



THE ASSOCIATION

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INDIANA ENACTS TEXTING WHILE DRIVING BAN

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Beginning July 1, 2011, it will be illegal for any Hoosier driver to text while behind the wheel, according to a recent Indiana Criminal Justice Institute news release.

On May 10, 2011, Governor Mitch Daniels signed legislation that prohibits the use of any telecommunications device to type, transmit, or read text messages or e-mail while operating a moving motor vehicle. Drivers are however permitted to use hands free or

voice operated technology to perform these functions.

As a primary enforcement law, police will now be able to ticket a driver solely on the basis of texting while driving. Offenders could also face a fine up to \$500.

“Drivers who use hand-held devices are four-times more likely to be involved in a collision serious enough to cause injury,” said Ryan Klitzsch, Indiana Criminal Justice Institute Traffic Safety Division

Director. “This legislation is an important step in our efforts to ensure the safety of all Hoosier motorists,” he continued.

Drivers distractions accounted for more than 7,800 collisions on Indiana roadways in 2009. In fact, distracted driving crashes cost the state \$257.5 million dollars in that year alone.

US DOT CHIEF APPLAUDS INDIANA FOR ENACTING BAN

US Transportation Secretary Ray LaHood recently praised Indiana Governor Mitch Daniels for signing a stiff new law that bans texting while driving. The law makes Indiana the 32nd state to prohibit texting behind the wheel. “Distraction is still a factor in too many serious crashes,” Secretary LaHood said. “But the bill signed by Governor Daniels will help make Indiana roads safer.” Under the new law, effective July 1, violators face a maximum fine of \$500. The law extends Indiana’s current texting ban to all driv-

ers. Drivers under 18 are also prohibited from all cell phone use.

With the addition of Indiana, 32 states, District of Columbia, and Guam have now banned text messaging by all drivers. Further, eight states, the District of Columbia, and the Virgin Islands, have prohibited all hand-held cell phone use while driving.

In 2009, Secretary LaHood launched a national anti-distracted driving campaign modeled on other successful NHTSA efforts to reduce fatalities, such as its *Over The Limit*, *Under Arrest* and *Click It or*

Ticket campaigns to curb drunk driving and increase seat belt use.

The US Dept. of Transportation has launched a dedicated website, Distraction.gov, to provide the public with a comprehensive source of information on distracted driving. The Department has also hosted two national summits devoted to the issue, crafted sample legislation which states can use to adopt distracted driving laws and initiated pilot law enforcement programs in Hartford, Conn., and Syracuse, NY.

(Continued, page 3)

IACAI SEMINAR DATES

- **June 29, 2011**
Warsaw, IN Topic: Photogrammetry
- **September 28, 2011**
Greenwood, IN Topic: New Technologies
- **November 30, 2011**
Seymour, IN Topic: Legal Update

UNDERRIDE GUARDS ON BIG RIGS OFTEN FAIL

An Insurance Institute For Highway Safety Press Release 3/11



New crash tests and analysis by the Insurance Institute for Highway Safety demonstrate that underride guards on tractor-trailers can fail in relatively low-speed crashes - with deadly consequences. The Institute is petitioning the federal government to require stronger underride guards that will remain in place during a crash and to mandate guards for more large trucks and trailers.

Rear guards are the main countermeasure for reducing underride deaths and injuries when a passenger vehicle crashes into the back of a tractor-trailer. In 2009, 70 percent of the 3,163 people who died in all large truck crashes were occupants of cars or other passenger vehicles. Underride makes death or serious injury more likely since the upper part of the passenger vehicle's occupant compartment typically crushes as the truck body intrudes into the vehicle safety cage. "Cars' front-end structures are designed to manage a tremendous amount of crash energy in a way that minimizes injuries for their occupants," says Adrian Lund, Institute president. "Hitting the back of a large truck is a game changer. You might be riding in a vehicle that earns top marks in frontal crash tests, but if the truck's underride guard fails - or isn't there at all - your chances of walking away from even a relatively low-speed crash aren't good." The Institute

has studied the underride crash problem for more than 30 years, including mid-1970's crash tests demonstrating how then-current guards were ineffective in preventing underride. In the latest study the Institute analyzed case files from the Large Truck Crash Causation Study, a federal database of roughly 1,000 real world crashes in 2001-03, to identify crash patterns leading to rear underride of heavy trucks and semi-trailers with and without guards. Underride was a common outcome of the 115 crashes involving a passenger vehicle striking the back of a heavy truck or semi-trailer. Only 22 percent of the crashes didn't involve underride or had only negligible underride, a finding in line with prior studies. In 23 of the 28 cases in which someone in the passenger vehicle died, there was severe or catastrophic underride damage, meaning the entire front end or more of the vehicle slid beneath the truck.

The National Highway Traffic Safety Administration (NHTSA) has estimated that about 423 people in passenger vehicles die each year when their vehicles strike the backs of large trucks. More than 5,000 passenger vehicle occupants are injured.

Crash Tests: The study raised questions about how and why guards failed and at what speeds, so the

Institute conducted crash tests evaluating three semi-trailer rear guards complying with US rules. Two of the trailers also are certified to Canadian requirements, which are more stringent than the United States when it comes to strength and energy absorption. The tests involved crashing a 2010 Chevrolet Malibu into the rear of parked trailers.

The goal wasn't to evaluate the Malibu's crashworthiness. The midsize sedan is an Institute *TOP SAFETY PICK* and earns a 5-star safety rating in NHTSA's New Car Assessment Program.

"The aim was to see if some underride guards perform better than others and to identify what crash speeds and configurations produce different types of failure," Lund says.

"Damage to the cars in some of these tests was so devastating that it's hard to watch the footage without wincing. If these had been real-world crashes there would be no survivors." Decapitation is a serious threat in underrides. In 3 of the crash tests the heads of the dummies in the car made contact with either the intruding trailer of the car's hood after it tore free and pushed into the occupant compartment. One such test involved a Hyundai trailer whose underride guard bend forward, sheared its attachment bolts, and broke after the (Continued on Page 4)

"Underride was a common outcome of the 115 crashes involving a passenger vehicle striking the back of a heavy truck or semi-trailer..."

VEHICLE CRASH RELATED INJURIES, PART II



Sometimes crash investigators will be called to investigate a motor vehicle crash fatality where the cause of death isn't so obvious.

Traumatic Aortic Rupture, or Traumatic Aortic Transection, is a condition in which the aorta, which is the largest artery in the body, is torn or ruptured as the result of trauma. One of the more common sources of this trauma is the result of a significant Delta V. Remember that there are three collisions that occur; the vehicle into whatever, the body into the vehicle or restraint, and the organs

colliding in the body. In the case of Traumatic Aortic Rupture, the aortic arch, which is suspended by ligaments, is torn free from these ligaments and ruptures. Because of the volume of blood being pumped through this vessel, blood loss is quick, resulting in rapid shock and death.

Traumatic Aortic Rupture is the second leading cause of death (18%) behind traumatic brain injury.

Another serious injury concerns the liver. The liver is one of the largest organs in the body and takes up a considerable amount of space in the

abdominal cavity. The liver is highly vascular, as one of its primary functions is to filter impurities from the blood. The left portion of the liver has a ligament (the Ligamentum Teres Hepatis) which divides the left part of the liver into two halves. In cases of high Delta Vs or in cases of improperly worn safety restraints or improperly positioned seat backs, the liver can be thrust forward and physically separated by the ligament. Separation will cause traumatic bleeding; shock and death can occur if not attended to immediately.

Traumatic Aortic Rupture is a common killer of car crash victims, causing up to 18% of reported traumatic deaths.

“TEXTING BAN” CONTINUED FROM PAGE 1

In November, the Department of Transportation announced “Faces of Distracted Driving,” a video series featuring people from across the country who have been injured or lost loved ones in distracted driving crashes. To watch videos from the “Faces of Distracted Driving” series or learn more about the US Department of Transportation campaign against Distracted Driving, visit www.distraction.gov.

(Reprinted from NHTSA press release 07-11)

IACAI SKILL REVIEW ANSWERS FOR FEB 2011 ISSUE

Answers: 1a: 4.83 ft/sec/sec	3a: 74 ft/s
1b: 44 ft/s (No, he did not)	3b: 1.03sec
2a: 109 ft/sec	4a: 101 ft/s
2b: 75.2 ft	4b: 3.92sec
2c: -25.78ft/s/s	
2d: 474 ft.	

MORE ABOUT: UNDERRIDE CRASHES

Malibu hit it in the center rear at 35 mph. This was the weakest guard tested. The trailer was manufactured by the Hyundai Translead. In contrast, a Wabash trailer outfitted with a guard certified to Canadian specifications successfully prevented underride of the Malibu's passenger compartment in a center-rear test at 35 mph. The trailer was made by Wabash National Corp. It's guard was the strongest of the 3 evaluated. "Strong attachments kept the Wabash guard in place so it could engage the Malibu, allowing the car's structure to absorb and manage the crash energy," Lund says. "In the real world, this would be a survivable crash."

Offset Tests: The Institute also ran tests with overlaps of 50 percent and 30 percent to find out what happens when a car hits the trailer with only part of its front instead of head-on. In a 35 mph test with a 50 percent overlap, the guard on a Vanguard trailer allowed severe underride. The trailer was

made by Vanguard National Trailer Corp., and the guard is certified to US and Canadian standards. In contrast, the Wabash trailer's guard successfully prevented underride in the same test. The outcome for the Wabash was different when the overlap was reduced to 30 percent. The struck end of the guard bent forward and there was severe underride.

This test shows that even the strongest guard left as much as half of the rear of the trailer vulnerable to severe underride. The guard only worked as intended when the striking car engaged the center.

Offset tests stress guards' unsupported outboard ends. The vertical frame supports that attach guards to their trailer chassis are closer to guards' centers than ends. Preventing underride in narrow overlap crashes like these might mean devising a new way of attaching guards to trailers to utilize the side rails, in addition to requiring manufacturers to

conduct compliance tests with guards on trailers.

"Under current certification standards, the trailer, underride guard, bolts, and welding don't have to be tested as a whole system," Lund says. "That's a big part of the problem. Some manufacturers do test guards on the trailer. We think all guards should be evaluated this way. At least, all rear guards should be as strong as the best one we tested."

Another problem is that regulatory gaps allow many heavy trucks to forgo guards altogether. When they are present on exempt trucks, guards don't have to meet 1996 rules for strength or energy absorption.

"Underride standards haven't kept pace with improvements in passenger vehicle crashworthiness," Lund says. "Absent regulation, there's little incentive for manufacturers to improve underride countermeasures, so we hope NHTSA will move quickly on our petition."



"...the trailer, underride guard, bolts, and welding don't have to be tested as a whole system..."

MEMBERSHIP: WE NEED YOUR HELP!!

Members: We need help!! Membership dues are sent between the last of year and the first of the coming year and are payable 30 days after receipt. As of the release of this newsletter, we currently only have 71 members who have paid their 2011 dues. That's less than 1/4 of our membership!! Your membership in this association is very important; if you haven't paid your 2011 dues, please consider sending in your payment. Thank you!

IACAI SKILLS

This issue of IACAI Skills involves more Vehicle Dynamics.



1. A vehicle skidded 140 feet on a new level road surface and continued to skid 130 feet on an old level road surface. The new road surface was tested and had a drag factor of 0.80. The old surface was then tested and was found to have a drag factor of 0.70. At the end of the skidding on the old road surface, the vehicle traveled 40 feet horizontally, while dropping vertically off an embankment. These distances apply to the center of mass of the vehicle.
 - A. What was the velocity of the vehicle at the edge of the embankment?
 - B. What was the velocity of the vehicle at the beginning of the second surface?
 - C. What was the velocity of the vehicle at the beginning of the first surface?
 - D. How much time did it take the vehicle to skid across the first surface?
 - E. How much time did it take the vehicle to skid across the second surface?
 - F. How much time did it take the vehicle to travel the 40 feet after leaving the edge of the Embankment?
 - H. How much time was involved for the vehicle to cover the entire distance of 310 feet?

2. A pedestrian was walking east across Smith Street. The pedestrian was struck by an automobile that was traveling north on Smith Street. The angle of the collision was 90 degrees. The collision took place 32 feet from the west edge of Smith Street. The pedestrian walked at an average velocity of 4.5 fps. The vehicle skidded 150 feet before impact and continued skidding until it came to a stop 75 feet beyond the collision point. Test skids were made and it was determined that the drag factor was 0.80. The driver's reaction was to apply the brakes hard with a reaction time of 1 second.
 - A. What was the distance between the initial contact and the point of perception?
 - B. After the vehicle had been skidding for two seconds, how far was it from initial contact?
 - C. Assuming the vehicle had been traveling at the same velocity indicated by the skidmarks for ten seconds prior to skidding, how far was the vehicle from initial contact when the pedestrian started across the street?
 - D. How far from the curb was the pedestrian when the vehicle began to skid?

The answers to this issue of the IACAI Skills can be found on the IACAI Website after June 20, 2011.



IACAI TRAINING ANNOUNCEMENT



Seminar Announcement

The Indiana Association of Certified Accident Investigators will be sponsoring a seminar on

"Photogrammetry"

Presented by: Thomas Quinn, Indiana State Police

Wednesday, June 29, 2011 0900-1500 hrs

at the

Warsaw Police Department

1291 E. Fort Wayne Street

Warsaw, IN 46580

Cost: \$50 for IACAI members; \$75 for non-members

No advanced registration is required.

Registration begins at 08:30am

Please plan to attend!!

Questions regarding this seminar may be directed to IACAI

President Don Harris

email: donhar232@comcast.net

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