

Prime Mover: Toyota Maxes Out Tech and Style in the World's Best-Selling Hybrid to Create the 2017 Prius Prime

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Prime mover. Prime cut. Prime minister. Prime attraction. And for Trekkers, there's the Prime Directive. "Prime" means best or top, and so it was a natural to use it for the most technologically advanced, best-equipped Toyota Prius in the model's nearly two-decade global history. The 2017 Prius Prime represents the pinnacle of efficiency and technology for the new-generation Prius, with a new dual-motor hybrid powertrain with a remarkable 2017 EPA-estimated 133 MPGe (miles per gallon equivalent), the highest rating in the industry among all vehicles.

That also represents a substantial 26-percent enhancement over its predecessor model, the Prius Plug-in Hybrid, the result of greater battery capacity and an improved hybrid system. In hybrid mode, the Prius Prime stands out again, exceeding all competitors' fuel economy ratings with EPA-estimated 55 city/53 highway/54 combined MPG.

The 2017 Prius Prime combines an electrifying design with an even more capable electric powertrain than the previous-generation model. In fact, the Prius Prime will have class-leading total drive range with a EPA-estimated 640 miles! And, Prius Prime will offer a EPA-estimated range of up to 25 miles up to 84 mph in EV mode, with the goal in mind of meeting the daily commuter distance of over half of U.S. drivers. As thrifty with fuel as the Prius Prime may be, in EV mode it drives with unexpected verve and excitement. Exclusive suspension tuning gives the Prime an enhanced planted stance through curves.

All Prius models are built around Toyota's New Global Architecture (TNGA) and feature double-wishbone style multi-link rear suspension. You'll find that kind of suspension on the best sport sedans, and it can work the same wonders for handling and ride quality in a super-efficient hybrid, too. The trailing-arm design allows increased luggage space, in this case an outstanding EPA-estimated 19.8 cu. ft. with the rear seatbacks in use.

Prime Safety

Prius Prime adds even more premium touches and exclusive tech features compared to the all-new Prius liftback, including its available vertically oriented 11.6-inch HD multimedia screen and an available full color head-up display.

Notably, the Prius Prime comes standard with more active safety features of any hybrid in its class. Among the many safety features is standard Toyota Safety Sense™ P (TSS-P). This multi-feature advanced active safety suite bundles the Pre-Collision System with Pedestrian Detection and Automatic Braking; Lane Departure Alert with Steering Assist; Full-Speed Dynamic Radar Cruise Control with full stop technology and Automatic High Beams. The Prius Prime Advanced model also comes with standard Blind Spot Monitor and Rear Cross Traffic Alert.

All 2017 Prius Prime models come equipped with eight supplemental restraint system airbags, including driver and front passenger Advanced Airbag System; driver and front-passenger seat mounted side airbags; front and rear side curtain airbags; a driver knee airbag, and a front passenger seat cushion airbag.

Prime Engineering

TNGA strength greatly contributes to the high level of handling responsiveness, steering feel and ride quality in the Prius Prime. Hot-stamped and high tensile steels, which allow for intricate forms that are both lightweight and strong, are used extensively throughout the body. Aluminum components, including the hood and brake calipers, help keep vehicle weight in check. Innovative fastening methods, including laser screw welding and advanced adhesives, contribute to structural strength.

Additional weight savings come from a Toyota-made lightweight carbon-fiber rear hatch, which also makes opening and closing almost effortless.

Prime Design

If the 2017 Prius Prime looks like the future, it was purely intentional on the designers' part. The Prius Prime measures 6.5 inches longer, 0.6 inches wider and 0.8 inches lower than the model it replaced. The gasoline engine, electric motor and seating positions were lowered to increase front and rear head room while at the same time achieving a low, aerodynamic stance.

Prius drivers have long cherished the unique design of their vehicles, so Toyota took the concept even further with the Prius Prime. This new hybrid shares the same silhouette as the standard Prius liftback models but gets a unique look with exclusive front and rear fascias, bumpers and lighting systems. Ultra-low profile LED headlights and the large acrylic grille that compliments the presence of the air intakes evoke a more advanced EV image. The design also draws a connection to the revolutionary Toyota Mirai hydrogen vehicle.

The wind-cheating body and its high-strength/low weight structure are critical factors in the Prius Prime's remarkably low energy consumption. Its 0.25 coefficient of drag is among the lowest for current production sedans. Automatic grille shutters help reduce drag by closing when airflow to the radiator is not needed. Another unique detail, the 15-inch aluminum alloy wheels feature aerodynamic covers painted in a two-tone scheme.

Yet the Prius Prime is no aero jellybean. The chiseled profile and edgy character lines seem to dare the wind to stand in its way.

The energy-conserving quad LED headlights glow like diamonds cutting the night, but they don't blind oncoming drivers, thanks to its standard Automatic High Beams (AHB). Using an on-board camera, the system is designed to detect approaching vehicles or a vehicle traveling ahead and also measure the surrounding environment's light (such as street light brightness) and adjust accordingly.

Don't panic; you are seeing double when you look at the liftback's glass. Exclusive to the Prius Prime, the "dual wave" rear window catches the eye while letting the wind slip by. Also unique to the Prius Prime, a full-width LED rear combination lamp panel leaves an unforgettable nighttime signature, with a shape that follows the contour of the spoiler and the double-wave window. A full-width aero glass panel below the rear spoiler, plus a standard backup camera, aid rearward visibility.

Accentuating the Prius Prime's futuristic lines are four standard paint color choices including Classic Silver Metallic, Magnetic Gray Metallic, Titanium Glow and Blue Magnetism (available only on Prius Prime), plus two premium colors, Blizzard Pearl and Hypersonic Red.

EV or Hybrid? Both.

The Prius Prime will please anyone who wants to reduce trips to the gas pump, and it makes a great road trip car, too. The Prius Prime is designed to drive in EV mode in more situations, helping to enhance total vehicle driving range.

The Prius Prime also offers other drive modes to give the driver options depending on their needs: EV Auto Mode and Hybrid Mode: EV Auto Mode will automatically rely more on its electric capability, especially in urban and suburban driving during shorter trips. But in situations where it is more efficient to run the gasoline engine, up steep hills for example, the extremely efficient engine will engage. In Hybrid Mode, the Prius Prime runs primarily on the gasoline engine with support of the electric motor. It efficiently combines the engine drive force and the electric power from the hybrid battery.

The Prius Prime can even optimize range by memorizing the driver's stopping patterns on frequently driven routes and suggesting when to let off the accelerator. Available Predictive Efficient Drive with Predictive Deceleration Support collects daily driving data to predict points of deceleration and stopping. From then on, when the driver goes through a location in the database, the system indicates when to let off the accelerator and can apply assisted deceleration to help boost fuel efficiency.

Mechanical Genius

Both the standard Prius hybrid and the Prius Prime are powered by Toyota's Hybrid Synergy Drive powertrain, which seamlessly combines the output of the gasoline engine and electric motor through a planetary-type continuously variable transmission. The biggest difference is that the Prius Prime can be plugged in to recharge its larger 8.8kWh lithium-ion battery pack – more than double that of the Prius Plug-in Hybrid it replaces.

To help make extended EV mode driving range possible using Hybrid Synergy Drive, Toyota modified the system. For the first time in a Toyota hybrid, the system uses a "dual motor drive." Toyota didn't add another motor, however. Rather, a new one-way clutch engages both the generator (MG1) and electric drive motor (MG2) for drive force, the first time MG1 has been used for that purpose. Regenerative braking recaptures electrical energy under deceleration and braking and stores it in the battery, which helps to reduce fuel consumption.

There's no special equipment needed for home charging. Just plug the Prius Prime into a standard household outlet (Toyota recommends using a dedicated GFI 15A outlet) using the supplied cable. Charging using a standard household outlet takes less than five-and-a-half hours, or approximately two hours when using a public charger or other 240V source.

To enhance the ownership experience and allow customers to get the most out of their Prius Prime, Toyota has partnered with ChargePoint, the world's largest public charging network. ChargePoint provides access to more than 30,000 charging spots, the majority of which are free to users today. Add to that an updated suite of Prius Prime Apps that manage vehicle charging, climate control, location services and other vehicle functions, and owners will experience a new type of connection to their vehicles.

Engine of Change

Not to be overshadowed by all the electrical action, the Prius Prime's gasoline engine also plays a starring role in that efficiency. The 1.8-liter Atkinson-cycle, 4-cylinder engine, used in all 2017 Prius liftback models, expects a groundbreaking 40-percent-plus thermal efficiency. Most modern automobile engines reach about 25-30 percent.

Dig into the specs, and you'll find a very high compression ratio of 13.0:1, yet like all Prius models, the Prius Prime runs on regular-grade gasoline. Myriad details throughout the hybrid powertrain contribute to its efficiency: an exhaust gas recirculation (EGR) system with a cooler; a smaller, lighter, quieter hybrid system water pump, and an exhaust heat recirculation system that speeds engine warm-up.

The combined net output for the Prime's hybrid system is 121 hp. The effect of the electric motor and the planetary-type continuously variable transmission give the Prius Prime a spunky, responsive attitude in urban driving. On the highway, in battery mode, the silence is quite serene, indeed. The Prius Prime remains a quiet cruiser in all drive modes thanks to the sound-insulating laminated windshield and front door glass, comprehensive sound insulation measures and the optimized aero shape that helps keep wind noise where it belongs – outside.

Looks Marvelous, Feels Marvelous

On the inside, the Prius Prime looks and feels far from frugal. Its four-seat cabin layout, with center console in both front and back, feels far more premium. The rear-seat console offers generous storage capacity. Practicality is a Prius Prime strong suit, with standard 60/40 folding rear seatbacks unaffected by the larger battery.

The Prius Prime coddles the driver and passengers with standard heated front seats, an automatic climate control system, and available SofTex® synthetic leather trimmed seats. The climate control system runs very quietly thanks to an electric compressor. Toyota calls the system “smart-flow,” because it focuses airflow only to areas where occupants are seated in order to help maximize fuel economy and comfort.

The Prius Prime goes above and beyond to ensure both a comfortable cabin temperature and optimal EV performance in cold weather. The climate control system can also operate without the engine running, with a heat pump that allows the system to cool or heat the cabin while driving in EV mode.

The heat pump can function without the engine running in weather down to 14 degrees F, where a conventional heat pump system could only function with the temperature above 32 F. So, you can count on getting cabin heat quickly even with a cold powertrain, with comfort augmented by standard heated front seats.

On cold days, a battery warmer activates at the end of a charge to keep the battery temperature above 32 F, ensuring that it can deliver optimal EV performance and range when the vehicle is started. On the top-line Prius Prime Advanced model the driver can activate the remote air conditioning system with a key fob or smartphone app to cool the interior before entering the cabin.

Information At A Glance

The centrally mounted gauge panel, a Prius hallmark since the model’s inception, appears to float above the dashboard. The panel features dual 4.2-inch full-color multi-information displays, and the driver can change their content by using steering wheel controls. Customizable screens include Energy Monitor, Hybrid System and Climate Control Indicator, along with a suite of “Eco” features: Eco Score, Eco Savings Record, Drive Monitor, and Eco Diary. Other screens provide displays for driver support systems, audio system content, and navigation system content.

Grade Strategy

Toyota’s grade strategy for Prius Prime includes grades, Prime Plus, Prime Premium and Prime Advanced, each with successively more amenities and technology. Prius Prime Plus starts with a long roster of standard features, including fabric-trimmed heated front seats with armrests and seatback pockets; power windows with auto up/down; smart-flow climate control system with pollen filtration; integrated navigation and backup camera; dual sun visors with illuminated vanity mirrors and heated power outside mirrors.

The standard SofTex-trimmed tilt/telescopic steering wheel integrates controls for audio, climate, the Multi-Information Display and Bluetooth® hands-free phone. Additional user tech includes the Smart Key System (on driver side) with Push Button Start. To power devices, there’s a 12V auxiliary power outlet up front, and another in the rear, plus one front USB power outlet.

Stepping up to the Prius Prime Premium nets more technology, comfort and convenience.

Entune™ technology goes big-screen with the 11.6-inch vertical HD multimedia display. The Smart Key System with Push Button Start is expanded to three doors and includes remote illuminated entry.

Comfort moves up a few notches with SofTex-trimmed heated front seats with armrests and seatback pockets. The driver gets an 8-way power adjustable seat with power lumbar support.

Want to cut the cord, or at least leave it home? The Prius Prime Premium comes with wireless cell phone charging for Qi-compatible devices; just place a compatible phone on the console charging pad.

Prime Advanced

More luxury and tech enters the picture in the Prius Prime Advanced, which adds a heated steering wheel, remote climate control system, rain-sensing variable intermittent windshield wipers and auto-dimming rearview mirror with HomeLink® universal transceiver.

LED fog lights help bolster visibility, while a color head-up display (HUD) helps the driver keep focused on the road by projecting vital information onto the lower portion of the windshield. HUD displays include speedometer, hybrid battery charge Hybrid System Indicator navigation and the various systems within TSS-P.

The safety tech roster grows with Blind Spot Monitor (BSM) with Rear Cross-Traffic Alert (RCTA) and Safety Connect®, which includes Emergency Assistance, Stolen Vehicle Locator, Roadside Assistance and Automatic Collision Notification. (Includes complimentary three-year trial subscription).

Prime Parking

In the urban jungle, where hunting for a prime parking space is a sport, the Prius Prime Advanced wins. Its standard Intelligent Clearance Sonar (ICS) with Intelligent Parking Assist (IPA) uses ultrasonic wave sensors to size up a parallel parking space and then, when activated by the driver, can steer the car into it. The system can also reverse the vehicle into a perpendicular space and automatically steer it out of a parallel space. If you drive into a tight spot, such as a narrow alley or driveway, Intelligent Clearance Sonar provides visible and audible warnings if you get too close to obstacles on the vehicle's sides.

Entune™ Delivers Prime Multimedia

Sound, vision and information in the Prius Prime likewise meet the standard of the car's name. The Prius Prime Plus comes standard with the comprehensive Entune™ Premium Audio with Integrated Navigation system and Entune App Suite®. This easy-to-use multimedia system brings a world of music and information through a 7.0-inch high-resolution touch-screen with split screen display and includes: Integrated Navigation System; AM/FM, six speakers; auxiliary audio jack; USB 2.0 port with iPod® connectivity and control; advanced voice recognition; hands-free phone capability, phone book access and music streaming via Bluetooth® wireless technology, plus Siri® Eyes Free mode and an integrated backup camera display.

The Entune™ Multimedia Bundle adds to that AM/FM cache radio (letting you pause songs and play later), HD Radio, HD Radio Traffic, HD Radio Weather; SiriusXM All Access Radio with 3-month complimentary trial, and Gracenote album cover art.

And the list keeps going with the Entune™ App Suite adding yet more music sources, including Slacker Radio, iHeartRadio and Pandora®. Apps also give you Destination Search, MovieTickets.com, OpenTable®, Facebook Places, Yelp™ plus real-time traffic, weather, fuel prices, sports and stocks. Access to Entune™ services is subscription-free.

On the Big Screen

The Prius Prime Plus puts that multimedia smorgasbord on a bright 11.6-in. high-resolution multimedia display. Suffice it to say navigation graphics and album cover art look stunning on the big screen. Tablet-like operation

for this vertically oriented screen, including pinch and zoom functionality, will be immediately familiar to most drivers. Capacitive touch switches flank the screen on both sides, providing easy access to major functions. This upgrade also includes the Charging Station Map App, and this version of Entune goes all-in on playing digital music from an iPod or other device, or streaming. There's no CD player; goodbye, 1990s.

But Wait, There's More.

To all of the above, the Prius Prime Advanced adds JBL® Audio with Prime Apps. That means 10 JBL® GreenEdge™ speakers and Prime Apps for Smartphone with 3-year complimentary trial. Prime Apps include Remote Charge Management, Charging Station Map, ECO Dashboard, Remote Climate and Vehicle Finder. With them, the Prius Prime owner can remotely manage the vehicle's charging schedule and status, locate charging stations, track and compare your eco driving score with others on social media, remotely control the vehicle's climate system, and more – all from a smartphone. It's advanced eco at your fingertips. (Access to Prius Prime Apps requires an active Safety Connect subscription after the 3-year complimentary trial.)

Great Pricing Equals Prime Value

With the all-new Prius Prime loaded with active safety features, an array of comfort, convenience amenities, packed with advanced technology, and an ultra-efficient powertrain, one would expect pricing to take a giant leap skyward. Not so. When the Prius Prime goes on sale later this year, it will complete a great value story by carrying a manufacturer's suggested retail price (MSRP) that will range from \$27,100 for the Prius Prime Plus grade, to \$33,100 for the Prius Prime Advanced grade.

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Prius Prime MSRPs do not include a delivery, processing and handling fee of \$865. The DPH fee for vehicles distributed by Southeast Toyota (SET) and Gulf States Toyota (GST) may vary.

2017 Prius Prime Prices

MODEL#	GRADE	MSRP
1235	Prius Prime Plus	\$27,100
1237	Prius Prime Premium	\$28,800
1239	Prius Prime Advanced	\$33,100

All prices listed above exclude the Delivery, Processing, and Handling (DPH) fee.

Peace of Mind Warranty Protection

Toyota's 36-month/36,000 mile basic new-vehicle warranty applies to all components other than normal wear and maintenance items. Additional 60-month warranties cover the powertrain for 60,000 miles and against corrosion with no mileage limitation. The hybrid-related components, including the HV battery, battery control module, hybrid control module and inverter with converter, are covered for eight years/100,000 miles. In applicable states hybrid-related component coverage is 15 years/150,000 miles with the exception of the hybrid battery, which is covered for 10 years/150,000 miles.

The Prius Prime also comes standard with Toyota Care, a complimentary plan covering normal factory-scheduled maintenance for two years or 25,000 miles, whichever comes first. Prius models include three years of 24-hour roadside assistance from date of purchase.

NOTE TO EDITORS: Photos and video to accompany this story are available and can be retrieved in digital form by media without charge at <http://www.toyotanewsroom.com>.