

# All-New 2013 Toyota Avalon Features Both Gasoline and Hybrid Powertrains

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TORRANCE, Calif. (June 26, 2012) – When the all-new, North American designed and engineered 2013 Avalon goes on sale later this year, consumers can choose between a powerful V6 gasoline powertrain and Toyota's proven Hybrid Synergy Drive. The efficiency offered by the new hybrid model will help the all-new premium mid-size sedan achieve excellent fuel economy with an EPA-rating of 40 mpg combined.

In addition to offering a hybrid powertrain, the new Avalon features a stunning design, improved dynamic performance, a greater degree of refinement, and a highly spacious, comfortable interior experience with an abundance of outstanding convenience technologies.

## **Powerful, Efficient V6 Engine**

The 2013 Avalon will feature a proven 3.5-liter, DOHC V6 engine coupled with a six-speed automatic transaxle, which has been enhanced to offer more responsive and efficient performance. The all-aluminum six-cylinder engine will produce 268 horsepower and 248 lbs. ft. of torque, which will propel the new sedan to 60 mph in under seven seconds. Compared to the previous-generation Avalon, this 2013 powertrain combination offers improved fuel economy, performance, superior shift feel and response, with upgraded drivability and quietness.

This enhanced powertrain's programming has been updated to offer ECO, NORMAL, and SPORT Modes. The ECO mode prioritizes fuel efficiency by reducing power application at lower speeds and reducing energy consumed by the air-conditioning system. The SPORT Mode provides increased acceleration responses through altered engine control unit (ECU) programming, and it offers a more direct and responsive EPS programming to enhance steering feel.

In addition, the new transaxle is equipped with a numerically lower differential gear drive ratio (3.23), designed to help improve fuel economy. The V6-powered 2013 Avalon achieves an EPA-rated 25 mpg combined (21 city/31 hwy).

The transmission operation has been made more efficient and responsive with the adoption of a flex-start control feature lock-up clutch. With lock-up control, the transmission's torque converter fully engages at a lower RPM during standing starts to improve acceleration response and help suppress unnecessary engine revolutions. The new transmission is also kept at an optimal temperature with an automatic-transmission fluid warmer, helping enhance efficiency.

The multi-mode automatic transmission console shifter offers a D range and can be moved into an S-mode gate, which allows manually operated sequential shifting using the console shifter or available (Touring and Limited models) steering-wheel-mounted paddle shifters. The gear can be selected by moving the shifter up to (+) position or lower using the (-) position to experience highly responsive shifts. By using the paddles or in S-range, the transmission uses a quick responding shift-logic that includes throttle blipping for downshifts. The gear changes and range-of-gear selections are displayed in the color multi-information display.

## **Avalon Adds Toyota Hybrid Synergy Drive**

For consumers seeking a premium mid-size sedan with excellent fuel economy ratings and an environmental message, the new Avalon features a full power-split hybrid system. Coupled with reductions in vehicle weight

and improvements in aerodynamics, the Avalon Hybrid is expected to achieve impressive fuel economy ratings. The 2013 Avalon incorporates the latest advances in Toyota Hybrid Synergy Drive technology, building upon Toyota's 14 years of hybrid-development experience. The Avalon Hybrid features a 2.5-liter, Atkinson-cycle, four-cylinder engine, a 244.8-volt nickel-metal hydride battery pack, and a pair of electric motor/generators within the transaxle. A power-control unit located in the engine compartment houses an inverter, a DC-DC converter, a step-up converter (raises voltage to a maximum of 650 volts) and the hybrid-drive ECU, which governs the seamless operation of electric-motor power application and regenerative braking. The power control unit relies on liquid cooling to maintain an efficient temperature.

The Avalon Hybrid achieves a total system output of 200 horsepower and offers three unique modes of operation: EV, ECO and SPORT. The Avalon Hybrid models achieve an EPA-rated 40 mpg in the city, and a 39 mpg on the highway for a combined 40 mpg EPA-rating.

The 2013 Avalon Hybrid offers an EV mode that, under certain conditions, allows the vehicle to operate solely on electric propulsion. EV mode can be engaged, provided other conditions are correct, for up to one mile at speeds up to 25 mph, providing an all-electric option that is convenient in residential areas or parking garages.

The ECO drive mode engages the gasoline motor, but reduces throttle response and HVAC output to help improve overall efficiency. The SPORT Mode takes full advantage of the new Avalon's dynamic character, improved chassis, and enhanced suspension by altering the engine's throttle response and enhancing steering feel.

The Avalon's hybrid's battery pack is comprised of 204 cells and is located in the vehicle trunk behind the rear seats, while still providing ample trunk space. The scroll casing for the battery cooling system's blower fan has been designed to produce extremely quiet and efficient airflow, helping reduce interior noise and elevating refinement. The power-control unit, located in the engine bay, houses the inverter, DC-DC converter.

The efficient hybrid transaxle in the new Avalon contains two high-output electric motor/generators, a power-split device, an open differential and the final drive ratio. Motor/Generator 1 (MG1) is used to start the gasoline engine and generate the energy that is returned to the battery to power the system. Motor/Generator 2 (MG2) is primarily responsible for electric drivetrain propulsion and regenerative braking. The hybrid vehicle transaxle also incorporates a flywheel-damper design that helps reduce noise and vibration during engine engagement.

**Captivating Styling with a Spacious, Luxurious Interior Experience**

The new 2013 Avalon is the product of a North American-focused design and engineering effort. The new sedan's striking exterior and luxurious interior design was conceived by a youthful, talented team at the Caltex Design Research Inc., facilities in Southern California and Michigan.

The car's engineering development was led by a passionate and dedicated group based at Toyota Technical Center in Ann Arbor, Mich. Continuing a North American focus, the 2013 Avalon will be assembled at the award-winning Toyota Motor Manufacturing Kentucky (TMMK) facility in Georgetown, Ky.

True to the future product mission set forth by Toyota Motor Corporation President Akio Toyoda, the new Avalon's more stylish, bold, sporty exterior design and luxurious interior styling are matched by an enhanced dynamic package, a combination that foreshadows the more compelling and passionate nature of future Toyota products.

**Powertrain Specs**

		Avalon V6	Avalon Hybrid
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Gasoline Engine	Type/Displacement	2GR-FE / 3.5L	2A
	Max Horsepower	268 hp	
	Max Torque	248 lbs.-ft.	
Transaxle	Type	6-speed AT	
Electric Motor	Max Output	—	
	Max Torque	—	
Battery	Type	—	Nickel-M
	Nominal Voltage	—	
	Number of Cells	—	
	Max Output	—	34 k
	Total System Output	—	1

Key Dimensional Comparison

	2013 Avalon	2012 Avalon
Overall Length	195.3 in.	197.6 in.
Overall Width	72.2 in.	72.8 in.
Overall Height	57.5 in.	58.5 in.
Wheelbase	111 in.	111 in.
Front Tread	62.6 in.	62.2 in.
Rear Tread	62.2 in.	61.6 in.
Front Overhang	38.8 in.	39.4 in.
Rear Overhang	45.5 in.	47.2 in.
Curb Weight	3,497 lbs. (V6), 3594 lbs. (Hybrid XLE)	3,616 lbs.