



www.autodatasolutions.com

2009 Mazda RX-8 Four-seat sports car.

Overview

It's been 40 years since Mazda released its first rotary-engine production model, a twin-rotor coupe called Cosmo Sport in mid-1967. By the early 1970s, the rotary seemed poised to conquer the automotive world. That never happened for a long list of reasons, but the lightweight rotary engine found a purpose powering a delightful series of light, nimble, high-revving Mazda sports-touring cars. Over the past four decades, Mazda has manufactured more than 1.9 million rotary-engine vehicles. And we're glad it did.

The latest model in this series, the ingeniously engineered Mazda RX-8, drives like a sports car, with a high-revving engine and near perfect weight distribution for balanced handling, and it has garnered motoring award recognition on four continents.

For 2009 RX-8 receives evolutionary styling updates, a more rigid structure and driveshaft, revised rear suspension and gearing, and a new RX-8 R3 aimed at enthusiasts. Although the R3 powertrain is the same as that of the other RX8s, its sports suspension and cosmetic and functional upgrades qualify it as the best sports value in the line for serious enthusiasts.

The Mazda RX-8 is surprisingly practical. It's capable of taking the kids to soccer practice, with passenger space for four full-size adults. There's enough room for a weekend's worth of luggage or two full-size golf bags, and the small rear doors and relatively spacious trunk make trips to the home improvement center possible. It's not as roomy as a sedan, but it can move people and stuff when needed, while offer the driving experience of a two-seat sports car.

In short, the RX-8 is a true four-seat sports car. And it's the small but powerful rotary engine that makes this possible.

The RX-8 was launched as an all-new model for 2004. Its most significant prior update was the six-speed automatic transmission that arrived for 2006, replacing the previously available four-speed. In addition to two more gears, the six-speed automatic also brought steering-wheel mounted paddle controls for semi-manual shifting; and allowed the engine to be tuned closer to its manual-transmission specification, narrowing the performance gap between the auto-shifting and shift-it-yourself versions.

Still, the manual and automatic models are two different cars. The manual benefits from 232 horsepower at 8500 rpm, while the automatic gets 212 hp at 7500 rpm, albeit with the same 159 pound-feet of torque at 5500 rpm. The bottom line is that the manual model is for driving enthusiasts willing to shift for themselves and those seeking maximum efficiency, while the



automatic is for drivers more interested in the look and feel of a sports car than in ultimate performance or heavy stop-and-go commuters.

Model Lineup

The 2009 Mazda RX-8 comes in four trim levels. All are powered by the 1.3-liter twin-rotor rotary engine.

Sport (\$26,435) comes with a choice of six-speed manual or six-speed paddle-shift automatic transmission, both for the same price. Standard equipment includes cloth upholstery; air conditioning; AM/FM/CD stereo with six speakers and steering-wheel mounted controls; cruise control; power windows, mirrors and locks; leather-wrapped tilt steering wheel and shift knob; floor and overhead consoles; rear window defogger; variable-speed intermittent windshield wipers; alarm with immobilizer; and 225/45R18 tires on alloy wheels. Manual-shift models also get aluminum/rubber pedals, torque-sensing limited-slip differential and a rear lip spoiler.

Options include a 6CD in-dash changer (\$500), Sirius radio (\$430), spare tire kit (\$395), rear wing spoiler (\$360), plus mats, cargo nets and other accessories.

Touring comes with manual (\$27,860) or automatic transmission (\$28,560). The Touring adds Dynamic Stability Control (DSC) with traction control; Xenon headlamps; fog lights; auto-dimming inside rearview mirror with HomeLink; and an MP3/six-disc in-dash sound system. Additionally, Touring automatics get the limited-slip differential. Touring options include those above plus a Premium package (\$1355) that includes the Bose Centerpoint sound system, Sirius, moonroof.

Grand Touring (\$31,000) comes with manual or automatic (\$31,700). The GT adds leather seating with matching synthetic leather door panels, heated front seats and outside mirrors, eight-way power and three-position memory for the driver's seat, automatic headlights, rain-sensing wipers, Bluetooth, Bose surround sound system, and Mazda's advanced keyless entry and start system. Options include navigation (\$2000) and Premium package (\$900) with moonroof and Sirius.

R3 (\$31,930) is trimmed like a Touring but adds upgraded suspension with Bilstein shock absorbers, forged aluminum 19-inch wheels and 225/40R19 Bridgestone RE050A performance tires, rear wing spoiler, side sills, unique front styling, Bose audio system, leather-wrapped handbrake, keyless entry/start, and leather-edged Recaro sport seats.

Safety features that come standard include frontal and side-impact airbags (for torso protection) for the front passengers, and curtain airbags (for head protection) front and rear. A tire pressure monitor is also standard on all models. Anti-lock brakes with electronic brake-force distribution comes standard; DSC stability control is optional on Sport, standard on all others.

Walkaround

The Mazda RX-8 bulges with style if not grace. It's about the most aggressive shape technically possible in stamped steel. From the rear it looks good, with upswept lines, notable fender flares, large exhaust outlets and LED taillights. The inflated-triangle shape on the aft half of the hood perfectly mirrors the shape of the rotary engine beneath it.



R3 models use a more aggressive front bumper and a small stand-off wing rather than the attached small lip spoiler of other RX-8s.

From the side you see big, sharp wheel arches; plus a small vent/signal repeater angled behind the front wheel. The headlights aren't overtly dramatic but are a bit sleeker on 2009s; Mazda says it believes design should be expressed in sheet metal, not lighting.

The front and rear doors open in opposite directions, which Mazda calls the Free-style door system. With no pillar between the doors, this allows very easy ingress and egress for the rear-seat passengers. This design also makes the RX-8 surprisingly versatile in its ability to carry cargo. As with similar systems in pickups, the front door must be opened before the rear door can open. Unlike similar systems in pickups, the RX-8 structure does not creak and groan over uneven surfaces or steep driveway entrances.

To compensate for the lack of a B-pillar, Mazda carefully designed the structure with supporting steel crossmembers and braces, as well as reinforcements around the door perimeter for rigidity and safety against a side impact. Structural rigidity was further stiffened for 2009, and the RX-8 compares well with conventional two-door coupes. (The RX-8 achieved four stars out of five in NHTSA side impact tests.)

Standard 18-inch alloy wheels offer a variety of designs, which like the gray-painted 19-inch forged aluminum units on the R3, use rotary engine shapes as design themes

Interior Features

The Mazda RX-8 cabin is comfortable and surprisingly roomy. The seats are very good, a nice fit with good bolstering. Soft-touch surfaces are used on armrests and consoles, with hard plastics along lower surfaces that look satisfactory and help keep the weight down. The standard cloth seat material wasn't as attractive to our eyes as it might have been, however.

Recaro builds the superb sport seats in the R3, upholstered with leather around the edges and cloth centers for breathability. They feature stout bolsters so good that assist handles become redundant, cutouts for shoulder harnesses, and excellent long-term spine support so you can concentrate on driving. The passenger's seat backrest tilts forward, hence the different backrest adjusters left and right. R3 models wrap all major controls in leather.

The rear bucket seats in the RX-8 are comfortable. We've found even large adults find plenty of elbow room thanks to the transmission tunnel/console that separates them, and surprisingly good toe room under the front seats. Getting into and out of the rear seat is easy. Due to the high front seatbacks, rear-seat passengers can't see much out front without leaning inboard, but they can see out the side windows. Unlike some coupes with fixed rear side windows, the RX-8 rear windows pop-out for some ventilation. Rear passengers also have their own padded-armrest center console, dual cupholders, and plenty of room for child seats. These features make the RX-8 more practical than the Nissan Z and other sports cars.

The rear-hinged back door and the pillar-less door configuration allows loading of large, awkward items into the back seat area that simply cannot be handled by other sports cars and sedans. We were able to fit a desk stool and a storage crate inside, without using the front seat, a very impressive feat for a sports car. At times, especially in close quarters, the counter-swinging doors can be cumbersome, just as they did on extended-cab pickups and the Honda Element. There are reasons rear-hinged doors have had limited appeal over the years, but apart from seating a fourth person or vacuuming the back, you never have to open them.

The trunk is a true trunk, and we found it can carry two sets of golf clubs or a 24-inch roller suitcase and smaller bags. A vertical compartment door (pass-through) opens from the trunk to the rear seat area to allow the carrying of skis and such.

The driver is treated to a stitched leather three-spoke steering wheel that we liked both for its style and feel. Also nice were the aluminum pedals and the solid dead pedal. The brake pedal is designed to make rotation of your right foot easier, for heel-and-toe downshifting. Each knee is comfortably and firmly supported during hard cornering. Those with large hands may find the brake lever a bit close to the shifter and brush their knuckles in-and-out of fifth gear.

The instrument panel sacrifices a bit of efficiency for style. There are three big rings, dominated by the 10,000-rpm tachometer in the center, with a digital speedometer readout on the tach face. We miss having a separate analog speedometer; analog gauges can be interpreted at a glance, however, digital readouts are more precise for watching the limit than compact analog displays. The two large outside rings include gauges for water temp, fuel level and assorted warning lights. The instruments are illuminated from behind and above, so needles leave shadows in some conditions; if you adjust intensity downward at night they do not automatically return to full bright in daylight.

The panel forward of the shift lever is trimmed in glossy piano-black plastic like the steering wheel spokes. The controls for the Bose Centerpoint audio system are grouped in a CD-sized circle and have redundant controls on the steering wheel spokes. Climate controls of more conventional design are below; the air conditioning frequently needs a higher fan speed than usual, especially in traffic where the high-revving engine isn't.

For some 2009 models the key need not be placed in a switch, merely in the car, and you rotate a switch as you would a regular key. This gives the convenience of keeping the key in your bag or pocket without the confusion of which button to press and how many times. Our preference is for a traditional key.

The navigation system is DVD-based and features a dedicated, retractable seven-inch screen on top of the dash above the radio and climate controls. We found the system easy to operate. The interface is clear, thanks in part to the fact that it does not incorporate radio and climate controls into the screen, as do many other navigation systems.

The doors and seatbacks have ample pockets and cranny space, and four CDs can fit in the console, but there aren't a lot of cubbies up front. The soft triangular shape of the engine rotors are a design theme found throughout the car, most noticeably in the standard seats and atop the shift lever.

Driving Impressions

The Mazda RX-8 handles like a true sports car, with great balance and precise turn-in. Yet the suspension is soft enough for daily comfortable use and not as stiff as that of other sports cars that corner only slightly better but pay the price with a rigid ride. Although the R3 is the best-handling RX-8 by virtue of its Bilstein shock absorbers and 40-series tires it maintains a forgiving ride, merely stepping over bumps that super-stiff cars tend to crash over.



Greatly benefiting the RX-8's handling is its near-perfect balance, close to 50 percent of its weight on the front wheels and 50 percent on the rear with people on board. While some conventional, reciprocating-piston sports cars have also achieved this balance, it has usually been at the expense of interior space. The compact size of the rotary engine, about the size of a small computer monitor, makes it possible in a four-seater.

Extremely smooth and simple, the rotary has benefited from 40 years of development by Mazda engineers. The RX-8 features the latest and by far the best rotary engine design, which Mazda calls Renesis. This rotary engine is about 30 percent smaller than a comparable inline four-cylinder, and its compact dimensions allow it to be mounted in a low and rearward position for good weight distribution. It helps keep the center of gravity low and curb weight down to just 3,064 pounds. That's 500 pounds lighter than the lightest version of the two-seat Nissan 350Z, 200 pounds less than the four-seat rear-drive BMW 128i. It's just 200 pounds heavier than Honda's S2000 lightweight two-seater. Granted, the RX-8 is not the serious sports car that the third-generation RX-7 was, but nor is it as expensive.

The rotary engine offers a sweet unique sound under acceleration and the Renesis is very refined, with little of the rasp that characterized early RX-7s. The two three-sided rotors deliver six power pulses per turn of the output shaft, the same number as a V12 (and twice as many per revolution as a V6), resulting in an exhaust note that's almost hypnotic on a rhythmic road, and sport-bike-like under full steam. The rotary revs extremely quickly, but lacks the mid-range grunt of a V6. The axle ratio in manual transmission cars has been shortened to 4.78:1 for better acceleration, while the automatic is geared for cruising.

Despite the modest power, short gears and light weight allow the RX-8 to accelerate from 0 to 60 mph in or less than 6 seconds, making it fully competitive with many four-seat coupes in the price range.

Downshifting is redefined by the rotary engine, especially when paired with the brilliant close-ratio six-speed gearbox. You can drop the RX-8 into second gear at a speed that would cause many other cars on the planet to scream, and you can do so confident that you will never miss a shift.

The brakes work well. The fact that the RX-8 is so light, thanks not only to the rotary engine but also to the thoughtful use of aluminum in the hood and rear doors, reduces the stopping distance impressively, with performance comparable to that of the 350Z. Full electronic assists are standard.

Out on the open road the RX-8 feels even better. It hugs the pavement progressively, meaning the deeper it gets into a turn the harder it grips, which is wonderfully confidence-inspiring. Steering wheel inputs are answered quickly but without any nervousness and it's easily fine-tuned working through a bumpy or diminishing-radius corner. The RX-8 R3 may not set any benchmarks in test parameters but it is a very rewarding drive that won't get a novice into trouble or bore a pro, low weight and moderate torque help tires last longer, and it doesn't cost a king's ransom to replace them.

The optional Dynamic Stability Control (DSC) works effectively, yet allows the driver to work the tires without intruding. The RX-8 wasn't completely forgiving when driven hard on an autocross circuit. We found with too much throttle the Mazda would understeer (the front tires plowing, and the car going straight instead of turning). When we pushed it still harder, driving like hacks, the DSC would kick in to limit the understeer. What we learned is that the DSC is programmed to tolerate small errors but saves you from the big ones. In other words, it will let you get away with two feet of understeer in a curve, but not six feet. On winding, undulating mountain roads where stability systems often make themselves known the RX-8 merely remains on standby in the background.

And when DSC does take over, it uses the brakes, slowing one or more wheels as needed to correct the imbalance. The electronic stability control systems in some other cars correct skidding by closing the throttle, which skilled drivers find intrusive. The RX-8's DSC will eventually cut the throttle too, but not so early that it frustrates you.

When we switched the DSC off, we discovered two things that together seem paradoxical: how good the DSC is (because we could barely feel it when it was on), and how superb the balance of the RX-8 is when driven in its natural state.

Summary

The Mazda RX-8 is a unique sports car. Its four-seat, four-door configuration is an original design that works. The rotary engine is super smooth, simple, high-revving and almost indestructible. It's complemented by a beautiful six-speed gearbox, great brakes, and steering that talks to your hands. The RX-8 is a great sports car with an innovative approach and admirable engineering.



[Autodata Solutions](#), Inc. is an authorized distributor of [NewCarTestDrive Reviews](#).