

CARS OF CHANGE







2013 GREEN CAR **TECHNOLOGY**^MAWARD

or chassis. Look to lessen friction losses in areas other than just rolling resistance and aerodynamics. Reimagine every part of a vehicle no matter how small, because everything matters. The result is Mazda SkyACTIV, a suite of technologies making possible very efficient and fun-to-drive vehicles that are much more than the sum of their parts.

The SkyACTIV body and chassis benefit from an array of innovations that provide a solid foundation for Mazda's advanced powertrains. The SkyACTIV chassis, for instance, achieves a substantial weight reduction compared to earlier models while also providing

ing has overcome the challenges of engine knock typically associated with high compression ratios.

a 14:1 compression ratio, the lowest of any diesel engine. Lower compression in this diesel engine enables optimizing combustion timing, which contributes toward a 20 percent fuel efficiency improvement. A lighter engine block and two-stage turbocharger in the diesel, plus lighter-weight engine components and less engine friction in both gasoline and diesel engines, also contribute toward improved power and efficiency. Compact and lightweight SkyACTIV-Drive automatic and SkyACTIV-MT manual transmissions efficiently transfer power to the wheels.

Focusing on optimizing internal combustion and lightweight engineering technologies that will apply to the vast majority of mass market vehicles for the foreseeable future – enables a costeffective way to apply SkyACTIV across Mazda's full model line. The lack of a price premium

azda SkyACTIVE, an innovative suite of technologies now integral to this automaker's all-new models, has been honored with Green Car Journal's 2013 Green Car Technology Award[™] at the Washington Auto Show. SkyACTIV emerged on top amid a diverse field of advanced technologies from competing

gies are key to the process and the reason why this Green Car Journal award program seeks to identify those companies that are leading the way.

BY GREEN CAR JOURNAL EDITORS

MALUASK

There is no universal approach to decreasing a vehicle's environmental impact, and in fact multiple strategies are being explored by most automakers. Some embrace electrification to help

Advanced technology vehicles often carry a price premium because of the costly technologies employed to achieve their higher efficiency. Automakers follow a delicate balancing act in the vehicle development process as multiple goals are considered, such as delivering models consumers will want to buy and drive, at a price they

SkyACTIV technology embraces clean-slate thinking that influences all facets of vehicle design and production to bring maximum efficiency.

automakers Fiat, Fisker, Ford, Honda, Tesla, Nissan, and Toyota.

Technology leadership is crucial in this modern age of advanced cars and light trucks. It's no small thing to deliver the traditional touchstones of safety, comfort, quality, value, and performance buyers have come to expect, while also providing the improved environmental performance so necessary today. Advanced technoloaccomplish the mission while others strive to improve more traditional powertrain technologies. Many are exploring both. Still others look beyond just powerplants, focusing instead on technologies that assist drivers in achieving better fuel economy, delivering efficiencyenhancing low rolling resistance, or improving environmental performance in diverse ways.

can afford, all the while meeting evertightening government emissions and fuel economy requirements. What's an automaker to do?

Mazda's winning strategy is simple: Start with a clean slate and re-think each and every part that makes up an automobile to eke out greater efficiencies. Don't just focus on a more efficient powertrain. Move beyond lightweighting just a body

These improvements come, in part, courtesy of a complete re-engineering of suspension, steering, and other chassis components. Mazda's newly-developed SkyACTIV body structure also achieves a significant weight reduction through greater use of high-tensile steels, more efficient structures, and new manufacturing methods.

improved rigidity and drive quality.

The SkyACTIV-G gasoline powerplant achieves higher torque and substantially better fuel economy through a variety of measures including improved thermal efficiency, accomplished with the highest compression ratio of any gasoline engine. Some pretty elegant engineer-

Conversely, Mazda's SkyACTIV-D has

so often associated with advanced 'green' vehicles also means an approachable purchase price for new car buyers. We would expect Mazda's SkyACTIV technology to be an important part of the automaker's future models with alternative powertrain technologies. Concentrating on conventionally-powered, mass-market vehicles at the onset simply makes sense.

Mazda's approach with SkyACTIV is refreshing. It doesn't rely on expensive or exotic technologies. Drivers are not asked to accept limitations or adapt their familiar daily driving experience to suit the needs or idiosyncrasies of a vehicle. Improved fuel economy and lower CO2 greenhouse gas emissions come as a matter of course in vehicles that are exciting, well-tuned to driver and passengers, and fun to drive. SkyACTIV is a deserving winner of Green Car Journal's 2013 Green Car Technology Award.

MODELSOFEFFICIENCY

SkyACTIV on the Road







ward-winning SkyACTIV technology is important to all future Mazda models. Already, Mazda's SkyACTIV suite of advanced technologies is delivering driving pleasure, safety, and eco-performance in three popular models available now at dealer showrooms – the Mazda3, Mazda6, and CX-5.

Experiencing the benefits of SkyACTIV is seamless. There are no obvious signs of these advanced technologies at work other than welcome fuel efficiency, driving is a bonus, as is its affordable starting price.

Depending on trim level, the Mazda3 is powered by efficient 2.0-liter and 2.5-liter SkyACTIV engines that feature 148 to 167 horsepower. Six airbags are standard, as are anti-lock brakes with Electronic Brakeforce Distribution, dynamic stability control, and much more.

MAZDA CX-5

SkyACTIV technology is evident in Mazda's sporty and fun-to-drive CX-5

MAZDA6

The all-new Mazda6 features award-winning style, delivers excellent performance, and earns the Insurance Institute for Highway Safety's 'Top Safety Pick+' designation along the way. Powered by a 184 horsepower SkyACTIV-G engine and either a six-speed manual or automatic SkyACTIV transmission, the Mazda6 eagerly supplies the driving excitement expected of the brand. A new race-proven SkyACTIV-D clean diesel engine will provide Mazda6 buyers the option of higher torque and die-

Mazda's SkyACTIV suite of advanced technologies is delivering driving pleasure, safety, and eco-performance in three popular models available now.

Mazda's signature ride and handling, and of course the fun-to-drive nature that drivers have come to expect. SkyACTIV delivers all this as a matter of course.

MAZDA3

The first to benefit from SkyACTIV technology, the Mazda3 is available in both four-door sedan and five-door hatchback models to fit wide-ranging needs. It's sporty, fun, and functional with great driving dynamics and plenty of 'zoom-zoom' appeal, characteristics expected of this model. The fact that it can bring up to 40 mpg EPA estimated fuel economy in highway compact SUV. A sleek and muscular design combines with high levels of functionality to make the CX-5 an appealing choice for drivers seeking the versatility of an SUV, plus the thriftiness of higher mpg. It's offered in Sport, Touring, and Grand Touring trim with a choice of front- or all-wheel-drive.

Power is supplied by efficient 2.0liter or 2.5-liter SkyACTIV engines and either automatic or manual six-speed SkyACTIV transmissions. Underscoring the efficiency of SkyACTIVE technology, this model features the best EPA estimated highway fuel economy of any SUV in America, including hybrids. sel's impressive fuel efficiency.

The Mazda6 features all this and, with its SkyACTIV-G engine, a class-leading EPA estimated 38 mpg highway fuel economy.

