

2008 MAZDASPEED3

Created 03/12/2009 - 4:20pm

Vehicle Overview

2008 MAZDASPEED3: THE KING OF ALL THAT IS ZOOM-ZOOM

The 2008 MAZDASPEED3 is one of the fastest and quickest front-wheel drive cars in the world. With a zero-to-60 time under six-seconds and an electronically limited top-speed of 155 mph, MAZDASPEED3 is at the top of the class of the sport-compact "pocket-rocket" crowd.

The MAZDASPEED3 features a compact, lightweight five-door body paired with a 263-horsepower 2.3-liter 4 cylinder DISI (Direct Injection Spark Ignition) Turbo engine, *making it* one of the highest performing front-wheel drive cars in the world.

In 2003, Mazda revolutionized the compact sedan segment with the launch of the MAZDA3. European sophistication, high-performance, advanced technology and safety are the ingredients that make MAZDA3 the company's best-selling model globally. While more than one-million vehicles have been built, the MAZDA3 continues to set sales records and has virtually no incentive support. MAZDASPEED3 takes everything that made MAZDA3 a success, and bumps it up a notch - more style, more power, more handling, more value.

"The MAZDASPEED3 is a pure enthusiasts' dream, made for the performance buyer who wants it all for a price that doesn't take it all," said Tatsuo Maeda, Program Manager for development of the MAZDA3 series. "Sport-tuned exhaust, turbocharged motor, MAZDASPEED sport independent suspension, 18-inch alloy wheels, unique roof spoiler, sport-inspired interior - the MAZDASPEED3 delivers a true drivers car."

To create this new benchmark, the MAZDASPEED engineering team focused on three requirements:

- *Driving Fun*: Formidable performance from the 2.3-liter DISI Turbo engine, along with sharp, responsive handling
- *Ownership Delight*: Advanced but restrained styling that suggests high performance without exaggeration and a tasteful interior to match
- *Everyday, User-Friendly Convenience*: Driving pleasure with everyday functionality and comfort

WICKED POWER

Under the hood of the MAZDASPEED3 is a version of the turbocharged and intercooled 2.3-liter four-cylinder direct-injection gasoline engine that powers the CX-7 crossover SUV. Engineered to deliver high performance at all speeds, along with low exhaust emissions and excellent fuel economy, Mazda's MZR 2.3 DISI (Direct Injection Spark Ignition) turbo-charged engine produces 263 horsepower at 5,500 rpm and 280 lb-ft torque at 3,000 rpm in the MAZDASPEED3.

Key engine components include aluminum block and head construction with forged steel internal components - crankshaft and connecting rods - for long-lasting durability, while balance shafts help eliminate noise and vibration. A large air-to-air intercooler and direct fuel injection cool the temperature inside the cylinder.

Shifting gasoline's change in state from liquid to vapor from the intake manifold to the cylinder provides a substantial cooling effect. This low charge-temperature permits use of a high 9.5:1 compression ratio, which boosts low- and mid-range torque by approximately 10 percent over conventional turbo engines. This compression ratio also contributes to the car's frugal use of fuel.

The DISI Turbo engine is engineered to achieve three aspects of performance that are difficult to realize with conventional manifold injection engines: good fuel-economy and low exhaust-gas emissions; powerful acceleration thanks to the turbocharger; and a full and flat torque curve throughout the rev range for exceptional engine response.

Engineers also paid close attention to the exhaust sound of the *MAZDASPEED3* in order to further increase the driving enjoyment of the car. Its throaty timber under acceleration from a standing start is music to ears of driving enthusiasts. Once the engine hits 4,000 rpm, the sound changes to the mid-frequency range to further underscore the car's sportiness.

ADVANCED PCM = EXCELLENT TORQUE CONTROL

To increase drivability and minimize torque steer and wheel spin in what is a very powerful front-wheel drive car, a sophisticated torque-management system combines with equal-length hardened driveshafts and a torque-sensing conical LSD limited slip differential.

Under the watchful eye of an advanced powertrain control module (PCM), the waste-gate bleeds off excess boost to control the torque spikes in first and second gear that would result in wheel spin, providing full boost only in third gear and above. Also, because the throttle is a drive-by-wire system, the PCM can control how quickly the throttle-body reacts to driver inputs, smoothing intake volume to further minimize torque spikes. This results in different torque characteristics in first, second and third (and above) gears, minimizing torque-steer and wheel-spin and maximizing traction and acceleration.

Torque control is also linked to the steering angle, limiting power delivery when the front wheels are turned. A torque sensing conical LSD limited-slip differential also minimizes wheel-spin on the inner wheel during hard cornering for smooth, predictable power delivery. Mazda also fits a similar conical-LSD unit to the rotary-powered RX-8 sports car.

RACE-INSPIRED GEAR BOX

The new *MAZDASPEED3* employs a six-speed manual transmission, allowing the driver to maximize the engine's potential. A compact three-shaft design made it possible to keep the overall length the same as the five-speed manual transmission used in the standard MAZDA3. Triple-cone synchronizers for the first three gears, along with double-cone synchronizers for fourth gear, ensure precise and clean shift characteristics and low-effort shifting through a clearly defined shift travel. In addition, *MAZDASPEED3*'s six-speed transmission uses wide gear ratios to fully exploit the wide torque band of the direct-injection turbocharged engine, while allowing quiet and comfortable highway cruising.

HIGH BODY RIGIDITY AND SPECIALLY TUNED CHASSIS

Like the 2008 MAZDA3, the *MAZDASPEED3* features a body with increased rigidity. The *MAZDASPEED* version is based on the MAZDA3 5-Door hatchback, with local reinforcements added to produce a body sufficiently stiff to stand up to the demands of 263 horsepower. Suspension and brakes have also been specially tuned.

Body rigidity has been increased through several measures, including a reinforced front cowl that is joined directly to the top section of the front damper mount, assuring the same rigidity as a car fitted with a strut tower bar (which would not have been possible because of the placement of the intercooler above the engine). This prevents deformation of the front suspension towers under cornering load and maintains correct suspension geometry. Underneath the car, a large closed

section brace is employed to reinforce the floor tunnel which improves the torsional rigidity of the whole body. At the rear, a gusset added to the bottom of the rear suspension towers maintains the correct suspension geometry under all cornering loads.

Both the MacPherson strut front suspension and multi-link rear suspension have higher spring rates and larger diameter stabilizer bars than the standard MAZDA3. Damping force on both compression and rebound is raised approximately six-times at low piston speed, and about 1.3 times at moderate piston speed. Ride height is 10 mm lower than a standard MAZDA3. In combination with the reinforced springs and stabilizer bars, this produces 60 percent more roll stiffness than the standard MAZDA3.

ENGINEERED AERODYNAMICS

Special attention was paid to achieve aerodynamic performance that supports stable straight running, lane changing and overtaking at high speeds. A wide variety of underfloor parts, including flaps ahead of the front and rear wheels to control airflow and a full undertray below the engine, were employed to achieve the superior aerodynamic performance targets, and the result is a Cd of 0.32. Clean aerodynamics also deliver a car that is quiet and comfortable to drive at all speeds.

MAZDASPEED DESIGN DNA

MAZDASPEED3's styling pursues a look of strength and solidity in a design that conveys the car's dynamic performance. Its form is characterized by boldly flared front fenders and effective use of strong edges on the hood. These combine with the functional forms of the bumpers, spoilers and other parts developed for aerodynamic performance. Overall, *MAZDASPEED3*'s design is sporty and strong, befitting a high-performance model, without exaggerated styling cues.

EXTERIOR DESIGN

Exterior designers of the *MAZDASPEED3* set a goal to communicate the car's high-performance character with a design that is stylish and sporty, yet subtle. While the car

remains true to the basic form of the MAZDA3 5-Door hatchback, which is part of the *MAZDASPEED* credo, there is a clear emphasis on the car's sporty nature. Front fenders are widened to provide clearance for the large tires and to evoke a well-planted stance. Unique to the *MAZDASPEED* brand, strong lines flow back along the hood from the upper part of the five-point grille, which is also used as the air intake for the intercooler; and the aerodynamically shaped front bumper and large lower grille serve as the air intake for the radiator. An athletic yet elegant side view is created by aerodynamic side skirts and 18-inch, 10-spoke aluminum alloy wheels.

The rear view is also an expression of power, characterized by the design of the rear bumper, the large-diameter tailpipe and the roof spoiler with integrated LED brake lights.

The *MAZDASPEED3* is offered in four exterior colors. Besides black, silver and red, a unique Cosmic Blue was specially developed for the *MAZDASPEED3*.

INTERIOR DESIGN

MAZDASPEED3's cockpit is a harmonious synthesis of functional sportiness and stylish comfort. A high-quality black finish sets the tone of the interior, accented by red stitching on the seats, steering wheel, and the shift boot to create a sporty yet refined look.

The instrument panel includes a matte black decorative insert panel finished with a hairline treatment to underscore the vehicle's personality. A leather-wrapped shift knob, aluminum pedals and stainless steel scuff plates further contribute to the sporty, high quality feel that distinguishes *MAZDASPEED* models, while front sport seats with the *MAZDASPEED* logo - developed specifically for the *MAZDASPEED3* - on the seatbacks provide firm support and comfort.

HIGH-PERFORMANCE BRAKING SYSTEM TO MATCH THE POWER

Large diameter four-wheel disc brakes, vented in front, and a large diameter master cylinder provide powerful and stable braking. Hardware is larger than the standard MAZDA3 fare, with the calipers reinforced to minimize flex and the resulting loss of braking feel. Standard equipment includes four-wheel-ABS, electronic brake force distribution (EBD) with brake assist and dynamic stability control (DSC) with traction control, all of which provide active safety in a range of driving scenarios.

For protection during collisions, *MAZDASPEED3* employs the unique Mazda Advanced Impact-Energy Distribution and Absorption System to deliver a robust and safe body structure. Inside the cabin, dual frontal airbags, as well as seat mounted side and roof-mounted curtain airbags, are all standard. A collapsible brake pedal and steering column structure reduce the risk of injury to the driver's lower legs.

THE MAZDASPEEDFAMILY

MAZDASPEED3 is the fourth vehicle to carry the *MAZDASPEED* name in the U.S., following the 2003 and 2003.5 *MAZDASPEED* Protegé, 2004 and 2005 *MAZDASPEED* MX-5 and 2006 and 2007 *MAZDASPEED6*. *MAZDASPEED3* is called MAZDA3 MPS - Mazda Performance Series - in Europe and *MAZDASPEED* Axela in Japan. *MAZDASPEED3* is sold through authorized *MAZDASPEED* dealers across the U.S.

All 2008 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. All models receive a five year/60,000 mile powertrain warranty and a five-year/unlimited-mileage corrosion warranty.

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, Canada, and in Mexico by Mazda Motor de Mexico in Mexico City.

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EDITOR'S NOTE: For more information on *MAZDASPEED*, visit www.mazdaspeedmotorsports.com [11].

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[2008 MAZDASPEED3 Release.pdf](#)

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