Vol. 41, No. 5, June 13, 2006

STATUS REPORT

INSURANCE INSTITUTE FOR HIGHWAY SAFETY

UPDATE

ELECTRONIC STABILITY CONTROL

This technology could prevent nearly one-third of all fatal crashes and reduce the risk of rolling over by as much as 80 percent. The benefits are found in crashes involving one vehicle and more than one.

An extension of antilock brake technology, electronic stability control (ESC) is designed to help drivers retain control of their vehicles during high-speed maneuvers or on slippery roads. A previous Institute

(continues on p.2)

UPDATE

BELT REMINDERS

Evidence is accumulating that safety belt reminders are effective. They goad people into buckling

(continues on p.4)

UPDATE ON TWO EFFECTIVE SAFETY FEATURES

ELECTRONIC STABILITY CONTROL

(continued from p.1) study found significant effects of ESC in reducing fatal single-vehicle crash risk. Using data from an additional year of crashes and a larger set of vehicle models, the researchers have updated the 2004 results, finding that ESC reduces fatal multiple-vehicle crash risk by 32 percent.

This research confirms that ESC reduces the risk of all single-vehicle crashes by more than 40 percent—fatal ones by 56 percent. The researchers estimate that if all vehicles were equipped with ESC, as many as 10,000 fatal crashes could be avoided each year.

"The findings indicate that ESC should be standard on all vehicles," says Susan Ferguson, Institute senior vice president for research. "Very few safety technologies show this kind of large effect in reducing crash deaths."

Availability varies: ESC is standard on 40 percent of 2006 passenger vehicle models and optional on another 15 percent. It's standard on every 2006 Audi, BMW, Infiniti, Mercedes, and Porsche. Another eight vehicle makes (Cadillac, Jaguar, Land Rover, Lexus, Mini, Toyota, Volkswagen, and Volvo) offer at least optional ESC on all of their models. But ESC, standard or optional, is limited to 25 percent or fewer models from Chevrolet, Dodge, Ford, Hummer, Mazda, Mitsubishi, Saturn, Subaru, and Suzuki.

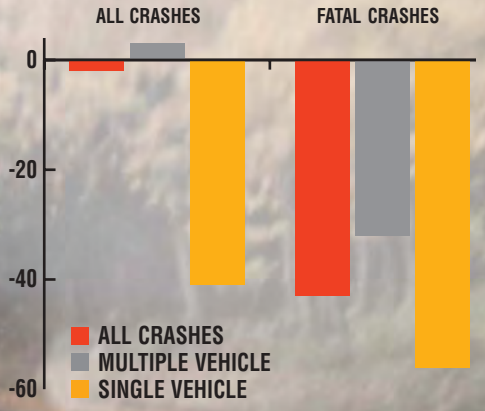
After studies in 2004 by the Institute and the National Highway Traffic Safety Administration, some manufacturers announced plans to make ESC standard on all SUVs, and the percentage of SUV models with standard ESC has been growing faster than for cars.

As a stand-alone option, ESC costs from about $300 to $800, but it can cost more than $2,000 on some models when packaged with other equipment. A potential problem for increasing consumer awareness is that automakers market ESC by various names including Electronic Stability Program, StabiliTrack, or Active Handling.

"When ESC is optional, this hodgepodge of terms is bound to be confusing," Ferguson points out. "It's good that some of the major manufacturers have pledged to make ESC standard on their SUVs in the next few model years, and it should be standard on cars and pickup trucks too."

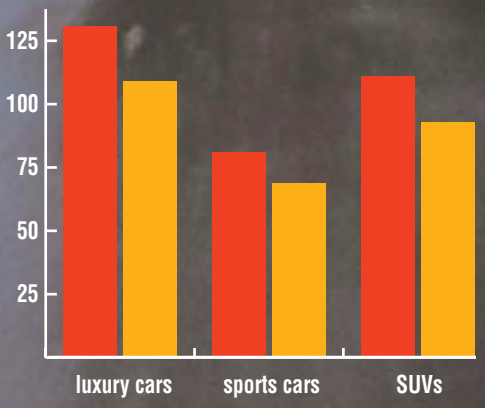
EFFECT OF ESC ON CRASH RISK

PERCENT CHANGE IN CRASH RATES FOR VEHICLES WITH STANDARD ESC VERSUS PREVIOUS MODEL YEARS

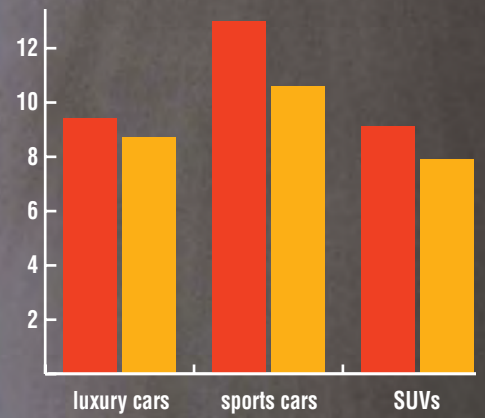


EFFECT OF ESC ON INSURANCE LOSSES

RELATIVE COLLISION LOSSES (100=AVERAGE)
BEFORE AND AFTER STANDARD ESC



PERCENT OF COLLISION CLAIMS $10,000+
BEFORE AND AFTER STANDARD ESC



How ESC works: Antilock brakes have speed sensors and independent braking capability. ESC adds sensors that continuously monitor how well a vehicle is responding to a driver's steering wheel input. These sensors can detect when a driver is about to lose control because the vehicle is straying from the intended line of travel— a problem that usually occurs in high-speed maneuvers or on slippery roads. In these circumstances, ESC brakes individual wheels automatically to keep the vehicle under control.

When a driver makes a sudden emergency maneuver or, for example, enters a curve too fast, the vehicle may spin out of control. Then ESC's automatic braking is applied and in some cases throttle reduced to help keep the vehicle under control.

ESC is relatively new. Only in the last few years have researchers had sufficient data to analyze its effects on real-world crashes. The new Institute study is based on data from the federal Fatality Analysis Reporting System and police reports of crashes in 10 states during 2001-04. Researchers compared crash rates for cars and SUVs without ESC and the same models in subsequent years when ESC was standard (note: some vehicles with optional ESC were included in the no-ESC group because so few buyers choose this option).

More effects of ESC on SUVs: The data in the Institute's 2004 study weren't extensive enough to allow researchers to compute separate risk reduction estimates for cars and SUVs. However, this was possible in the broader analysis that's just completed. While both cars and SUVs benefit from ESC, the reduction in the risk of single-vehicle crashes was significantly greater for SUVs — 49 percent versus 33 percent for cars. The reduction in fatal single-vehicle crashes wasn't significantly different for SUVs (59 percent) than for cars (53 percent).

Many single-vehicle crashes involve rolling over, and ESC effectiveness in preventing rollovers is even more dramatic. It reduces the risk of fatal single-vehicle rollovers of SUVs by 80 percent, 77 percent for cars.

ESC was found to reduce the risk of all kinds of fatal crashes by 43 percent. This is more than the 34 percent reduction reported in 2004. If all vehicles had ESC, it could prevent as many as 10,000 of the 34,000 fatal passenger vehicle crashes that occur each year.

Insurance claims show effects on collision losses: The results of the Institute's studies showing significant reductions in serious crash risk are reflected in some insurance losses. According to a new analysis by the Highway Loss Data Institute, an affiliate of the Insurance Institute for Highway Safety, losses under collision coverage are about 15 percent lower for vehicles with ESC than for predecessor models without it. However, ESC doesn't have much effect on property damage liability claims or the frequency of injury claims. These findings track police-reported crashes, which show little effect of ESC on the risk of low-severity multiple-vehicle crashes.

SAFETY BELT REMINDER SYSTEMS

(continued from p.1) up and they're especially effective among motorists who say they do use belts but not all the time.

A new Institute study indicates that reminders boosted belt use among Honda drivers from 84 to 90 percent. The use rate went up among both men and women and in various kinds of passenger vehicles — cars, minivans, and SUVs. Only 6 percent of the unbuckled drivers who encountered the reminder systems reported ignoring the annoyance.

Results are especially impressive among drivers who reported that they they usually but not always buckle up. Eighty-one percent of the people in this group said they buckled up the last time they encountered the belt reminder.

The findings confirm the results of a previous Institute study of the effectiveness of reminders in Ford vehicles. These systems boosted belt use from 71 to 76 percent in 2000-02 vehicles, compared with earlier models of the same Fords without reminders (see *Status Report*, Feb. 9, 2002; on the web at iihs.org).

"Boosting belt use by 5 or 6 percentage points might not sound like a lot but, remember, these are the hard-to-convince motorists, and what the reminders are doing is convincing them to buckle up more often. The idea is to turn them into full-time belt users," says Susan Ferguson, Institute senior vice president for research.

Ford was first to equip vehicles with extended reminders, beginning with some 2000 models. In 2006 most models have some kind of reminder system, but not all of them are as intrusive as the Ford and Honda systems (see facing page).

Reminders go beyond what's required: These systems exceed the federal government's modest requirement of a reminder that lasts 4 to 8 seconds. The reminders in Fords persist in intervals for up to 5 minutes if drivers don't buckle up, and those in Honda vehicles are even more persistent. There's an intermittent flashing light, sometimes including a "fasten seat belt" message, plus a chime that lasts for at least 9 minutes. Most 2004 and all later Hondas have such reminders.

Despite the potential annoyance, an overwhelming 89 percent of drivers of Hondas with reminders said they like having the systems in their vehicles. Eighty-eight percent said they would want one in their next vehicle.

"These findings are important because, while the purpose is to annoy drivers into buckling up, it wouldn't be beneficial to overdo it and alienate people enough so they want to disable their reminder systems. The goal is benevolent nagging — just enough to accomplish the purpose," Ferguson says.

Why reminders are needed: The US belt use rate has topped 80 percent for two straight years, up from less than 20 percent in the early 1980s and about 60 percent as late as 1994 (see *Status Report*, Jan. 11, 2003; on the web at iihs.org). The gains during the 1980-90s resulted largely from enacting and enforcing belt use laws in every state except New Hampshire.

"What the reminders do is complement the laws and enforcement programs," Ferguson explains. "They help convince motorists to comply with the belt laws, and they give motorists an incentive to do so because buckling up is the easiest way to stop the annoying lights and chimes."

What if all vehicles had reminders similar to those in Hondas? Ferguson estimates that at least 730 passenger vehicle driver deaths could have been prevented in 2004 if all vehicles had been equipped with reminders that increased belt use by 6 percentage points.

Researchers studying the Honda systems surveyed belt use among drivers of 2004-06 model cars, minivans, and SUVs with reminders, comparing use rates in these vehicles with rates in 2002-04 Hondas without reminders. The observations were conducted at Honda dealerships in the Philadelphia area during the fall of 2005 when vehicles were brought in for service. Mail-in surveys also were distributed to drivers of vehicles with reminders, and 62 percent of these drivers replied.

For a copy of "Effectiveness and driver acceptance of the Honda belt reminder system" by S. Ferguson et al., write: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201, or email publications@iihs.org.

BELT REMINDERS AREN'T ALIKE

All cars have reminders to buckle up. The federal government requires them. However, the mandated reminders last fewer than 10 seconds. They're easy to ignore. This is why automakers have voluntarily added extended reminders. Nearly all 2006 models have a version of this feature. The exceptions are some Hyundais, Jaguars, Kias, Suzukis, and most Volvos, which still don't have reminder systems.

The ones in most passenger vehicles consist of intermittent lights plus chimes or buzzers reminding drivers to buckle up. Many of these systems remind front-seat passengers too, but there's a lot of variation in how long the lights and chimes persist. Those in some Toyotas last only 30 seconds, for example, while those in Honda models endure intermittently for at least 9 minutes. The reminders in some vehicles add text on the dashboard that instructs motorists to buckle up.

In contrast, the belt reminders in all Nissans and Infinitis as well as some models made by General Motors and Toyota forego the extended chimes. There's only a light to remind unbelted motorists to buckle up.

THEN TURN DOWN THE LOUD MUSIC OR, IN THE CASE OF AN EXTENDED BUZZER OR CHIME TO REMIND YOU TO USE YOUR SAFETY BELT, SIMPLY FASTEN IT. THE IDEA OF A BELT REMINDER IS TO ANNOY YOU JUST ENOUGH TO GET YOU TO BUCKLE UP.

Unreliable FHWA data prompt Institute to stop use and warn others

"Garbage in, garbage out" holds true when it comes to the data used to assess crash risk and track changes in crash rates over time. Unreliable driver licensure data published by the Federal Highway Administration (FHWA) are being used by researchers, reporters, and others. The resulting conclusions follow the "garbage in, garbage out" rule. They're erroneous.

For example, last year *USA Today* ranked states by crashes per licensed driver 16-19 years old. North Carolina came out worst. When researchers in this state disputed the ranking, the Institute began an inquiry that not only sided with the state researchers but also uncovered pervasive problems with FHWA's licensure data.

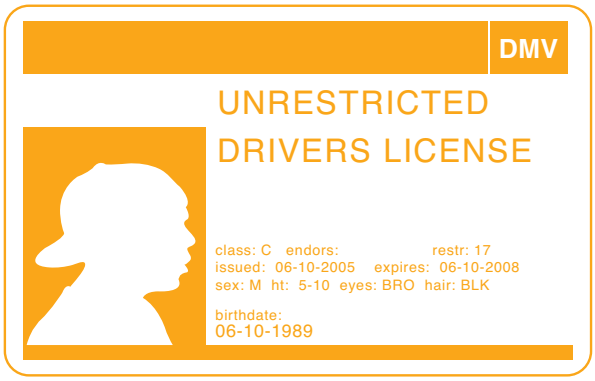
"Numerous other reports have been published and findings assumed credible because, after all, the underlying data came from an official government agency. Researchers have been using these data for years because there's no other good source. But even FHWA acknowledges that its own data aren't reliable, so now the key is to do something about it," says Anne McCartt, Institute research vice president.

What's wrong: FHWA collects and publishes vehicle registration and driver licensure data provided by state officials. The Institute has found big year-to-year fluctuations in the licensure data that aren't explained by population changes, law changes, or any other logical factor. The fluctuations are worst for the youngest drivers.

For example, the reported number of 16-year-old drivers in Illinois was 79,391 in 1998, 8,159 in 1999, and 88,872 in 2000. Louisiana's reported numbers were 25,675 in 2001 and then 2 in 2002 and 3 in 2003. Other anomalies were identified but they weren't as frequent or dramatic.

These discrepancies prompted Institute researchers to compare FHWA's licensure data with data obtained directly from six states. The results confirm the problems because data from only two of the states closely resembled what FHWA was reporting. In the other states there were numerous and sometimes large differences. FHWA generally undercounted licensed drivers.

"We've stopped using these data in our research, at least for now. It's a hardship because it isn't practical to go state by state for data to conduct each individual study. We need the federal database, but we urge other researchers to beware until FHWA's reporting problems are fixed," McCartt says.



What to do: Factors contributing to data quality are the sources in the states, clarity and appropriateness of FHWA instructions to state officials, extent to which instructions are followed, and quality controls. Problems in all of these areas may be contributing to the unreliability of FHWA data.

Responding to Institute concerns, FHWA has begun to improve teen licensure data, one of the biggest problems, and requested comments about other data issues. More needs to be done, so the Institute has advised the U.S. Department of Transportation to "consider moving the responsibility for collecting and maintaining these data from FHWA to another agency such as the Bureau of Transportation Statistics or the National Highway Traffic Safety Administration . . . . The importance of the data to the highway safety community and the lack of other sources for these data point to the need to move expeditiously."

For 4th year, Escalade has most theft claims and costliest ones

Versions of the 2003-05 Cadillac Escalade, Mitsubishi Lancer Evolution, and Dodge Ram 1500 quad cab pickup have the highest rates of insurance theft claims. The 3 vehicles have claim rates 4 to 5 times the average for all vehicles. These are the latest theft loss results for passenger vehicles 1 to 3 years old published by the Institute's affiliated Highway Loss Data Institute (HLDI).

Overall losses for pickups have increased sharply since 1999, mainly because of high claims for the Dodge Ram and Ford F-250/350. In contrast, theft losses for cars and SUVs increased slightly in 2003-04 but declined in 2005. The rate of theft of pickups in 2005 was nearly twice as high as for cars or SUVs.

This is the fourth year in a row that the Escalade has topped the list of vehicles most likely to have a theft claim. In fact, 4 versions of the Escalade (EXT, a specialty pickup, plus 2- and 4-wheel-drive versions of the short- and long-wheelbase Escalade SUVs) head the list of the worst overall insurance losses for theft among all passenger vehicles. The EXT has overall theft losses that are 16 times higher than the average.

"The overall results show the Escalade has not only the highest rate of claims but also very expensive claims when they are filed," says Kim Hazelbaker, HLDI senior vice president. "In fact, almost one-quarter of theft claims for the Escalade are for $40,000 or more, indicating that thieves are stealing the whole vehicles and not just their parts."

The Escalade's theft losses have been the highest in recent years even though this vehicle is equipped with a standard antitheft ignition immobilizer. An immobilizer is built into a vehicle's electronic ignition system. It's supposed to prevent the vehicle from being started without the proper key.

Cadillac redesigned the Escalade for 2007 and upgraded its antitheft system. It's too soon to know if the new model will have a lower theft rate than the previous ones.

The high-performance Lancer Evolution is new this year to the list of vehicles with the highest theft losses. Investigators say this model may be attracting the attention of thieves because its parts can be used to customize standard Lancers.

Geographic differences: Models with high overall theft losses vary by geographic area. For example, the Dodge Stratus and its twins, Chrysler Sebring and Plymouth Breeze, have very high losses in and around Washington, DC. Losses are high for the 2003 Nissan Maxima and for the Lexus RX 330 in and around New York City. Results for the Maxima and Lexus are believed to be associated with their expensive Xenon headlights.

HLDI results are the only reported theft results based on numbers of insured vehicles. Loss information from the National Insurance Crime Bureau and CCC Information Services doesn't take into account how many of each vehicle are insured, so the most popular ones on the road tend to top these organizations' lists of most-stolen vehicles. In contrast, HLDI identifies vehicles with the worst losses by counting the number of claims by make and model relative to the number of each model insured, indicating which vehicles are most likely to be targets.

Long-term trends: Overall losses, or average loss payments per insured vehicle year, reflect both how often claims are filed and the cost of the claims. Since 1980 theft claim frequencies have declined while average insurance payments per claim have increased. But these trends have leveled off in recent years so that, since the mid-1990s, overall theft losses have declined by about 25 percent.

INSURANCE THEFT LOSSES, 2003-05 PASSENGER VEHICLES

	Vehicle size/type	Claim Frequency	Avg. loss payment per claim	Avg. payment per insured vehicle year
HIGHEST LOSSES				
Cadillac Escalade	Large luxury SUV	**13.2**	$17,913	$236
Mitsubishi Lancer Evolution 4WD	Small 4-door car	**11.9**	$10,326	$123
Dodge Ram 1500 quad cab	Large pickup truck	**11.1**	$10,088	$112
Ford F-250/350 supercrew 4WD (2005s only)	Very large pickup truck	**8.9**	$17,702	$158
Chrysler Sebring (2004-05s)	Midsize 4-door car	**8.5**	$5,077	$43
LOWEST LOSSES				
Ford Taurus	Large station wagon	**0.3**	$3,872	$1
Pontiac Vibe 4WD	Small station wagon	**0.4**	$3,872	$1
Buick LeSabre	Large 4-door car	**0.5**	$4,905	$2
Buick Park Avenue	Large luxury car	**0.5**	$3,270	$2
Toyota Sienna 4WD (2004-05s)	Very large minivan	**0.6**	$8,777	$5
AVERAGE ALL CARS		**2.6**	$8,605	$22

Notes: Claim frequencies are per 1,000 insured vehicle years; results are for 2003-05 models unless otherwise noted

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On the inside

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