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Hybrid vehicles and SUV variants by Temple Clarke

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A hybrid vehicle is a vehicle that uses two or more distinct power sources to move the vehicle. The term most commonly refers to hybrid electric vehicles (HEVs), which combine an internal combustion engine and one or more electric motors. When the term hybrid vehicle is used, it most often refers to a Hybrid electric vehicle. These encompass such vehicles as the Lexus RX 400h and 450h and others. A petroleum-electric hybrid most commonly uses internal combustion engines (generally gasoline or Diesel engines, powered by a variety of fuels) and electric batteries to power the vehicle. There are many types of petroleum-electric hybrid drivetrains which offer varying advantages and disadvantages.

The Lexus RX 450h, which went on sale in mid-2009, is a hybrid vehicle. It is equipped with a 3.5-liter 2GR-FXE V6 engine, now running on the Atkinson cycle, which produces 245 hp (183 kW); by incorporating a more powerful inverter and electric motors, total horsepower reaches 295 horsepower (220 kW). Two additional systems are added to the RX 450h's Lexus Hybrid Drive powertrain, an exhaust-heat recovery system to reduce engine warm-up periods (optimizing engine start-stop times), and a water-cooled Exhaust Gas Recirculation (EGR) system to reduce engine pumping losses.

This hybrid luxury vehicle also includes a new ECO mode that helps the driver improve fuel economy by controlling air conditioning and throttle inputs, while a driver selectable EV drive mode allows for electric-only propulsion at low speeds. Visually, the RX 450h receives a unique grille with modified front fascia, blue-tinted headlamps and tail lamps, hybrid badging, different wheels, and optional LED headlamps. In the US market the RX 450h went on sale in early June 2009.

The Lexus RX is a crossover sport utility vehicle (SUV) sold since 1998 by Lexus, the luxury division of the Japanese automobile manufacturer Toyota. Three generations of the Lexus RX have been produced to date, the first being compact in size, and the latter two classified as mid-size.

In the Lexus model lineup, the RX sits below the company's other SUVs, the GX and LX, but remains the brand's only crossover model. As one of the earliest luxury crossovers on the market, the Lexus RX has inspired similar competitors from rival marques. Based on the unibody front-engine, front-wheel drive multi-model platform used by the Lexus ES, the RX is designed to combine the functional characteristics of an SUV with ride and features of a luxury sedan. Its commercial success as the best-selling Lexus model has been partially attributed to the strong reliability reputation held by Toyota and in turn Lexus. The success of the RX has been particularly strong in the United States where it has been the best-selling luxury SUV since its introduction.

Manufacture of the RX has occurred at the Miyata plant in Miyawaka, Fukuoka, Japan since launch. However, the RX remains notable as the only Lexus model to be also manufactured outside of Japan, with North American market non-hybrid versions produced at the Toyota Motor Manufacturing Canada plant in Cambridge, Ontario since 2003.

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Temple Clarke - About Author:
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