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2011 MAZDA RX-8: RENOWNED ROTARY-POWERED SPORTS CAR

Launched in 2003, the Mazda RX-8 hit the global market with a serious bang and has since gone on to win 48 global vehicle awards, including 2003 Japanese Car of the Year, Australia's *Wheels* magazine's Car of the Year for 2003, 2003 International Engine of the Year, 2004 Singapore Car of the Year, the 2004 U.S. Best Sports Car and UK Car of the Year 2004. It was also named on *Car and Driver* magazine's Ten Best list for 2004, 2005, and 2006. In addition, the RENESIS Rotary Engine has won nine awards since 2003. All of these awards and accolades have helped Mazda sell nearly 182,000 RX-8s around the world.

Significantly updated for 2009 with a refreshed exterior and interior design, enhanced performance and an R3 model for the ultimate driving enthusiast and refined for 2010, RX-8 remains unchanged for 2011. The RX-8 is available in three trim levels – Sport, Grand Touring and the RX-8 R3, specially designed with the enthusiast in mind. At the core of the RX-8 remains a high-powered, lightweight and perfectly balanced machine powered by the world-renowned twin-rotor RENESIS rotary engine.

UNIQUE SPORTS CAR PERFORMANCE

Through-and-through, the RX-8 is a pure sports car that gives the driver an exciting and dynamic experience. With its superior body rigidity and structural reinforcements, the rear suspension geometry was reconfigured for the 2009 model year for better handling performance and improved driveshaft rigidity.

To achieve this sophisticated dynamic, Mazda utilizes the advanced RENESIS (Rotary Engine genesis – or rebirth of the rotary engine) engine. The Mazda RX-8 remains the only mass-produced rotary-powered passenger car in the world. While exhibiting unusually high power output for a naturally aspirated engine, RENESIS outstrips comparable reciprocating engines in terms of acceleration, the feeling of power in reserve and quick response.

The Mazda RX-8 is available as either a 232-horsepower model fitted with a six-speed manual transmission, or a 212-horsepower model fitted with a six-speed automatic with steering-wheel-mounted paddle shifters for a Formula 1-style driving experience.

By turning a triangular rotor in a cocoon-shaped combustion chamber, the RX-8's rotary engine efficiently performs the four processes of intake, compression, combustion and exhaust. The RENESIS engine is remarkably smooth and high revving — all the way to 9,000 rpm (7,500 rpm on Sport A/T-equipped models) — and offers a smaller engine footprint than traditional internal combustion engines (some 60 percent smaller and lighter than a comparably powered V-6, and 40 percent smaller and lighter than a four-cylinder). In fact, the packaging and styling that define the RX-8 would not have been possible had Mazda engineers chosen a conventional piston engine.

Improving upon 40 years of rotary designs, the RENESIS engine features side intake and exhaust ports with nearly 30 percent more intake area and twice as much exhaust area than its predecessors. The efficiencies gained through larger intake and exhaust ports exclude the need for forced induction.

The RX-8's normally aspirated 1.3-liter engine might appear diminutive to the untrained eye when compared to large-displacement V-8s or heavyweight V-10s or V-12s. However, through the incredible efficiencies of a rotary powerplant, an advanced three-stage intake system and an electronic throttle, the RENESIS engine delivers smooth, linear power on a grand scale.

The RX-8 uses an aluminum double-wishbone front suspension, reducing unsprung weight over the use of steel components. By mounting the upper and lower arms on a highly rigid sub-frame, the long arms ensure linear alignment changes throughout the jounce and rebound of the front wheels. All wheels receive mono-tube gas-filled shock absorbers designed with large-diameter internal pistons and valving, which offer excellent road feedback and a smooth ride.

An electric rack-and-pinion power-steering system transmits just the right amount of road information back to the driver. Mazda engineers have chosen to pursue their own path by using an electric motor for steering assistance rather than a conventional power-steering pump. The electric motor provides additional assistance at low speeds to ease parking and reduces steering assistance at higher speeds to provide greater road feel, responsiveness and feedback. And, in keeping with the rest of the development on RX-8, it is far lighter and easier to package than a conventional power-steering rack.

EXCEPTIONAL SAFETY

When designing the RX-8, safety was given as much of a priority as was performance. For Mazda, the safety process incorporates both accident avoidance and accident protection. In effect, this approach to safety means the RX-8 can help the driver avoid various dangers and protect occupants in the unfortunate event of a collision. In rollover tests performed by the National Highway Traffic Safety Administration (NHTSA), the RX-8 achieved an impressive five-star rating. Mazda engineers integrated numerous active and passive safety elements throughout the car. Active safety features, which require input from the driver, include the use of large ABS-equipped disc brakes on all wheels as well as precise steering and suspension systems. Dynamic Stability Control with TCS (standard on Grand Touring and R3) delivers a superior level of handling that can be disabled when driving and road conditions allow safe operation.

Passive systems, or those that take effect automatically without the driver's involvement, also are present throughout the RX-8. Despite the absence of a fixed center B-pillar, the RX-8 has an exceptionally rigid body, accomplished through the use of a series of locking pins, which hold the doors together and bind each door directly into the roof and floor. Integrating the frame components helps dissipate crash energy through the vehicle's structure.

Other standard passive systems on the RX-8 include front airbags, seat-mounted side-impact airbags and side-curtain airbags. Additionally, the front end and engine bay have ample crumple zones, the front seats are designed to reduce whiplash injuries, the brake pedal is designed to break away in the event of a collision of sufficient force to protect feet and legs and all four seating positions are fitted with three-point seatbelts. Even pedestrian protection was considered, as the RX-8 is fitted with Mazda's "shock-cone" hood design that yields more to the impact of a pedestrian onto the hood than a standard design, yet is strong enough to not deform in normal use.

STYLING WITH ORIGINALITY

RX-8 was designed with an athletically sculpted exterior that provides a sense of originality that's unrivaled in the marketplace today. Carrying over design enhancements from the 2009 model year, the 2011 RX-8 features a high-class look without impairing the basic design theme. Key design elements include aggressive front and rear bumpers and front fascia, sporty, high quality finish front headlights and rear LED taillights and larger exhaust pipes. The RX-8 also offers a new 10-spoke wheel design featuring a symbolic and sporty design in the motif of a rotary engine with different arrangements for each wheel size.

Taut muscular lines give RX-8 the liberating look of an athlete in motion. The muscular styling maintains classic sports car proportions while adding a Zoom-Zoom edge that is unmistakably Mazda.

The RX-8's unique "freestyle" four-door design is proof that a true sports car does not need to sacrifice space or convenience for performance. The advanced design of the rear-hinged rear doors, provides a large door opening, allowing adult-sized passengers to easily enter and exit the vehicle. This design is also advantageous when securing a baby or a small child in the back seat. With ample passenger room for four full-size adults, and enough trunk space for a weekend's worth of luggage, this sports car proves its versatility.

The RX-8's exterior styling presents a genuine sports car form, while the interior boasts a comfortable and intelligently designed cabin. A simple, yet functional, interior design supports driving pleasure. Interior highlights include an athletic steering wheel, front and rear sports seats, an ergonomic center IP and an LCD touch-screen navigation system.

A variable red zone was also added to the tachometer. An extremely low cabin floor allows the seats to be mounted low in the chassis, which, along with a low instrument cluster and hood, enhance driver visibility. Mazda designers concentrated on the shape of the front seat backs and the rear seat cushions to ensure adequate rear-seat knee room. Front seat slide-rails are positioned to allow maximum leg room for rear-seat passengers.

The rotary design element is incorporated through the interior of the RX-8 in creative ways, appearing in the seats, center console, shift knob and emergency brake. The stylish cabin also evokes a sense of luxury and high-end quality. Mazda's design team examined every aspect and component of the interior and has created an elegant, driver-centric atmosphere. Through the use of advanced ergonomic research, Mazda engineers established improper seating posture to be a cause of driver fatigue and built in optimum support in the front seats to help offset discomfort. In addition, the soft blue lighting used in the RX-8's instrument cluster was found to reduce eye fatigue and strain.

PACKAGING INNOVATIONS – ULTIMATE PERFORMANCE R3 MODEL

To cater to the driving enthusiast, the RX-8 offers an R3 model. Providing the very best in rotary-powered motoring, the R3 model adds a sport-tuned suspension with Bilstein shock absorbers and front suspension crossmembers filled with urethane foam for better ride comfort. Rear spoiler, side sills, fog lights, Xenon headlights and sporty front bumper are added to enhance the sporty appearance along with 19-inch forged aluminum-alloy wheels with high performance tires. Inside, the R3 model adds a Bose® audio system with Centerpoint surround sound and AudioPilot® noise compensation technology, Bluetooth hands-free phone system, front Recaro sport seats with leather side bolsters, leather-wrapped parking brake and Mazda advanced keyless entry and start system.

Two other trim levels are offered – Sport and Grand Touring. The entry-level Sport comes well-equipped with a six-speed Sport automatic transmission with paddle shifters and Adaptive Shift Logic or a six-speed manual overdrive transmission with short-throw shifter; front and rear stabilizer bars, independent front and double-wishbone suspension/ rear multi-link suspension; sport-tuned suspension and torque-sending Limited Slip Differential (for manual transmission models).

Exterior highlights include 225/45R high-performance tires mounted on 18-inch aluminum alloy wheels, dual chrome tailpipe garnish, dual power mirrors and rear LED taillights.

Standard interior features include air conditioning, AM/FM/CD stereo with six speakers, auxiliary audio-input jack, cloth trimmed upholstery and door panels, cruise control, passenger seat one-touch walk-in function, steering wheel-mounted cruise and audio controls, leather-wrapped steering wheel and shift knob, and power windows and doorlocks.

Standard safety features include dual front, side and curtain airbags, alarm with immobilizer, Anti-Lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD), burglar alarm and Tire Pressure Monitoring System (TPMS).

A step up to the Grand Touring trim adds Xenon headlights, fog lights, auto dimming mirror with Homelink®, Dynamic Stability Control (DSC) with Traction Control System (TCS); a limited-slip differential (on automatic transmission models), auto on/off headlights, Bose® audio with 6-disc CD auto changer, auto A/C, driver seat memory, power-adjustable driver's seat with lumbar support, leather seating surfaces — heated front seats— and heated outside mirrors, Mazda Advanced Keyless Entry & Start system, rain-sensing wipers and Bluetooth® hands-free capability. A DVD-driven satellite-navigation unit is available as a stand-alone option. All Grand Touring models are equipped with a moonroof and Sirius Satellite Radio (with a six-month subscription).

All Mazdas come with a roadside assistance program. With a call to a toll-free number, owners can access roadside assistance 24 hours a day, 365 days a year throughout the United States and Canada. In addition, a comprehensive three-year/36,000-mile warranty covers every part on the vehicle except those subject to normal wear. Also, all models receive a five-year/60,000 mile powertrain warranty and a five-year/unlimited-mileage corrosion warranty. In addition, warranty coverage for the RX-8 includes extended coverage of the rotary engine to eight years/100,000 miles (whichever comes first).

Headquartered in Irvine, Calif., Mazda North American Operations oversees the sales, marketing, parts and customer service support of Mazda vehicles in the United States, Canada and Mexico through nearly 900 dealers. Operations in Canada are managed by Mazda Canada, Inc., located in Ontario; and in Mexico by Mazda Motor de Mexico in Mexico City.

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