
INSURANCE INSTITUTE FOR HIGHWAY SAFETY

NEWS RELEASE

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NEW CRASH TESTS OF SUVs: NISSAN MURANO IS *TOP SAFETY PICK*; 3 SUVs ARE MARGINAL OR POOR FOR PROTECTION IN SIDE CRASHES

ARLINGTON, VA — The best overall performer in front, side, and rear tests of nine 4-door midsize SUV models is the redesigned 2009 Nissan Murano, which earns the *TOP SAFETY PICK* award. The tests were recently conducted by the Insurance Institute for Highway Safety.

The Jeep Liberty, Jeep Wrangler 4-door, and Kia Sorento, all 2008 models, are the worst performers in the side test. The Liberty, also sold as the Dodge Nitro, and Wrangler earn the second lowest rating of marginal for protection in side crashes. The Sorento earns the lowest rating of poor.

The Mazda CX-7 and CX-9 as well as the Mitsubishi Endeavor earn good ratings for protection in front and side crashes. All three would have won *TOP SAFETY PICK* if they had good ratings for protection against neck injury in rear-end crashes. The seat/head restraint combinations in both Mazdas are rated marginal for rear crash protection. The Endeavor's is poor.

Safety of SUVs is improving: In 2001 only half of the midsize models that were tested earned good ratings in the frontal offset test. In the latest evaluations, all but the Hummer H3 do, and it earns an acceptable rating. As manufacturers introduce improved designs, more SUVs are qualifying for *TOP SAFETY PICK* by earning good ratings in all three tests and having electronic stability control (ESC).

For the 2007 model year, the Institute added ESC as a criterion. It's a control system comprised of sensors and a microcomputer that continuously monitors how well a vehicle responds to a driver's steering input and selectively applies brakes and

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modulates engine power to keep the vehicle traveling along the path indicated by the steering wheel position. Institute research indicates that ESC reduces the risk of fatal single-vehicle crashes by 56 percent and fatal multiple-vehicle crashes by 32 percent. Many single-vehicle crashes involve rolling over, and this feature reduces the risk of fatal single-vehicle rollovers by 80 percent (SUVs) and 77 percent (cars).

"Combined with test results released last year, consumers now have 9 midsize, moderately priced SUV models that earn our *TOP SAFETY PICK* designation," says Institute senior vice president Joe Nolan.

"More good news is that manufacturers have been moving quickly to add safety features like stability control and side airbags to their SUV models," Nolan adds. "All of the SUVs in this group have ESC, and all but the Wrangler have standard side airbags. Increasingly, consumers are getting the latest safety equipment without having to hunt through a list of options."

Murano wins *TOP SAFETY PICK* designation: The Murano has been redesigned for the 2009 model year and ESC, previously an option, now is standard equipment. This is the only SUV in the group recently tested to earn good ratings in all 3 Institute tests, and it's 1 of only 2 in this group to earn a good rating for protection against whiplash injury in rear-end crashes.

Whiplash usually isn't life-threatening, but it can be debilitating and difficult to recover from. Whiplash is the most serious injury reported in about 2 million insurance claims each year, which cost at least \$8.5 billion. Rear impacts are common in everyday commuter traffic. In one urban county in Virginia, 63 percent of daytime crashes on urban interstate highways in 2003 were rear impacts.

"You don't know what kind of crash you're going to get into, so you want a vehicle that affords the best protection in the most common kinds of crashes," Nolan says. "The Murano is the only SUV in the group that does this."

Chest protection isn't up to par in some SUVs: Head protection is important in a side crash, but so is protecting the chest and abdomen. Manufacturers can do this with additional padding in the doors or with separate side airbags that usually deploy from the side of the seat. Unlike most cars that are equipped with side airbags, some of the SUVs in this group with standard curtain airbags lack separate ones to protect the torso. Curtain airbags in the H3, Liberty, and Sorento provided good head protection, but all 3 were downgraded because forces on the driver dummy's metal ribcage indicated that rib fractures and internal organ injuries would be possible in a real-world crash of this severity.

"Performance of some of these models in the side test was surprising," Nolan points out. "SUVs should have an inherent advantage in such crashes because drivers and passengers ride higher up than in cars. People often think they're safer in an SUV, but many cars perform much better in our side test than some of the SUVs in this group."

Note: The Jeep Wrangler was tested without its optional combination head and torso side airbags. The Institute's policy is that when airbags are optional, the vehicle is tested without the option. A manufacturer may request a second test with the option if the automaker reimburses the Institute for the cost of the vehicle. In the case of the Wrangler, Chrysler didn't request another test.

"We assume that Chrysler doesn't expect the Wrangler to perform much better, even with the optional airbags," Nolan says.

Hummer isn't good in frontal crash: Nearly every vehicle the Institute tests now earns the top rating of good for frontal crash protection. This wasn't the case for the Hummer H3, which earns an acceptable rating. The H3 is 1 of only 2 midsize SUV designs the Institute has recently tested that doesn't earn a good rating in the frontal test (the other is the Chevrolet TrailBlazer).

In the Institute's test, high forces were recorded on the dummy's lower right leg, indicating the likelihood of injury. Still, forces on the dummy's head and chest were low, and the vehicle's structure held up well.

"Acceptable isn't a bad rating," Nolan explains. "It's just not the best protection that's available. Considering the Hummer's acceptable side rating and poor rating in the rear test, we can see that this SUV hasn't been designed with the state-of-the-art crash protection of many of its competitors."


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-IIIs dummies, assessment of head protection countermeasures, and the vehicle's structural performance during the impact. Injury measures obtained from the two dummies, one in the driver seat and the other in the back seat behind the driver, are used to determine the likelihood that a driver and/or passenger in a similar real-world crash would sustain serious injury to various parts of the body. The movements and contacts of the dummies' heads during the test also are evaluated. Structural performance is based on measurements indicating the amount of B-pillar intrusion into the occupant compartment.

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. Seats with good or acceptable restraint geometry are tested dynamically using a dummy that measures forces on the neck. This test simulates a collision in which a stationary vehicle is struck in the rear at 20 mph. Seats without good or acceptable geometry are rated poor overall because they can't be positioned to protect many people.

**End 4-page news release on crashworthiness ratings of midsize SUVs
Attachment: front, side, & rear crashworthiness evaluations of SUVs
VNR on 2/26/2008 at 10:30-11 am EST (C) AMC 3/Trans. 3 (d13760H)
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For more information go to www.iihs.org

Midsize 4-door SUVs	FRONT EVALUATION	SIDE EVALUATION	REAR CRASH PROTECTION	ELECTRONIC STABILITY CONTROL
 <p>NISSAN MURANO WITH FRONT AND REAR HEAD CURTAIN AIRBAGS & FRONT TORSO AIRBAGS front, side, and rear: 2009 models</p>	G	G	G	standard
<p>MAZDA CX-7 WITH FRONT AND REAR HEAD CURTAIN AIRBAGS & FRONT TORSO AIRBAGS front, side, and rear: 2007-08 models</p>	G	G	M	standard
<p>MAZDA CX-9 WITH HEAD CURTAIN AIRBAGS FOR ALL THREE ROWS OF SEATS & FRONT TORSO AIRBAGS front, side, and rear: 2007-08 models</p>	G	G	M	standard
<p>MITSUBISHI ENDEAVOR WITH FRONT AND REAR HEAD CURTAIN AIRBAGS & FRONT TORSO AIRBAGS front: 2004-08 models side and rear: 2007-08 models</p>	G	G	P	standard
<p>SUZUKI XL7 WITH HEAD CURTAIN AIRBAGS FOR ALL THREE ROWS OF SEATS front: 2008 models side and rear: 2007-08 models</p>	G	A	M	standard
<p>HUMMER H3 WITH FRONT AND REAR HEAD CURTAIN AIRBAGS (STANDARD IN 2008 MODELS; OPTIONAL IN 2006-07 MODELS) front, side, and rear: 2006-08 models</p>	A	A	P	standard
<p>JEEP WRANGLER WITHOUT OPTIONAL SIDE AIRBAGS front, side, and rear: 2007-08 models</p>	G	M	M	standard
<p>JEEP LIBERTY DODGE NITRO WITH FRONT AND REAR HEAD CURTAIN AIRBAGS front, side, and rear: 2008 Liberty models and 2007-08 Nitro models</p>	G	M	P	standard
<p>KIA SORENTO WITH FRONT AND REAR HEAD CURTAIN AIRBAGS front and rear: 2007-08 models side: 2003-08 models</p>	G	P	G	standard



ORDER OF VEHICLES REFLECTS RATINGS IN FRONT, SIDE, AND REAR TESTS
FOR MORE DETAILED CRASHWORTHINESS EVALUATIONS, GO TO WWW.IIHS.ORG

FRONTAL RATINGS are based on performance in a 40 mph frontal offset crash test into a deformable barrier. **CAUTION:** Frontal ratings cannot be compared across vehicle type and weight categories because the kinetic energy involved in the frontal test depends on the speed and weight of the test vehicle, and the crash is more severe for heavier vehicles. Given equivalent frontal ratings for heavier and lighter vehicles, the heavier vehicle typically will offer better protection in real-world crashes.

SIDE RATINGS are based on performance in a crash test in which the side of the vehicle is struck by a moving deformable barrier with a front end that represents the front of a typical SUV or pickup. The moving barrier strikes the vehicle at 31 mph in a perpendicular impact. **NOTE:** Side ratings can be compared across vehicle type and weight categories while frontal ratings cannot.

REAR CRASH PROTECTION RATINGS are based on a two-step evaluation. In the first step restraint geometry is rated. Seats with good or acceptable geometric ratings then are subjected to a dynamic test. Seats with head restraints rated marginal or poor, based on geometry, aren't tested because they cannot protect taller occupants.