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## **2011 MAZDA 3: AWARD-WINNING SPORT COMPACT WITH POWER, DESIGN AND TECHNOLOGY**

Redesigned for 2010, the MAZDA3 4-Door and 5-Door offer the versatility young (or young-at-heart) consumers need, with all the features they demand. A favorite of consumers shopping for their first new vehicle since it launched in 2003, the MAZDA3 has exceeded the expectations of nearly two million owners around the world and is by far the best-selling vehicle in the Mazda lineup – one in every three Mazdas sold worldwide is a MAZDA3.

Package/option changes for 2011 include the addition of rain-sensing front wipers, auto on/off headlights, Bi-Xenon headlights with auto leveling, Adaptive Front-lighting system, and LED rear combination taillights to the Technology Package.

Powered by either a 148-horsepower 2.0-liter or a 167-horsepower 2.5-liter dual-overhead-cam 16-valve four-cylinder engine, the MAZDA3 offers standard and optional equipment simply not found on other cars in its class. Available features include self-leveling Bi-Xenon headlights, Adaptive (steerable) Front-lighting System, Advanced Keyless Entry with push-button start, hands-free Bluetooth cell phone and audio player integration, and 10-speaker BOSE Centerpoint surround sound audio system. Interactive lighting with welcome mode, variable heated front seats, power driver's seat, dual automatic climate control and compact navigation are just some of the features also available.

In sync with consumers' mindset-change toward affordable, efficient, yet high-quality automobiles, the 2011 MAZDA3 is a strong player in the sport compact sedan segment and an undeniable leader in the Mazda lineup.

The MAZDA3 is Mazda's most gratifying success story. The first generation car earned 90 major awards from car critics and enthusiast magazine editors. America's leading consumer publication listed the MAZDA3 as one of the best vehicles costing less than \$25,000. Reader surveys gave this car top scores for reliability and low operating expense, two additional reasons why it earned a "RECOMMENDED" rating. Additionally, the Automotive Lease Guide named the MAZDA3 the Best Mid-Compact Car for value retention.

Customers voice four reasons why they choose this product over direct competitors, as well as alternatives outside the sport-compact segment:

- Zoom-Zoom Design—MAZDA3's dynamic styling stands out from the small-car crowd to provide customers lasting pride of ownership.
- Zoom-Zoom Performance—This car's driving character is steeped in vigor and exhilaration, the sheer joy of motion. It delivers on the visual promise provided by its distinctive exterior. Long after the new wears off, MAZDA3 continues putting a smile on its driver's face.
- Exemplary Quality and Craftsmanship—Every see and touch point is finished to a level of perfection unmatched in the compact class. MAZDA3's interior design and execution goes beyond Japanese competitors to rival more expensive European brands.
- Insightful Features—Several of MAZDA3's rivals—Civic, Focus, Sentra—skip the versatile 5-door bodystyle, a configuration more than 25 percent of the MAZDA3 customer base prefers. Mazda also pioneered the availability of upmarket features such as a navigation system, leather trim, xenon headlamps, electronic stability control, and rain-sensing wipers. MAZDA3 is well known for offering the creature comforts and equipment savvy buyers are seeking in a small, affordable, and highly maneuverable sedan.

## **DISTINCTIVE EXTERIOR STYLING**

Chief designer Kunihiro Kurisu describes the design concept as “inheriting MAZDA3's established identity while making it more expressive.” He continues “I wanted to strengthen the Mazda brand with the MAZDA3 design. Key designers from not only Japan but also Mazda North American Operations and Mazda Motor Europe worked very closely to create an emotional design with an even richer expression.”

Jonathan Frear, who worked on the MAZDA3's design for two years at Mazda Motor Europe, before joining Mazda North American Operations, and Carlos Salaff, a senior designer who made major contributions at the quarter-scale model stage, are both proud of what they have collectively achieved. “The MAZDA3 provided us an opportunity to translate new design cues into the reality of a car which Mazda customers can own, drive, and enjoy,” notes Frear.

MAZDA3's design begins with a bold grille that is purposely polarizing. "Mazda has never been afraid of taking design risks," says Salaff. "We always strive to push our exterior, to stretch what is considered normal. We wanted the MAZDA3's dominant grille design to be bold because that will separate this car further from the blasé competitors and, by leaping ahead of the crowd, keep us looking fresh even late in this product's life."

Combining the two medium-sized grille openings used previously into one larger opening also pays functional dividends. Frear explains: "Shifting the air-intake lower on the car increases the pressure of the flow. As a result, the actual grille opening is 20-percent smaller than what was necessary with the previous generation MAZDA3. Most of the air is routed over the hood or around the sides of the car, yielding a significantly lower drag coefficient. (The previous drag coefficient ranged from 0.30 to 0.32, depending on bodystyle and tire size, and has now been reduced from 0.29 to 0.31). Cars equipped with an automatic transmission have a second driver's-side inlet opening that routes air through a heat exchanger.

"It's important to note that we have used the front bumper surface as a key MAZDA3 design element," adds Frear. "The grille and various elements within its periphery are three dimensional so they literally flow into the surrounding surfaces. The Mazda "Winged-M" is large and prominently raised above the front body surface. Other flow lines are evident in the hood, down the sides of the car, and in the center of the decklid.

"The front-to-rear rise of the beltline gives the MAZDA3 a crouched, expectant look of a predator ready to pounce. This treatment also provides functional benefits. The low-in-front window opening provides excellent outward visibility. The driver can easily spot lane markings and the road surface close to the car. But a higher belt-line in the rear seat area gives occupants a greater sense of security. Likewise, the elevated decklid surface is both an aerodynamic aid and a means of maximizing trunk room."

Salaff adds, "Designers always attempt to build a strong emotional connection with their customers. We do it through their hearts—by giving them cars they are genuinely proud to own. They appreciate the quality, they're pleased with a reasonable price, but Mazda owners are most proud of how their cars drive and the attractive appearance. They expect their cars to be a reflection of their personalities, so Mazdas are purposely youthful and outgoing. Those character traits read through loud and clear in the MAZDA3's design language."

“We’re also conscious of the fact that this sport compact is likely to spend major portions of its life in urban areas. So the front end is purposely configured to connote the soul of a sports car. Those who pull up from behind or get passed by the MAZDA3 see the vivid taillamp execution and dual exhaust pipes in the case of the 3s model. The precision and attention to detail suggests a much more expensive automobile. And in the side surfaces, there’s ample evidence of our Zoom-Zoom spirit as interpreted by the Nagare design aesthetic.”

## **STRAIGHT AS AN AERO**

To maximize fuel economy while hushing wind noise, extra effort was invested in trimming the MAZDA3’s aerodynamic drag. Subtle shaping of the front bumper beam greatly diminishes the turbulence of air passing through the grille. Several speed flaps located in the radiator shroud automatically open at highway velocities to allow some air to bypass the cooling fan.

Wind tunnel testing revealed that small deflectors located near the front tires and subtle adjustments to the upper-forward corners of the A-pillars, outside mirrors, windshield wipers, and taillamps also helped smooth air flow along the sides of the car. In terms of aero performance, the MAZDA3 is one of the most efficient entries in its segment.

## **DRIVER-ORIENTED, PREMIUM-QUALITY INTERIOR**

MAZDA3’s cockpit is configured to support the driver in a more dedicated manner than any sport-compact competitor. Two large instrument clusters are carefully positioned and clearly marked to deliver engine and road speed information. Key controls are located in the steering wheel spokes where they can be reached with minimum distraction. A Multi-Information Display screen containing navigation, audio, and trip information is positioned high on the instrument panel to avoid the need for the driver to refocus vision off the road ahead. A second screen slightly to the right provides station frequency and climate control setting information.

Mazda's Human Machine Interface approach breaks the interior into three key zones: displays and controls used most frequently are located high and close to the driver to significantly reduce eye motion and refocusing; audio and climate controls are also elevated in the center stack to minimize the amount of head motion needed to change any setting; switches located on the door arm rest, steering column, and steering wheel are designed for intuitive operation so they can often be activated with no need for head or eye motion. Responding to the knowledge gained from human-machine studies, the MAZDA3's center console is elevated to shorten the reach to the shift lever and parking brake more by than two inches compared to the previous generation.

In keeping with the Zoom-Zoom philosophy, the interior of every Mazda is not just a place to sit and travel, it's the location where the joy of driving and the satisfaction of owning something special are delivered. From the pleasant sound of the entry chime to the gradual rise of interior illumination, every MAZDA3 interior design detail is carefully conceived and executed with high quality in mind. Roof pillars and the beltline are designed to maximize outward visibility and the feeling of roomy openness.

The instrument panel top cover is a padded, seamless, and elegantly grained surface that sweeps from the center console to both A-pillars. The center console provides two cupholders, a sliding armrest, and a roomy storage box, before blending in a continuous curve into the instrument panel. HVAC and audio controls are large, properly textured and illuminated to provide a visual feedback that a command has been received. A damper is included to smooth the opening and closing of the small compartment built into the instrument panel, the overhead sunglasses storage box and the roomy glove box.

Seating comfort is the result of front cushions extended by 0.8-inches over the previous generation model for enhanced thigh support. Likewise, seatbacks are reshaped for more lumbar support and were extended by 1.4-inches for added shoulder support. Optional sport-seat upper bolsters are canted inward aggressively for restraint during hard cornering. An eight-way driver's seat with memory is available. Dual-zone automatic temperature control, heated seats, and a BOSE® Centerpoint audio system are other features seldom found on other sport compact competitors. The 5.1-channel surround sound system engineered cooperatively with BOSE® experts includes digital amplifier, noise cancellation technology, and an array of ten premium speakers.

Top versions of the MAZDA3 have a small-diameter leather-wrapped steering wheel and soft-touch surfaces finished with French-stitched seams. Seating areas are available in black or dune colors in both cloth and leather. All MAZDA3 interiors feature a black instrument panel with pewter-painted accents and dark grey carpeting. All models feature a 60-40 split-folding rear seat as standard to stretch the utility of the cargo compartment.

MAZDA3's Multi-Information Display (MID) can be fitted with a unique navigation system that is patterned after the compact aftermarket navigational devices that provide guidance at an affordable price. Controls located on the steering wheel select the information to be displayed on the 4.1-inch LCD color screen. In addition to maps and turn-by-turn guidance, the screen conveys MP3 and iPod program information, trip data including fuel economy, plus various maintenance and alert messages. A monochromatic readout MID is also available without the navigational functions.

Advanced keyless entry allows a MAZDA3 driver to unlock the doors and start the engine with the key fob carried in a pocket or purse. A discrete door handle button and a start button on the dash are used in lieu of a key.

The addition of Bluetooth® capability in the new MAZDA3 provides wireless mobile phone and audio player connections and hands-free operation. Instrument panel and steering wheel switches can be used to sort through music selections.

A new Technology Package is available for the 2011 model year, which includes a full color MID with compact navigation, Sirius satellite radio, advanced keyless entry, push-button start, rain-sensing front windshield wipers, auto on/off, bi-xenon headlights with auto leveling and pivoting Adaptive Front-lighting System and LED rear combination taillights and a perimeter alarm.

## **ACTIVE AND PASSIVE SAFETY SYSTEMS**

Steering and braking accuracy and feedback that leads to avoiding collisions is one of the best ways to avoid calamity and injury. Towards that end, the MAZDA3 excels in agility, maneuverability, and ease of control at the limits of braking and cornering adhesion. Powerful disc brakes, ABS, Dynamic Stability Control and Traction Control and electro-hydraulic power steering are standard equipment.

The MAZDA3s is the first compact on the market with an Adaptive Front-lighting System (AFS) containing self-leveling bi-xenon (high and low beam) headlamps. Available with the Technology Package on MAZDA3s, the inner beam of this system steers up to 15 degrees into the turn to expand the illumination pattern.

To minimize the likelihood of injury when a collision cannot be avoided, the MAZDA3 uses a technology called Triple-H unibody design. Efficient H-shaped reinforcements in the floor, roof, and sides of the body structure resist intrusion and support crush zones at both ends of the vehicle. Six airbags and active head restraints are also standard MAZDA3 equipment. Side-curtain air bags, which help protect all outboard occupants, are a new fast-inflating design with a large coverage area.

### **THE POWERTRAINS THAT SET THE MAZDA3 APART**

Mazda's MZR engine family is widely regarded as one of the world's most advanced forms of fuel-efficient, high-energy propulsion. As before, there are two distinct MZR four-cylinder engines available in the MAZDA3, both of which offer outstanding performance and efficiency.

MAZDA3*i* models are fitted with the MZR 2.0-liter engine, providing 148 hp at 6,500 rpm and 135 lb-ft of torque at 4,500 rpm. It features compact and light aluminum block and head construction with two chain-driven overhead camshafts operating four valves per cylinder for complete combustion, maximum efficiency, and minimal exhaust emissions. (PZEV versions of this engine, sold in California and select other states, produce 144 hp @ 6,500 rpm and 132 lb-ft of torque at 4,500 rpm.)

Variable intake valve timing provides robust low-rpm performance with strong high rpm pull, all the way to the 6,500 rpm redline. A light-weight nylon-reinforced intake manifold offers dual-mode flexibility with runner lengths ideally suited to both low- and high-rpm operation. A new front-mounted air pickup system feeds the 2.0-liter engine cooler air for combustion.

Two transmissions are offered in the MAZDA3*i*: a smooth-shifting manual box or a sophisticated, electronically controlled automatic with a manual-shift mode. Both are fitted with five forward speeds. New for 2010, the wider ratio spread provided by the five-speed automatic enhances both acceleration and mileage. On EPA test cycles, the MAZDA3*i* automatic achieves 24 mpg in city driving—a two mpg improvement—and 33 on the highway—an impressive three mpg (10 percent) gain over the 2009 model.

MAZDA3s customers benefit from a healthier injection of Zoom-Zoom attributable to a move from 2.3 to 2.5-liters of displacement.

Changes from the previous 2.3-liter unit include a fatter bore and a longer stroke packed into a cylinder block with unchanged external dimensions by using cylinder-bore liners made of a steel-molybdenum alloy offering strength and stiffness increases of 30-percent. A forged-steel crankshaft provides the necessary stamina. Twin balance shafts located in the oil sump cancel second-order noise and vibration, allowing this engine to sing to its 6,200 rpm redline.

The deep-skirt block is engineered for extra stiffness and main-bearing caps are integral with a ladder-type lower-block reinforcement.

To minimize the noise and vibration typically found on larger displacement four-cylinder engines, the damper at the forward end of the crankshaft is equipped with two tuned masses. At the output end, a flexible flywheel also curbs NVH.

Fuel is delivered to the intake ports by an electronically controlled sequential injection system. Ignition coils are modular units positioned directly above the spark plugs. Shim-less bucket tappets require no maintenance. Light-weight pistons are coated with a special anti-friction compound and fitted with low-tension rings for improved gas mileage. Sintered powder-metal connecting rods and lighter full-floating wrist pins minimize the reciprocating weight. As a result, this engine hums as contentedly at 6,000 rpm as it does at 2,000 rpm.

Like the MZR 2.0-liter, the 2.5-liter powerplant features variable intake valve timing and a two-mode composite intake manifold. A 4-into-1 exhaust manifold improves cylinder scavenging and reduces the time necessary for the catalytic converter to warm to full operating temperature. Dual tailpipes and specially tuned mufflers provide a pleasant exhaust note without a hint of mid-range boom or high-rpm thrash.

Providing 167 hp at 6,000 rpm and 168 lb-ft of torque at 4,000 rpm, the MZR 2.5-liter engine is available with a six-speed manual transmission or a five-speed electronically controlled automatic with manual shift control – borrowed from the larger, up-market MAZDA6. (The PZEV version of this engine sold in California and other states produces 165 hp @ 6,000 rpm and 167 lb-ft of torque at 4,000 rpm). Despite an increase in power and displacement, fuel efficiency ratings show no loss over the 2009 2.3-liter models, with EPA figures of 20 city and 28 highway with a manual transmission and 22 city and 29 highway with the automatic.

A uniquely Mazda Active Adaptive Shift protocol provides the 5-speed automatic transmission with the performance and response that MAZDA3 customers expect. Part-throttle downshifts are delivered in sync with the nudge of the accelerator during passing. When the car is braked aggressively in anticipation of cornering, the transmission also downshifts to add engine braking and to prepare for an expedient exit from the bend. A wider overall ratio spread assists acceleration from rest while also providing quieter and more efficient highway cruising.

### **COMPREHENSIVELY IMPROVED BODY, CHASSIS**

By refining the strengths of the previous unibody, steering, brakes, and suspension systems – instead of starting over with radically different designs – Mazda engineers delivered major improvements in ride and handling performance while also reducing several pounds from the unibody and chassis weight.

As before, MAZDA3 rides on a 103.9-inch wheelbase. Wheel track dimensions are also unchanged. A three-inch increase in length yields a lower drag coefficient and additional fuel capacity with the 2.5-liter engine.

Unibody bending stiffness is superior. Use of high-tensile-strength steel panels, by adding gussets in heavily loaded areas (such as at suspension mounting points), and by strategic increases in metal gauge (thickness), create a chassis that is highly responsive. In addition, a technique called weld bonding first used in the new MAZDA6 has also been applied to the MAZDA3's unibody construction. At key locations – such as in the door aperture areas – the combination of structural adhesive and spot welds greatly enhances the unibody's flex resistance. A stiffer structure also provides a quieter ride, improved suspension response to steering and cornering loads, and more stable cruising and braking performance. The savings in weight attributable to the unibody construction methods is a significant 24 pounds compared to the previous generation MAZDA3.

Changes to the rubber-isolated front, and the rigidly mounted rear, subframes also enhance rigidity while saving weight. An instrument panel support structure using two instead of the previous one steel reinforcement tubes saves 4.4 pounds while providing more solid support for the steering column. Adding ribs to the inner door panels and increasing the size of the roof reinforcement bar yield major reductions in NVH.

Because the previous car was so effective, suspension changes are modest. The span between front and rear anti-roll bar support points has been widened by nearly an inch to increase the effectiveness of the bars without raising their weight. Minor changes to the steering geometry and the layout of the multi-link rear suspension diminish understeer during turn-in and oversteer while exiting a bend. Front struts and the rear monotube dampers are recalibrated for this new generation to take advantage of the more robust unibody structure and tire specification changes.

Power-assisted four-wheel disc brakes with ABS, electronic brake force distribution and brake assist are standard MAZDA3 equipment. Rotor sizes are 10.9-inches in front and 10.4-inches in back in the MAZDA3*i* and 11.8-inches in front and 11.0-inches in back in MAZDA3*s* models. The vacuum brake booster has been designed to provide a more reassuring response to light pedal efforts without disturbing the direct and highly linear feel available during more aggressive braking. Dynamic Stability Control and Traction Control are now standard on all MAZDA3 models.

As before, all-season radial tires are standard MAZDA3 equipment, though the base size is now 205/55HR-16 on 6.5-inch wheels. The more powerful MAZDA3s models roll on 17-inch wheels and V-rated tires. Changes in tire compound and construction yielded lower rolling resistance.

## **ENVIRONMENTAL STEWARDSHIP**

Proof that small changes can yield substantial results lies in the combination of lower drag with an extra gear in the MAZDA3*i* equipped with a 2.0-liter engine and automatic transmission. The rise in highway fuel economy is three-mpg or 10-percent with the new generation car.

All 2011 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 2011 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; and in Mexico by Mazda Motor de Mexico in Mexico City.

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