

# INSURANCE INSTITUTE FOR HIGHWAY SAFETY

## NEWS RELEASE

November 10, 1998

### SMALL UTILITY VEHICLE PERFORMANCES RANGE FROM GOOD TO POOR IN 40 MPH CRASH TESTS

ARLINGTON, VA – Only one of the small utility vehicles tested in a 40 mph frontal offset crash earned a good overall rating from the Insurance Institute for Highway Safety, and only one is rated poor. “There’s a range of performance in between, with half of the vehicles we tested turning in marginal crashworthiness performances,” Institute President Brian O’Neill points out.

The best performer in the Institute’s offset crash test was the Subaru Forester (see attached list). The worst performer was the Isuzu Amigo. In between, the Jeep Wrangler and Suzuki Grand Vitara (plus its “twin” models, the Vitara and Chevrolet Tracker) earned acceptable ratings, while four other small utility vehicles – the Kia Sportage, Honda CR-V, Jeep Cherokee, and Toyota RAV4 – are rated marginal.

Small utility vehicles are “often marketed toward young people, who are at high risk of being involved in crashes,” O’Neill says. “As this test series shows, most of these vehicles aren’t going to offer the kind of protection they should be offering in the event of a serious frontal crash.”

The Institute’s crashworthiness evaluations are based primarily on results from the frontal offset crash test. Each vehicle’s overall evaluation is based on three aspects of performance: measurements of occupant compartment intrusion, injury risk 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.

— MORE —



**1999 Subaru Forester**  
**Best performer in 40 mph frontal offset test**



**1998 Isuzu Amigo**  
**Worst performer in 40 mph frontal offset test**

In addition, the Institute's evaluations reflect the adequacy of front-seat head restraint designs and bumper performance in four crash tests at 5 mph. These don't affect overall crashworthiness evaluations but are considered when establishing the rankings within each class of vehicles the Institute tests.

"Although the tests and subsequent assessments are based on sophisticated engineering and biomechanics, the big differences in performance between the best and worst vehicles are obvious from just a cursory look," O'Neill says. "The driver space in the Forester was maintained reasonably well, with limited intrusion, while in the Amigo there was major collapse of the occupant compartment."

The Institute's crashworthiness evaluations don't address the propensity of small utility vehicles to roll over. As a group, these vehicles historically have much

higher fatal single-vehicle crash rates than other kinds of passenger vehicles, largely because of very high involvement in rollovers. However, most of the vehicles the Institute tested are relatively new designs, so no information is available to address this issue for these particular small utility vehicles.

### **Structural performance in the 40 mph crash test**

The Institute's frontal offset crash test into a deformable barrier is especially demanding of vehicle structure. The driver side of the vehicle hits the barrier, so a relatively small area of the 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.

While the Forester earned a good overall crashworthiness evaluation, its rating for structural performance is one notch lower (acceptable) because there was slightly more intrusion into the driver footwell area than in vehicles with good structural performance. The Amigo's structure was the worst. It had the most intrusion into the driver footwell and the most rearward movement of the instrument panel. There also was far more rearward movement of the A-pillar than in the other vehicles tested. "The result was a significant reduction in the space that remained for the driver dummy in this crash," O'Neill explains.

"An additional problem in the Amigo and Jeep Cherokee was the trapping of the dummy's foot," O'Neill adds. "In each vehicle, the foot was trapped between the intruding toepan and the pedals."

### **Institute and government crash tests complement each other**

The federal government has been testing new passenger vehicles in 35 mph 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 test, which involves 40 percent of a vehicle's front end hitting a deformable barrier at 40 mph, complements the federal test involving the full width of the front end hitting a rigid barrier. The government test is especially demanding of vehicle restraint systems but not so much so of vehicle structure. An offset test is more demanding of vehicle structure.

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

**End 4-page release on small utility vehicle crashworthiness  
List (1 page) attached: ratings of 10 small utility vehicles  
Video news release on Tuesday, Nov. 10, 1:30-2:00 pm EST  
(C) Galaxy 6/Trans. 9; crash test footage and related video**

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

Small Utility Vehicles	OVERALL EVALUATION	Frontal Offset Crash Test Performance							Head Restraint Design	Bumper Performance
		Structure/Safety Cage	Restraints & Dummy Kinematics	Injury Measures						
				Head/Neck	Chest	Leg/Foot, Left	Leg/Foot, Right			
<b>SUBARU FORESTER</b> 1999 models	G	A	G	G	G	G	A	M P <small>depends on seat option</small>	M	
<b>JEEP WRANGLER</b> 1997-99 models	A	A	A	G	G	A	G	M	M	
<b>SUZUKI GRAND VITARA</b> <b>SUZUKI VITARA</b> <b>CHEVROLET TRACKER</b> 1999 models	A	A	A	A	G	G	G	A	P	
<b>KIA SPORTAGE</b> 1998-99 models	M	M	P	G	G	M	G	A	P	
<b>HONDA CR-V</b> 1997-99 models	M	A	A	M	G	P	G	M	P	
<b>JEEP CHEROKEE</b> 1997-99 models	M	M	M	G	G	P	A	M P <small>depends on seat option</small>	P	
<b>TOYOTA RAV4</b> 1996-99 models	M	A	M	A	A	P	G	M	P	
<b>ISUZU AMIGO</b> 1998-99 models	P	P	P	G	G	M	G	P	P	

**Go to [www.highwaysafety.org](http://www.highwaysafety.org):** The principal component of each vehicle's crashworthiness evaluation is its performance in a 40 mph frontal offset crash test. Details about the test performance of each of these vehicles, including photographs taken during and after the crash, are available online at [www.highwaysafety.org](http://www.highwaysafety.org). Or call the Institute for copies.

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