

# INSURANCE INSTITUTE FOR HIGHWAY SAFETY

## NEWS RELEASE

April 6, 1999

### IMPRESSIVE CRASH TEST PERFORMANCE FOR VEHICLES WITH SIDE AIRBAGS THAT ALSO PROTECT PEOPLES' HEADS

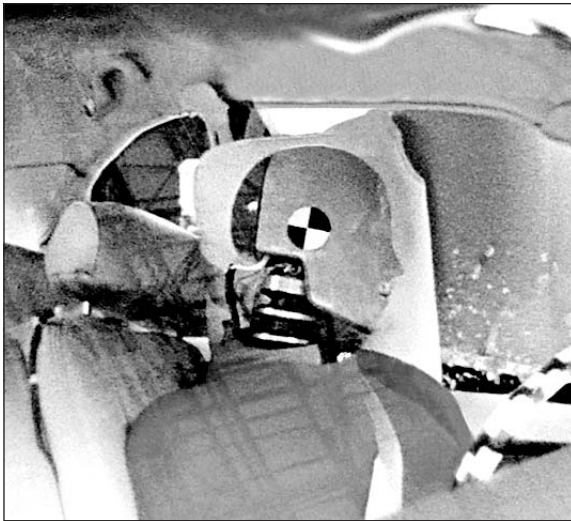
ARLINGTON, VA – For the first time, automakers are beginning to offer side airbags with head protection in more popular and less expensive passenger vehicles. Ford Motor Company rolled out its new side airbags for 1999 models, and crash tests conducted by the Insurance Institute for Highway Safety demonstrate the potential benefits of this safety technology in side impact crashes.

The Institute, in collaboration with Ford, conducted two crash tests of Lincoln Town Cars, a 1999 model in which the new side airbag with head protection is standard equipment and a 1998 model without a side airbag. In each test, the car was propelled sideways at 18 mph into a rigid pole. The pole is relatively narrow, so there was major penetration into the side of each car. In the impact without the side airbag, the crash dummy's head hit the pole with more than enough force to cause death in an actual collision. The head injury criterion was 5390, or more than five times the reference value (1000) used to indicate the likelihood of a serious head injury like a skull fracture. In contrast, the head injury criterion

#### 18 mph side-into-pole crash test results: Lincoln Town Cars with & without side airbags

Dummy Injury Measure	Injury Reference Value	Crash Test Results	
		SIDE AIRBAG 1999 Town Car	NO SIDE AIRBAG 1998 Town Car
Head injury criterion	1000	376	5390
Neck compression (kN)	4.0	0.2	6.4
TTI (g)	85	59	66
Pelvic lateral acceleration (g)	130	39	48

— MORE —



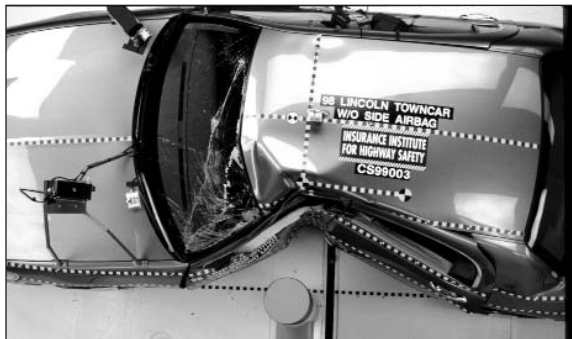
**18 mph side-into-pole crash test: In a 1999 Lincoln Town Car with side airbag to protect the head and chest, the airbag kept the dummy's head from striking the pole**

in the same crash test with a side airbag was 376, well below the injury reference value. Dummy injury measures also indicate the benefits of side airbags that protect the thorax. In the crash test of the Town Car with this technology, both the thoracic trauma index and lateral acceleration of the pelvis were reduced.

"The side airbag with head protection makes this kind of crash survivable despite the severity," Institute president Brian O'Neill points out. "This airbag restraint system should protect people in a range of serious side impacts in which there's intrusion in the area near an occupant's head, including two-vehicle crashes. Side airbags of this type are relevant to the recent public concerns about crash compatibility among different types of vehicles. The most effective way to address compatibility problems is to upgrade side impact protection because these are the crashes in which incompatibility is most apparent. Ford is doing this with its new side airbag system."

Ford's side airbag with head protection deploys from a vehicle's seat, inflating forward and upward to cushion an occupant's head and chest. Initial inflation is away

from the occupant, toward the vehicle's B-pillar and door. According to Ford's Priya Prasad, these airbags thus "are designed to minimize the risk of head, neck, and chest injuries to out-of-position occupants."



The 18 mph speed of the Institute's side-into-pole test "may not sound like one at which a crash could be serious," O'Neill says. "But a side impact into a fixed object at 18 mph is, in fact, very severe." The extensive intrusion into the Lincoln's occupant compartment from the crash test indicates the severity.

Because head injuries are a leading cause of death in side impacts, many automakers are developing airbags designed specifically to protect people's heads in these crashes. Ford isn't the first. Side airbags with head protection are in all BMWs, Saabs, and Volvos plus some Mercedes models. But Ford is the first manufacturer to offer side airbags with head protection in some more popular and less expensive vehicles. This technology is standard or optional in 1999 Ford Explorers and Mercury Mountaineers (utility vehicles), Ford Windstar (passenger van), Mercury Cougar, Lincoln Continental and Town Car, and Jaguar XJ8 and X200. More Ford vehicles in model year 2000 also will offer side airbags with head protection: Ford Taurus and Focus (new), Lincoln LS (new), and Mercury Sable.

The federal government estimates that side airbags with head protection in all cars could prevent about 600 deaths from head injuries in crashes each year.

**End 3-page release on side airbags with head protection**  
**2 attachments: injury/fatality tables, photos (fatal impacts)**  
**Video news release Tuesday, April 6, 1:00-1:30 pm EDT**  
**(C) Galaxy 6/Trans. 9; crash test footage & related video**  
**Internet: [www.highwaysafety.org](http://www.highwaysafety.org)**

**Front-seat deaths in side impacts and rollover crashes with ejection**

<u>Crash type</u>	<u>Single-vehicle</u>	<u>Multiple-vehicle</u>	<u>Total</u>
All	12,594	15,871	28,465
Side impact	2,548	6,006	8,554
Side impact with fatal head injury*	1,300-2,100	1,700-3,400	3,000-5,500
Rollover (no side impact)	5,725	1,014	6,739
Rollover with ejection (no side impact)	3,603	443	4,046

\* Analysis of fatal crashes in NASS/CDS 1993-96 indicates head injuries are the cause of death in 50-81 percent of single-vehicle side impacts and 28-56 percent of multiple-vehicle side impacts.

**In 38 percent of  
single-vehicle side impact crash deaths,  
the vehicle struck a tree or pole on  
the dead occupant's side of the vehicle  
(FARS, 1997).**

**Front-seat occupants with nonfatal injuries (MAIS 2-5) in side impacts  
Yearly average from NASS/CDS, 1993-96**

<u>Crash type</u>	<u>Single-vehicle</u>	<u>Multiple-vehicle</u>	<u>Total</u>
All	97,400	208,400	305,800
Side impact	22,700	71,100	93,800
Side impact with head injury	9,400	26,400	35,800
Side impact with head injury from relevant contacts inside the vehicle: A-pillar, B-pillar, side window/frame, roof rail	2,600	12,400	15,000
Side impact with head injury from contacts outside the vehicle: exterior of own vehicle, struck vehicle, struck object, ground	700	1,300	2,000



**Single-vehicle side impacts with fatal head/neck injuries from striking objects outside the crashing vehicles — deaths that might have been prevented by side airbags with head protection:**

A 1989 Mercedes 560E was traveling on an undivided five-lane road when the driver lost control and struck a traffic signal box. The impact was on the driver door. The car first rotated counter-clockwise and knocked away the control box. It then hit a sign post and a large utility pole, rolled over, and stopped on its left side.

NASS 79-007A (1990)



A 1980 Toyota Corolla was on a curve in a six-lane divided highway when it left the road and struck down a wooden utility pole. The impact was on the driver door.

NASS 49-198B (1994)



A 1993 Toyota Camry left the pavement during a turn at a three-way urban intersection. It hit a utility pole and then spun out, hitting a switch box and then the utility pole's guide wire. Intrusion occurred to the driver door panels, window frame and sill, roofrail, and A- and B-pillars.

NASS 43-017J (1995)