerate from zero-to-60 mph in under seven seconds, yet has estimated EPA fuel economy MPG ratings of 19 city/27 highway for 4x2 models and 19 city/26 highway for 4x4 models. All RAV4 models meet Ultra Low Emission Vehicle (ULEV II) certification.

Handling and Ride

A strong, stiff structure, four-wheel independent suspension and Electronic Power Steering (EPS) give the RAV4 agile, sporty handling and a comfortable car-like ride. The compact EPS unit contributes to fuel economy by eliminating the traditional power steering pump and provide computer-controlled assist only when required.

Furthermore, EPS is interfaced with Vehicle Stability Control (VSC) system to enhance handling control under adverse road conditions. The RAV4 Base grade model rides on P215/70 R16 tires with 16-inch steel wheels or available P225/65 R17 tires with steel or aluminum alloy wheels; the V6 models step up to standard 17-inch steel wheels with P225/65 R17 tires, and the Sport grade, with its 18-inch alloy wheels, enhances driving performance with sport-tuned suspension.

The automatic on-demand four-wheel-drive system uses an electronically-controlled coupling to distribute torque between the front and rear wheels (depending on road conditions and driver input). The system can continuously and seamlessly switch from front-wheel-drive to four-wheel-drive mode, maximizing fuel efficiency. In Auto mode, torque distribution to the rear wheels is decreased during low speed cornering for better maneuverability.

A 4WD manual locking switch will disengage the Auto mode, maximizing torque distribution to the rear wheels. When vehicle speed reaches 25 mph, the system will revert back to Auto mode. Lock mode also disengages when the brakes are applied,

optimizing ABS and VSC operation. RAV4 4x2 models have a traction control-based automatic limited slip differential (Auto-LSD).

All V6 RAV4 models and four-cylinder models equipped with a third-row seat, come standard with Hill-start Assist Control (HAC) and Downhill Assist Control (DAC). HAC provides additional control for on-road and off-road driving by helping to keep the vehicle stationary while starting on a steep incline or slippery surface; DAC is designed to enhance low-speed descending ability by helping to hold the vehicle to a target speed with minimal intervention from the driver.

Safety

The RAV4 has a reinforced cabin, which includes front and rear crumple zones and energy-absorbing materials on the ceiling and doors. New for 2009, active headrests on the driver and front passenger seats move up and forward almost instantly in the event of certain rear-end collisions to help reduce the distance between the occupant's head and the headrest. The front three-point seatbelts integrate pretensioners and belt-force limiters. Second- and third-row seats also provide three-point seatbelts and height-adjustable headrests in all seating positions.

The driver and passenger advanced front airbags are designed to inflate according to collision severity. A front seat passenger sensor occupant classification system is designed to determine the seat is occupied and the passenger's weight category and then determines whether the airbag should inflate.

Driver and front passenger front-seat-mounted side airbags and first and second row roll-sensing side curtain airbags are standard. Like all SUVs in the Toyota lineup, RAV4 comes standard with the STAR Safety System™ that includes Enhanced Vehicle Stability Control (VSC), Traction Control (TRAC) and Anti-Lock Brake system (ABS) with Electronic Brake-force Distribution (EBD) and Brake Assist (BA).

In the RAV4, the enhanced version of VSC interfaces with the Electronic Power Steering (EPS) system to influence steering assist for any given situation. The integration of EPS allows the enhanced VSC system to better anticipate the onset of vehicle loss of control and more effectively respond to driver operation and vehicle behavior.

Comfort and Convenience

Form, fun and functionality are plentiful in the RAV4 with an array of standard convenience features across all three grades, including air-conditioning; a tilt/telescoping

steering wheel; AM/FM CD stereo with six speakers, a universal mini-jack, MP3/WMA playback capability; outside temperature gauge; remote keyless entry; ten bottle/cup holders; power windows and door locks; foldable power mirrors; illuminated entry system; rear privacy glass; and three 12-volt auxiliary power outlets.

The Limited grade brings a touch of upscale luxury, adding dual zone automatic climate control with air filter; upgraded seat fabric; optional eight-way power driver seat with an optional adjustable lumbar; AM/FM six-disc in-dash CD changer with six speakers and integrated XM® satellite radio, an auxiliary audio jack and MP3/WMA playback capability; engine immobilizer system; interior footwell lighting; leather-wrapped steering wheel with audio controls; leather-wrapped shift knob with metallic insert; cargo area tonneau cover and a multi-purpose cargo net (two-row models).

Options

Some of the added features in the Limited are available as standalone options on the Base grade, including the audio and wheel options. An optional tow package for V6 models increases towing capacity to a maximum of 3,500 pounds.

Available features on the Sport grade, in addition to those offered on the Base grade, include a power tilt/slide moonroof with sunshade. Additionally, the Limited grade offers available leather-trimmed seats; heated front seats; eight-way power driver seat with adjustable lumbar support, and a 120V power outlet; and exclusive Blizzard White Pearl exterior paint.

Exterior Design

Built on a 104.7-inch wheelbase, the roomy RAV4 offers an optional third-row seating on Base and Limited grade models. The high-strength body structure and exterior details were engineered with a focus on enhancing quiet ride quality. For example, eliminating outer moldings from the windshield and door glass enhances aerodynamics and reduces wind noise. A two-ply hood insulator with a middle air layer helps to further reduce transmission noise in the cabin.

The RAV4's contemporary design strongly conveys the Toyota identity in an aerodynamically efficient shape. The redesigned grille and headlamps and distinct, sharp character lines give RAV4 a rugged yet sporty look. The 0.33 coefficient of drag is among the best in its segment and a major factor in minimizing wind noise and maximizing fuel economy.

The rear view conveys a more traditional SUV look, with LED tail lamps and an externally mounted spare tire (except Sport Appearance Package) in a color-keyed shell. The RAV4 Sport grade stands apart with P235/55 R18 tires on 18-inch aluminum alloy wheels; color-keyed door handles and fender flares; fog lights; roof rails and cross bars; color-keyed heated and foldable power outside mirrors; rear privacy glass; smoked headlamp trim; sport-tuned suspension; and unique dark charcoal fabric seats.

The Limited grade is distinguished from the Sport grade by 17-inch aluminum sixspoke alloy wheels with P225/65 R17 tires and a chrome grille. The Limited also adds a number of interior amenities and offers a wider range of comfort-enhancing options.

Interior Design

The RAV4 allows for numerous seating configurations, under-floor storage (on models without the third-row seat) and provides a generous 73-cubic foot cargo area with all rear seats folded down. The 60/40-split second row seat features reclining seatbacks and an armrest with two cup holders. The seats slide fore and aft to maximize room for passengers or cargo. The second row seats fold flat with the convenience of tilt-down levers located on the side of the seatbacks; two-row models include an additional one-touch fold-flat lever in the cargo area. The optional 50/50 Split-and-Stow[®] third-row seat on Base and Limited grades accommodates two passengers and folds flat under the rear deck.

A brushed metallic silver finish on the center cluster, door trim and steering wheel spokes gives the RAV4 interior a contemporary style. Three-tiered Optitron gauges provide an upscale look. Useful touches are also evident with the addition of a large vanity mirror with "eye-friendly" ceiling lights, illumination on two extra-large front cup holders and a cellphone holder in the center console.

Abundant interior storage includes a dual glovebox; front door compartments; a large center console box; front seatback pockets; a rear door storage pocket and a recessed rear storage compartment with a foldable double-flap lid. On two-row models, two storage compartments are concealed under the rear cargo area floor by a water-repellant foldable deck board.