

# INSURANCE INSTITUTE FOR HIGHWAY SAFETY

## NEWS RELEASE

November 30, 2003

VNR: Monday 12/01/2003 at 10-10:30 a.m. EST (C) Telstar 6/Trans. 22  
and at 1-1:30 p.m. EST (C) Telstar 5/Trans. 19 ; fed in rotation

### **NEW 40 MPH CRASH TEST RESULTS: 8 OF 9 MIDSIZE SUVs EARN TOP RATING OF GOOD**

ARLINGTON, VA — In frontal offset crash tests conducted recently by the Insurance Institute for Highway Safety, eight new or redesigned midsize SUVs earned ratings of good, and one is acceptable. Three luxury models (Lexus RX 330, Infiniti FX, and Cadillac SRX) earned good ratings overall and the added designation of "best pick." Five other SUVs (Toyota 4Runner, Nissan Murano, Chrysler Pacifica, Honda Pilot, and Mitsubishi Endeavor) also earned good ratings, and all but the Endeavor are best picks. The Kia Sorento is rated acceptable (see attached ratings).

Vehicle ratings reflect performance in 40 mph frontal offset crash tests into a deformable barrier. Based on the results, the Institute evaluates the crashworthiness of passenger vehicles, assigning each vehicle a rating from good to poor overall. If a vehicle earns a good rating, it means that in a real-world crash of similar severity a belted driver would be likely to walk away without serious injuries.

"These results demonstrate the effectiveness of the Institute's frontal crash test program in bringing about improvements in vehicle designs," says Adrian Lund, the Institute's chief operating officer. "When the Institute first tested midsize SUVs in 1996, none was rated good. Now there are 16 current midsize SUV designs rated good." But Lund notes that "7 still are rated marginal or poor."

**Toyota 4Runner is best performer:** The redesigned 4Runner improved compared with the previous-generation model that was rated acceptable when the Institute tested it in 1996.

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"The previous model had some intrusion into the footwell area, and the steering wheel moved upward too much during the crash, compromising the performance of the restraint system," Lund says. "In contrast, the new 4Runner is a good performer across the board with minimal intrusion into the passenger compartment, a steering column that doesn't move much, and low injury measures on the dummy. It's a good performer and a best pick."

**Kia Sorento is only acceptable:** While the structure of the Sorento held up well, the restraint system didn't do a good job of controlling the dummy's movement during the crash.

"Kia has room for improvement with the Sorento," Lund says. "The dummy's head hit the steering wheel through the airbag and also struck the door frame on rebound. Both hits were hard. Plus the driver's seat tipped toward the door, which compromises restraint system performance."

**Honda and Infiniti are tested twice:** In the first tests of the Pilot and the FX, the front airbags deployed late. As a result, the dummies recorded high head accelerations. "The engineers at Honda and Nissan recognized that their airbag systems needed to be improved. They made changes to the software that controls airbag firing, and we retested both models. In the second tests, the airbags fired much earlier and the high head accelerations were eliminated. With the change, the Pilot and FX are good performers and best picks," Lund says. Both companies are conducting recalls to modify the airbag software on earlier models.

**Structural design is key to good performance:** The Institute's frontal offset test into a deformable barrier is especially demanding of vehicle structure. The driver side hits the barrier, so a relatively small area of the vehicle's front-end structure must manage the crash energy. This means intrusion into the occupant compartment is more likely to occur than in a full-width test.

"Good structural design is the key to good performance in the offset tests," Lund says. "If a vehicle's front-end structure absorbs and manages the crash energy so the occupant compartment remains largely intact, with little or no intrusion into the driver's space, then the dummy's movement can be controlled, and injury measures are likely to be low. In contrast, poor structural design means greater likelihood of poor control of the dummy and high injury measures."

**Institute and government crash tests complement each other:** The Institute's crashworthiness evaluations are based on results of frontal offset crash tests at 40 mph. Each vehicle's overall evaluation is based on three aspects of performance — measurements of occupant compartment intrusion, injury measures from a Hybrid III dummy positioned in the driver seat, and analysis of slow-motion film to assess how well the restraint system controlled dummy movement during the test.

The federal government has been testing new passenger vehicles in 35 mph full-front crash tests since 1978. This New Car Assessment Program has been a major contributor to crashworthiness improvements — in particular, improved restraint systems in new passenger vehicles. The Institute's offset tests, conducted since 1995, involve 40 percent of a vehicle's front end hitting a deformable barrier at 40 mph. This test complements the federal test involving the full width of the front end hitting a rigid barrier. Both tests are contributing to improvements in crashworthiness — in particular improved crumple zones and safety cages.

The same 40 mph offset crash test is used to evaluate new cars by the European Union in cooperation with motor clubs, by an Australian consortium of state governments and motor clubs, and by a government-affiliated organization in Japan.

**End three-page release on crash test results of SUVs  
Four-page attachment: SUV crashworthiness ratings  
VNR 12/01 at 10-10:30 a.m. EST (C) Telstar 6/Trans. 22;  
1-1:30 p.m. EST (C) Telstar 5/Trans. 19; fed in rotation  
VNR includes crash test footage of new SUV designs**

**Internet: [www.highwaysafety.org](http://www.highwaysafety.org)**

# Evaluations

## Frontal Offset Crash Test Performance

	OVERALL EVALUATION	Structure/ Safety Cage	Injury Measures				Restraints/ Dummy Kinematics	
			Head/ Neck	Chest	Leg/Foot Left, Right			
<b>Midsize SUVs</b>								
NEWLY TESTED	<b>best pick</b>	<b>TOYOTA 4RUNNER</b> 2003-04 models test vehicle wt. = 4,365 lbs. <u>Note:</u> Rating for 4Runner also applies to Lexus GX 470 (Attachment p.4)	G	G	G	G	G	G
	<b>best pick</b>	<b>FORD EXPLORER</b> <b>MERCURY MOUNTAINEER</b> 2002 (mfg. after 10/2001)-04 models test vehicle wt. = 4,511 lbs. <u>Note:</u> Rating for Explorer/Mountaineer also applies to Lincoln Aviator (Attachment p.4)	G	G	G	G	A	G
NEWLY TESTED	<b>best pick</b>	<b>NISSAN MURANO</b> 2004 (mfg. after 9/2003) models test vehicle wt. = 3,999 lbs.	G	G	A	G	G	G
NEWLY TESTED	<b>best pick</b>	<b>CHRYSLER PACIFICA</b> 2004 models test vehicle wt. = 4,696 lbs.	G	A	G	G	G	G
NEWLY TESTED	<b>best pick</b>	<b>HONDA PILOT</b> 2003-04 models avg. test vehicle wt. = 4,351 lbs.	G	A	G	G	G	G
		<b>SUZUKI GRAND VITARA XL-7</b> 2001-04 models test vehicle wt. = 3,682 lbs.	G	G	G	G	A	A
		<b>TOYOTA HIGHLANDER</b> 2001-04 models test vehicle wt. = 3,880 lbs.	G	G	A	G	G	A

Turn page for more crashworthiness evaluations ↗

**G** GOOD      **A** ACCEPTABLE      **M** MARGINAL      **P** POOR

**Caution:** The kinetic energy a vehicle must absorb in a crash test increases with vehicle weight, so barrier tests are more demanding of heavier vehicles. But people in heavier vehicles in real-world, 2-vehicle crashes typically fare better than people in lighter vehicles (in many single-vehicle crashes, weight offers no safety advantage). This is why **test results shouldn't be compared among vehicles with large weight differences.**

The weight range (about 1,000 pounds) of the SUVs listed here is greater than in most other groups of vehicles the Institute has tested. However, since the weight benefit in 2-vehicle crashes is only slight for vehicles weighing more than 4,000 pounds, and because a greater proportion of midsize SUV occupant deaths (compared with car occupant deaths) occur in single-vehicle crashes in which vehicle weight often offers no advantage, the crash test results for these vehicles can be compared.

**Go to [www.highwaysafety.org](http://www.highwaysafety.org):** These pages summarize crashworthiness evaluations of midsize SUVs. The principal component of each vehicle's evaluation is its performance in a 40 mph frontal offset crash test. Details about each vehicle's test performance, including photos taken during and after the crash test, are available online at [www.highwaysafety.org](http://www.highwaysafety.org).

		Frontal Offset Crash Test Performance						
		OVERALL EVALUATION	Structure/ Safety Cage	Injury Measures			Restraints/ Dummy Kinematics	
				Head/ Neck	Chest	Leg/Foot Left, Right		
Midsize SUVs (continued)								
	<b>MITSUBISHI MONTERO SPORT</b> 2001-04 models test vehicle wt. = 4,151 lbs.	<b>G</b>	<b>G</b>	<b>G</b>	<b>G</b>	<b>G</b>	<b>M</b>	<b>A</b>
NEWLY TESTED	<b>MITSUBISHI ENDEAVOR</b> 2004 models test vehicle wt. = 4,079 lbs.	<b>G</b>	<b>G</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>A</b>	<b>G</b>
NEWLY TESTED	<b>KIA SORENTO</b> 2003-04 models test vehicle wt. = 4,625 lbs.	<b>A</b>	<b>G</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>G</b>	<b>M</b>
	<b>BUICK RENDEZVOUS</b> 2002-04 models test vehicle wt. = 4,191 lbs.	<b>A</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>G</b>	<b>G</b>	<b>M</b>
	<b>MITSUBISHI MONTERO</b> 2001-04 models test vehicle wt. = 4,788 lbs.	<b>A</b>	<b>G</b>	<b>A</b>	<b>G</b>	<b>M</b>	<b>G</b>	<b>A</b>
	<b>NISSAN XTERRA</b> 2000 (mfg. after 9/1999)-04 models test vehicle wt. = 4,162 lbs.	<b>A</b>	<b>G</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>M</b>	<b>A</b>
	<b>ISUZU AXIOM</b> 2002-04 models test vehicle wt. = 4,109 lbs.	<b>A</b>	<b>G</b>	<b>A</b>	<b>G</b>	<b>A</b>	<b>M</b>	<b>A</b>
	<b>LAND ROVER DISCOVERY SERIES II</b> 1999 (mfg. after 10/1998)-2004 models test vehicle wt. = 4,707 lbs.	<b>A</b>	<b>A</b>	<b>G</b>	<b>G</b>	<b>P</b>	<b>A</b>	<b>A</b>
	<b>CHEVROLET TRAILBLAZER</b> <b>OLDSMOBILE BRAVADA</b> <b>GMC ENVOY</b> 2002-04 models test vehicle wt. = 4,544 lbs.	<b>M</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>G</b>	<b>P</b>	<b>A</b>
	<b>BUICK RAINIER</b> 2004 models							

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Midsize SUVs (continued)	OVERALL EVALUATION	Frontal Offset Crash Test Performance					
		Structure/ Safety Cage	Injury Measures			Restraints/ Dummy Kinematics	
			Head/ Neck	Chest	Leg/Foot Left, Right		
<b>JEEP GRAND CHEROKEE</b> 1999-2004 models test vehicle wt. = 3,968 lbs.	M	M	G	G	M	A	M
<b>JEEP LIBERTY</b> 2002-04 models test vehicle wt. = 4,100 lbs.	M	G	M	G	A	G	A
<b>NISSAN PATHFINDER</b> 1997 (mfg. after 10/1996)-2004 models test vehicle wt. = 4,191 lbs.	M	P	A	G	G	G	A
<b>PONTIAC AZTEK</b> 2001-04 models test vehicle wt. = 4,098 lbs.	M	A	M	G	G	G	M
<b>ISUZU RODEO</b> 2002-04 models test vehicle wt. = 4,021 lbs.	M	G	M	G	A	M	A
<b>CHEVROLET BLAZER</b> 1995-2004 models test vehicle wt. = 4,103 lbs.	P	P	P	G	G	A	P

Note:  
For crashworthiness evaluations of earlier designs of midsize SUVs, go to [www.highwaysafety.org](http://www.highwaysafety.org). Evaluations of luxury SUVs are on the following page.

Turn page for more crashworthiness evaluations ↗

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# Evaluations

## Frontal Offset Crash Test Performance

### Luxury SUVs

OVERALL EVALUATION	Structure/ Safety Cage	Injury Measures				Restraints/ Dummy Kinematics
		Head/ Neck	Chest	Leg/Foot Left, Right		

NEWLY RATED	<b>best pick</b>	<b>VOLVO XC90</b> 2003-04 models test vehicle wt. = 4,617 lbs.	G	G	G	G	G	G	G
		<b>LEXUS GX 470</b> 2003-04 models Note: Rating based on test of Toyota 4Runner (Attachment p.1) test vehicle wt. = 4,365 lbs.	G	G	G	G	G	G	G
	<b>best pick</b>	<b>BMW X5</b> 2001 (mfg. after 6/2000)-04 models test vehicle wt. = 4,665 lbs.	G	G	G	G	G	G	G
	<b>best pick</b>	<b>ACURA MDX</b> 2001-04 models test vehicle wt. = 4,339 lbs.	G	G	G	G	G	G	G
	<b>best pick</b>	<b>LINCOLN AVIATOR</b> 2003-04 models Note: Rating based on test of Ford Explorer (Attachment p.1) test vehicle wt. = 4,511 lbs.	G	G	G	G	A	G	G
NEWLY TESTED	<b>best pick</b>	<b>LEXUS RX 330</b> 2004 models test vehicle wt. = 4,140 lbs.	G	G	A	G	G	G	G
NEWLY TESTED	<b>best pick</b>	<b>INFINITI FX</b> 2003-04 models avg. test vehicle wt. = 4,282 lbs.	G	G	A	G	G	G	G
	<b>best pick</b>	<b>MERCEDES M CLASS</b> 1999 (mfg. after 3/1999)-04 models test vehicle wt. = 4,445 lbs.	G	G	A	G	G	G	G
NEWLY TESTED	<b>best pick</b>	<b>CADILLAC SRX</b> 2004 models test vehicle wt. = 4,418 lbs.	G	G	A	G	G	G	G

Note:  
For a crashworthiness evaluation of  
an earlier luxury SUV design,  
go to [www.highwaysafety.org](http://www.highwaysafety.org).

### End of crashworthiness evaluations

<b>G</b> GOOD	<b>A</b> ACCEPTABLE	<b>M</b> MARGINAL	<b>P</b> POOR
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