

New Crash Test Results: Four Small SUVs Earn TOP SAFETY PICK

by NAMIC

Automakers are improving the crashworthiness of their vehicles and quickly installing side airbags and electronic stability control, which is an important crash avoidance feature, on more models. The Insurance Institute for Highway Safety recently completed front, side, and rear crash test evaluations of eight small SUV models. For the first time, every model the Institute tested comes equipped with electronic stability control as standard equipment.

Institute ratings of good, acceptable, marginal, or poor are based on results of front and side crash tests plus evaluations of seat/head restraints for protection against whiplash injury in rear crashes. The best performers, earning the Institute's TOP SAFETY PICK award, are the 2009 Ford Escape, 2008 Mitsubishi Outlander, 2008 Nissan Rogue, and 2009 Volkswagen Tiguan. These four models earn good ratings in all three of the Institute's evaluations, and all are equipped with standard electronic stability control and side airbags. The Escape's ratings also apply to the hybrid version, which is sold as the Mercury Mariner and Mazda Tribute as well as the Escape.

Consumers now have multiple hybrid SUVs earning TOP SAFETY PICK to choose from. Others include the midsize Saturn Vue and Toyota Highlander, which the Institute evaluated earlier.

"In the latest tests, the Tiguan's performance is a standout," says Adrian Lund, IIHS president. "It sailed through the front and side crash tests without a single downgrade for structure or measures of injury likelihood recorded on the dummy. This is one of four models in this group that afford superior crash protection in their class. This is a huge change from just five years ago when most small SUVs were rated either marginal or poor in our side test, and standard side airbags and electronic stability control were rare."

Electronic stability control is important because it can help drivers avoid many crashes. It helps drivers maintain control in the worst situation — loss of control at high speed — by engaging automatically when it senses vehicle instability and helping to bring a vehicle back into the intended line of travel, often without the driver knowing anything is wrong. This feature lowers the risk of a fatal single-vehicle crash by about half. It lowers the risk of a fatal single-vehicle rollover crash by as much as 70 percent.

Designs change to address crashworthiness in side impacts: The Institute's frontal offset crash test, which began in 1995, drove major design changes in vehicles to better protect people in the most common kind of serious crash. In the mid-1990s, few vehicles earned the top rating of good in the frontal test. Now nearly every vehicle is rated good for frontal protection. Since the Institute began its side tests in 2003, manufacturers have been following the same path, changing their vehicles to improve protection in serious side impacts.

An exception is the two-door 2008 Jeep Wrangler, which was tested without its optional side airbags. The previous version of the Wrangler, in which side airbags weren't available, earned a rating of marginal for protection in side crashes, and the new model performed even worse, earning the lowest rating of poor. A new problem was that the driver door opened during the impact. This didn't significantly affect the movement of the dummy during the test, but an open door in a crash could lead to partial or complete ejection of occupants.

"Most vehicles are being improved," Lund says. "We've rarely seen a vehicle go in the wrong direction and get a worse rating after it has been redesigned."

The Wrangler and Chevrolet Equinox, also a 2008 model, are the only two vehicles tested this time around without standard side airbags. The Jeep Patriot does have standard curtain airbags, but additional torso airbags designed to protect an occupant's chest and abdomen are optional.

When side airbags are optional, the Institute's policy is to test without the option because this is how most of the vehicles will be sold. A manufacturer may request another test with the optional airbags if the automaker reimburses the Institute for the cost of the vehicle. General Motors didn't request a second test of the Equinox, also sold as the Pontiac Torrent. After completing tests of this group of vehicles, the Institute learned that curtain airbags will be standard in the 2009 Equinox. This vehicle will be tested later this year.

"Since they didn't ask us to test the 2008 Equinox with its optional side airbags, we have to assume it means GM didn't expect it to perform much better, even with the option," Lund points out.

Chrysler didn't request another test of the Wrangler with the optional side airbags, but this automaker did request a second test of the Jeep Patriot with optional torso airbags. When tested with the standard curtain airbags only, the Patriot earned the second lowest rating of marginal. While the curtains did a good job of

keeping the driver and rear passenger dummies' heads from being struck by the barrier or hard structures inside the vehicle, forces on the driver dummy indicated that rib fractures and internal organ injuries would be likely in a real-world crash of this severity. In the second side test of the Patriot with the optional seat-mounted torso airbags, this vehicle's rating improved to good.

Revamped Escape is a winner: This small SUV was re-engineered for the 2009 model year. Among the changes are modifications to the frontal airbags and safety belts, plus structural changes to improve occupant protection in frontal crashes. The new Escape improves from acceptable to good in the Institute's frontal offset crash test. A new seat design improves the rear crash protection rating from acceptable to good. Side airbags, optional before 2008 models, now are standard.

Occupant protection in rear crashes generally is improving as automakers strive to earn TOP SAFETY PICK awards. More seat/head restraints are doing a better job of protecting people from neck injuries. The Outlander, Rogue, and Tiguan as well as the Escape earn good ratings for their seat/head restraint designs.

Institute research has found that neck injury rates for drivers of vehicles with seat/head restraint combinations rated good are 15 percent lower than for drivers of vehicles with combinations rated poor. Designs that need improvement are those in the Chevrolet Equinox, Jeep Wrangler, and Suzuki Grand Vitara, all of which earned the second lowest rating of marginal.

How vehicles are evaluated: The Institute's frontal crashworthiness evaluations are based on results of 40 mph frontal offset crash tests. Each vehicle's overall evaluation is based on measurements of intrusion into the occupant compartment, injury measures recorded on a Hybrid III dummy in the driver seat, and analysis of slow-motion film to assess how well the restraint system controlled dummy movement during the test.

Side evaluations are based on performance in a crash test in which the side of a vehicle is struck by a barrier moving at 31 mph. The barrier represents the front end of a pickup or SUV. Ratings reflect injury measures recorded on two instrumented SID-II's dummies, assessment of head protection countermeasures, and the vehicle's structural performance during the impact.

Rear crash protection is rated according to a two-step procedure. Starting points for the ratings are measurements of head restraint geometry – the height of a restraint and its horizontal distance behind the back of the head of an average-size man. Seat/head restraints with good or acceptable geometry are tested dynamically using a dummy that measures forces on the neck.

Source: Insurance Institute for Highway Safety

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