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# INSURANCE INSTITUTE FOR HIGHWAY SAFETY

## NEWS RELEASE

June 18, 2006

### **NEW SIDE IMPACT CRASH TEST RESULTS: IMPALA, AVALON ARE TOP LARGE CAR PERFORMERS**

ARLINGTON, VA —The redesigned Chevrolet Impala and Toyota Avalon, both equipped with standard side airbags, earn top ratings of good in side crash tests that simulate an impact from an SUV or pickup truck. The Insurance Institute for Highway Safety recently conducted side tests of eight large family cars (see attached ratings). The Buick Lucerne and Hyundai Azera, also equipped with standard side airbags, earn the second highest rating of acceptable.

The Buick LaCrosse with standard side airbags is rated marginal, and so is the Chrysler 300 equipped with optional side airbags. The 300, Ford Five Hundred, and Ford Crown Victoria, all tested without their optional side airbags, are rated poor for side impact protection. (Note: The Ford Five Hundred with optional side airbags was tested last year and earned a good rating. With optional side airbags, the Five Hundred and its twin Mercury Montego earn the Institute's *TOP SAFETY PICK 2006* (gold) award for good ratings in front, side, and rear tests.) According to Ford, the Five Hundred and Montego will be equipped with standard side airbags beginning with cars built in September 2006.

Side impacts are the second most common fatal crash type after frontal crashes. About 9,700 people were killed in side impacts in 2004. In crashes involving newer model cars in collisions with other passenger vehicles, more driver deaths now occur in cars struck in the side (51 percent) than in the front (44 percent). This contrasts with the past when more deaths occurred in frontal crashes.

— MORE —

"The change reflects the big improvements manufacturers have made in frontal crashworthiness in response to Institute and federal government frontal crash test programs," says Institute president Adrian Lund. "These new crash test results show that the same improvements are beginning to be made for protection in serious side impacts."

**Impala and Avalon are star performers:** The side structures of these two cars performed reasonably well in resisting intrusion from the striking barrier during the crash test. Both cars are equipped with standard curtain-style side airbags designed to protect the heads of people in both front and rear seats.

In the test of the Impala, intrusion into the occupant compartment was minimized by the strong pillar between the front and back doors. The side airbags deployed from above the window frames and inflated between the heads of the crash test dummies and the intruding barrier.

"This is why side airbags with head protection are critical," Lund points out. "Without them, people's heads are vulnerable to being struck by the front ends of striking vehicles or trees and poles."

Both the Impala and Avalon earn acceptable ratings for side structure. Nearly all injury measures on heads, chests, and other body areas of the test dummies were low.

**Side airbags are standard in more cars:** Growing sales of SUVs and pickup trucks have exacerbated height mismatches among passenger vehicles, and these mismatches increase the risk of serious head injuries among occupants of side-struck vehicles. SUVs and pickups made up 31 percent of new vehicle sales in 1994, but the proportion had increased to nearly 47 percent by 2004.

When the Institute began its side impact test program in 2003, simulating an impact in which a vehicle is struck by a pickup or SUV, few of the vehicles that were tested had head-protecting side airbags as standard equipment. This

has improved so that such airbags are standard in half of the large family car models the Institute recently tested.

"Manufacturers are responding to this test in two significant ways," Lund explains. "They're beefing up the designs of their vehicles' side structures, and they're adding side airbags with head protection to more vehicles as standard equipment."

Side airbags with head protection became standard in 2005 Avalons, 2006 Impala and LaCrosse models, and in the Lucerne when it was introduced to replace the LeSabre and Park Avenue models in 2006. The predecessor to the Azera, the Hyundai XG350, had standard combination head/chest side airbags for front-seat occupants. The replacement Azera was upgraded in 2006 with standard curtain-style airbags as well as chest airbags that protect both front- and rear-seat occupants.

Side airbags once were exclusively found in luxury models, but now they're increasingly standard even in inexpensive cars. Overall nearly 40 percent of 2006 passenger vehicle models have standard side airbags with head protection. In contrast, only 23 percent of 2003s did.

Side airbags aren't mandated by the federal government like frontal airbags have been since the 1990s. However, manufacturers have voluntarily agreed to make side airbags standard in all vehicles by the 2009 model year.

"The market is demanding them," Lund says.

**Worst performers don't have side airbags:** All three cars that earned the lowest rating of poor, Chrysler 300 plus Ford Five Hundred and Crown Victoria, were tested without their optional side airbags. In the Five Hundred, the driver dummy's head was hit by the intruding barrier. This produced high head injury measures. In a real-world crash of similar severity, the driver could have sustained a serious skull fracture and brain injuries. Rib fractures and internal organ injuries also would be possible.

The driver dummy's head was struck by the barrier in the 300 without side airbags, although this did not produce high head injury measures. Equipped with its optional side airbags, the 300 improved to marginal and head protection was good. However, injury measures from the dummy's pelvis and chest kept this car from earning a higher overall rating.

The Crown Victoria without side airbags is rated poor. It earned the worst structural rating in this group of large cars. Although the driver dummy's head was not struck by the intruding barrier, a high acceleration occurred when the head struck the window sill. High forces were recorded on the driver dummy's chest, indicating the likelihood of rib fractures and internal organ injuries. The Crown Victoria is available with optional combination head/torso side airbags for front-seat occupants. Ford is making design changes to improve this car's protection of occupants in side impacts and has asked the Institute to test a Crown Victoria with its optional side airbags. When the changes are made, the Institute will conduct the test and report the results.

The side impact test is only one measurement of vehicle crashworthiness. The Institute also conducts 40 mph frontal offset crash tests and evaluates vehicles' seat/head restraint designs for protection in rear crashes. All of the cars in this group except the Impala earned the highest rating of good in the frontal offset test. The Impala is rated acceptable. The seat/head restraints in all but three of the cars in this group also have been rated for rear crash protection.

Nearly every passenger vehicle now earns a good rating in the Institute's frontal crash test, but performance varies widely in side and rear tests. These differences can help consumers choose vehicles that offer the best overall crash protection. For comparative evaluations of hundreds of passenger vehicles, go to <http://www.iihs.org/ratings>.

**How the side impact test is conducted:** A vehicle's side evaluation is based on performance in a crash test in which the side of the vehicle is struck by a barrier moving at 31 mph. The barrier represents the front end of a pickup or SUV. Overall ratings reflect injury measures recorded on two instrumented SID-IIIs dummies, assessment of head protection countermeasures, and the vehicle's structural performance during the test. Injury measures obtained from the two dummies, one in the driver seat and the other in the rear seat behind the driver, are used to determine the likelihood that a driver and/or passenger in a real-world crash would sustain serious injury to various body regions. 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.

**End of 5-page news release on crashworthiness evaluations  
Attachment: ratings of large cars based on side impact tests  
VNR 6/19/06 at 10-10:30 am EDT (C) IA5/Trans. 19 (d14080V)  
and again 6/19 at 1-1:30 pm EDT (C) IA5/Trans. 19 (d14080V)**

**For more information go to [www.iihs.org](http://www.iihs.org)**

ATTACHMENT: CRASHWORTHINESS EVALUATIONS, PAGE 1 OF 1

Large family cars	Side impact crash test performance						Frontal offset test
	OVERALL SIDE EVALUATION	HEAD PROTECTION	INJURY MEASURES			STRUCTURE/ SAFETY CAGE	OVERALL FRONTAL EVALUATION
			Head/neck	Torso	Pelvis/leg		
<p><b>CHEVROLET IMPALA</b> WITH STANDARD HEAD CURTAIN SIDE AIRBAGS 2006 models</p> <p>NEW SIDE TEST</p>	<b>G</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>G</b> <b>G</b>	<b>G</b> <b>G</b>	<b>A</b>	<b>A</b>
<p><b>TOYOTA AVALON</b> WITH STANDARD HEAD CURTAIN &amp; FRONT TORSO SIDE AIRBAGS 2005-06 models</p> <p>NEW SIDE TEST</p>	<b>G</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>A</b> <b>G</b>	<b>G</b> <b>G</b>	<b>A</b>	<b>G</b>
<p><b>FORD FIVE HUNDRED MERCURY MONTEGO</b> WITH OPTIONAL HEAD CURTAIN &amp; FRONT TORSO SIDE AIRBAGS 2005-06 models</p> <p>TOP SAFETY PICK GOLD 2006 MODELS</p>	<b>G</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>A</b> <b>G</b>	<b>A</b> <b>G</b>	<b>A</b>	<b>G</b>
<p><b>BUICK LUCERNE</b> WITH STANDARD HEAD CURTAIN &amp; FRONT TORSO SIDE AIRBAGS 2006 models</p> <p>Note: results also apply to Cadillac DTS</p> <p>NEW SIDE TEST</p>	<b>A</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>G</b> <b>G</b>	<b>A</b> <b>G</b>	<b>M</b>	<b>G</b>
<p><b>HYUNDAI AZERA</b> WITH STANDARD HEAD CURTAIN &amp; FRONT &amp; REAR TORSO SIDE AIRBAGS 2006 models (mfg. after April 2006)</p> <p>NEW SIDE TEST</p>	<b>A</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>A</b> <b>G</b>	<b>P</b> <b>G</b>	<b>M</b>	<b>G</b> all 2006 models
<p><b>CHRYSLER 300 DODGE CHARGER</b> WITH OPTIONAL HEAD CURTAIN SIDE AIRBAGS 2005-06 300 models and 2006 Charger models</p> <p>NEW SIDE TEST</p>	<b>M</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>G</b> <b>G</b>	<b>P</b> <b>G</b>	<b>A</b>	<b>G</b>
<p><b>BUICK LACROSSE PONTIAC GRAND PRIX</b> WITH HEAD CURTAIN SIDE AIRBAGS (STANDARD IN 2006 LACROSSE &amp; OPTIONAL IN 2004-06 GRAND PRIX &amp; 2005 LACROSSE) 2005-06 LaCrosse models and 2004-06 Grand Prix models</p> <p>NEW SIDE TEST</p>	<b>M</b>	Driver Rear passenger	<b>G</b> <b>G</b>	<b>G</b> <b>G</b>	<b>P</b> <b>G</b>	<b>M</b> <b>A</b>	<b>G</b>
<p><b>CHRYSLER 300 DODGE CHARGER</b> WITHOUT OPTIONAL SIDE AIRBAGS 2005-06 300 models and 2006 Charger models</p> <p>NEW SIDE TEST</p>	<b>P</b>	Driver Rear passenger	<b>P</b> <b>A</b>	<b>G</b> <b>G</b>	<b>P</b> <b>G</b>	<b>P</b> <b>G</b>	<b>A</b> <b>G</b>
<p><b>FORD FIVE HUNDRED MERCURY MONTEGO</b> WITHOUT OPTIONAL SIDE AIRBAGS 2005-06 models</p> <p>NEW SIDE TEST</p>	<b>P</b>	Driver Rear passenger	<b>P</b> <b>A</b>	<b>M</b> <b>G</b>	<b>P</b> <b>G</b>	<b>A</b> <b>G</b>	<b>A</b> <b>G</b>
<p><b>FORD CROWN VICTORIA MERCURY GRAND MARQUIS</b> WITHOUT OPTIONAL SIDE AIRBAGS 2003-06 models</p> <p>NEW SIDE TEST</p>	<b>P</b>	Driver Rear passenger	<b>M</b> <b>A</b>	<b>M</b> <b>G</b>	<b>P</b> <b>G</b>	<b>M</b> <b>G</b>	<b>P</b> <b>G</b> 2003-06 models (mfg. after May 2003)

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

NOTE: Order of vehicles reflects performance in side impact tests  
 Go to [www.iihs.org](http://www.iihs.org) for more detailed crashworthiness evaluations of large family cars and other passenger vehicles