



Testimony of

**R. David Pittle, Ph.D.
Senior Vice-President, Technical Policy
Consumers Union**

on

Reauthorization of the National Highway Traffic Safety Administration

before the

**Subcommittee on Commerce, Trade and Consumer Protection
of the
House Committee on Energy and Commerce**

March 18, 2004

Introduction:

Members of the Subcommittee, Good Morning, my name is David Pittle, I am Senior Vice-President for Technical Policy at Consumers Union (CU), the publisher of *Consumer Reports*. With me this morning is Sally Greenberg, CU's Senior Product Safety Counsel here in Washington. Consumers Union greatly appreciates the opportunity to be with you here this morning to express our views on the reauthorization of the National Highway Traffic Safety Administration (NHTSA).

Consumer Reports has been testing and rating cars since 1936, the year our magazine was first published. We have always made safety a top priority in our product ratings, and the safety of automobiles is no exception. CU has a long history of working with NHTSA and Congress to press for improvements in automobile safety to identify safety priorities and insure that NHTSA is fulfilling its mandate.

Each year, CU conducts comprehensive tests of some 40 to 50 new vehicles that we buy anonymously at retail, and we provide consumers with ratings about performance, routine handling, fuel efficiency, reliability, comfort, braking, emergency handling, and safety features of these vehicles. CU also tests tires each year for their performance in braking, handling, cornering, and traction characteristics on dry, wet, snow-covered, and ice-covered surfaces. Each month, an estimated 17 million consumers read and consider our published test reports, product ratings, and buying advice as they ponder their choices.

The topic before the Subcommittee this morning is what form the NHTSA reauthorization legislation will ultimately take. The Senate bill, S. 1072, Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA), includes a number of important provisions that we think will bring needed improvements in the way cars are designed, and save lives in a cost-effective manner. This legislation will give NHTSA the kind of guidance we believe it needs to proceed with rulemaking in these areas. We have worked actively with Senators on both sides of the aisle to insure that this is a balanced bill that makes the most of this opportunity to reauthorize NHTSA for the next six years. We urge the members of the Subcommittee to support this proposal.

Auto Safety Statistics and Funding

The U.S. Department of Transportation (DOT) data on traffic fatalities for the year 2002 was not encouraging. Overall, there were 42,815 deaths in 2002 compared to 42,196 in 2001, an increase of 619 deaths. This is the highest number of motor vehicle fatalities in over a decade. And although nearly 95 percent of all transportation-related fatalities are the result of motor vehicle crashes, NHTSA's budget is less than one percent of the entire DOT budget.

The current authorization funding level for NHTSA's entire motor vehicle safety and consumer information programs is only \$107.9 million. Since 1980, the agency has

been playing a game of catch-up. Today, funding levels for motor vehicle safety and traffic safety programs are not much higher than 1980 funding levels in current dollars.

Theme of Legislation

Though some may paint S. 1072 as too ambitious, too expensive, requiring too much research, we take issue with those characterizations. Dr. Runge himself said in a speech to the American Public Health Association last November, "There is a public health epidemic of highway death in this country," and "Traffic crashes are the leading killer of children starting at age 2. This is what is killing our young people, killing our children, this is the 3rd leading cause of years of potential life lost for all ages combined."

The safety measures addressed in S. 1072 will save thousands of lives and serious injuries. Moreover, many of the issues addressed in this bill have been under study and discussion within NHTSA for a decade or longer. NHTSA first adopted tire standards in 1970, lower side impact protection in the 1970s, seatbelts have been required in cars since 1968 and the means for getting more people to use them has been studied throughout, roof crush has been under discussion since 1971, a standard for door lock and occupant retention was adopted in 1968. In fact, the theme that comes through most profoundly as you read the safety provisions in S. 1072 is that this bill is a serious effort to complete the long unfinished auto safety agenda that takes thousands of lives needlessly each year. This is not an extreme bill. Indeed, Senators McCain (R-AZ), Hollings (D-SC) Snowe (R-ME), and DeWine (R-OH) each have championed safety provisions in this legislation, and the bill passed the Republican-majority Senate Energy and Commerce Committee unanimously and has now passed the full Senate.

Congressional Mandates are Most Effective in Generating NHTSA Action

Four years ago this Committee held extensive hearings on the Ford-Firestone highway safety crisis: hundreds of people had been injured and or were killed when the Firestone tires on their Ford Explorers peeled away at highway speeds. This bill that this Committee developed paved the way to enactment of landmark auto safety legislation, the Transportation Recall Enhancement, Accountability, and Documentation Act of 2000 (TREAD). TREAD directed NHTSA to address many important safety issues that the agency had put off for too long, including dynamic rollover testing, upgrading tire standards, and development of an early warning system to flag safety defects before they become crises.

To NHTSA's credit, four years later the agency has completed TREAD's ambitious list of Congressional mandates. (The one exception is the tire pressure monitoring rulemaking, which NHTSA did complete but which was subject to a lawsuit brought by several safety groups, not including Consumers Union, and the agency is currently revising the rule.)

The lesson here is that NHTSA, with many safety issues on its agenda, does its work most effectively and efficiently when it has a Congressional mandate to move forward

with the rulemaking process, enlist the public's input, and ultimately to publish a final rule that will save lives in a cost-effective manner. History shows that when Congress does not direct the agency to address a specific problem, as was the case in four important safety regulatory areas described in one of this bill's predecessor, the Intermodal Surface Transportation Efficiency Act of 1991, (ISTEA), the result is either no final rule or only a weak final rule. The examples from ISTEA are listed below:

- Congress did not require a final rule adopting a rollover standard; NHTSA issued an Advance Notice of Proposed Rulemaking (ANPRM) but withdrew it;
- Congress did not require an upgraded rule for improved safety belt design - NHTSA issued a rule requiring adjustable anchorages but only in front outboard seating;
- Congress did not require NHTSA to adopt a 10-year old test dummy in the federal regulations; NHTSA didn't act, though a subsequent law passed by this Committee, Anton's Law, now says it must initiate rulemaking by December 2005.

With Congressional guidance and direction, however, NHTSA is quite capable of developing standards that help save lives, and make our cars and roadways safer. I'd like to direct your attention to the various safety provisions in S. 1072 and explain why CU urges your support for them.

SEC. 4156 - IMPROVED CRASHWORTHINESS

Roof Crush Standard

The 33-year old standard for roof strength is woefully out of date and does not provide basic crashworthiness protections for occupants in vehicles that roll over. The auto industry and government have known about the deadly consequences of vehicle roof crush since 1960s, yet have never upgraded the 1971 standard nor extended it to vehicles weighing more than 6,000 lbs. Further, roof crush injuries occur often to those who have followed the rules and buckled their seatbelts. Drivers who experience a rollover often sustain grave injuries despite being belted because of the vehicle's poor roof integrity. NHTSA's failure to upgrade the roof crush standard allows these injuries to mount year after year.

The *Detroit News* in a 2003 series "Deadly Driving" highlighted the failure of NHTSA to upgrade its roof strength standard and noted that 1,400 deaths and 2,300 serious injuries could be prevented each year if the standard were more rigorous.

NHTSA itself has estimated that 1,339 serious or fatal injuries caused by roof crush intrusion are suffered by belted occupants each year. While the agency *has* put out a notice and request for comment on roof crush resistance, no proposal for rulemaking for an upgraded standard has been issued. NHTSA lists a proposed rule to upgrade roof crush resistance as a possible 2004 action, and final rule as a possible 2005 action, in *Vehicle Safety Rulemaking Priorities and Supporting Research 2003-2006*, with little description of a rule's possible contents. We recommend speeding up this process and therefore support S. 1072's provisions to upgrade the roof crush standard.

S. 1072:

Sec. 4156 - Improved Crashworthiness :

- *Requires NHTSA to issue a rollover crashworthiness standard and requires the Secretary to consider a roof strength standard based on a dynamic test, and to consider improved seat structure and safety belt design (including seat belt pretensioners and load limiters), side impact head protection airbags, and roof injury protection measures.*

Vehicle Crash Ejection Prevention

According to NHTSA about 7,300 people are killed each year and tens of thousands are injured, nearly 8,000 suffering severe injuries, because of partial or complete ejection through passenger vehicle doors, windows, and even moon roofs.

NHTSA researched anti-ejection glazing for years, estimating that up to 1,300 lives could be saved each year by anti-penetration side window glazing, yet suddenly decided that there were insufficient benefits from the use of anti-ejection glazing and discontinued the rulemaking.

The agency also has not acted to upgrade the outdated standard for door latches and locks that has remained unchanged since NHTSA first adopted an industry standard in the 1960s. Many doors still fly open in front, side, rear, and rollover crashes. In recent years, about 2,500 deaths and nearly 2,000 serious injuries occurred annually due to door ejections. Side door ejections are the second leading cause of ejections in all types of crashes, exceeded only by ejections through fixed glazing.

S. 1072:

- *Requires NHTSA to issue a rule to reduce complete and partial occupant ejection from passenger vehicles;*
- *Agency to consider ejection mitigation capabilities of safety technologies such as advanced side glazing, side curtains, and side impact air bags;*
- *Requires NHTSA to issue a rule to address improvements in door locks, latches and other ejection reducing components;*
- *Notice of Proposed Rulemaking (NPRM) to issue by June 30, 2006, final rule due 18 months later (Dec. 30, 2007).*

Vehicle Rollover

Rollover crashes result in a tragedy of massive proportions, with more than 10,000 deaths and hundreds of thousands of serious or crippling injuries to Americans each year. Rollover crashes represent only 3 percent of all collisions but account for 32 percent of all occupant fatalities. Light trucks, because they are higher and thinner

vehicles, have a higher center of gravity and are more prone to rolling over in emergency situations.

The proliferation of SUVs on our roads since the start of the 1990s, with their numbers actually more than doubling during this period, has been accompanied by a doubling of fatal rollover crashes.

The results of NHTSA's annual Fatal Analysis Reporting System (FARS) for 2002 showed an increase in deaths and injuries due to rollover crashes – from 10,130 in 2001 to 10,666 in 2002 – with almost half of them due to an increase in fatal rollover crashes by SUVs and pickup trucks. In fact, from 2001 to 2002, our nation suffered an astounding 10 percent increase in SUV rollover deaths alone in just one year. There was also from 2001 to 2002 a considerable increase in passenger vehicle rollover deaths overall-- 78 percent of that increase occurred in crashes involving SUVs and pickup trucks.

Six of every 10 deaths in SUVs in 2002 occurred in rollover crashes. No other passenger vehicle has the majority of its deaths take place in rollovers. By contrast, the great majority of deaths in passenger cars – more than 75 percent – occur in other crash modes.

CU's History in Rollover Prevention Efforts

Nowhere has CU's experience with NHTSA inaction and ineffectiveness been more vivid than with the issue of rollover prevention. In 1973, NHTSA announced its intention to consider a standard "that would specify minimum performance requirements for the resistance of vehicles to roll over in simulations of extreme driving conditions encountered in attempting to avoid accidents." The agency never set such a standard, despite considering the rollover issue for the next 31 years.

In 1988, NHTSA granted a CU petition in which we urged the adoption of a minimum stability standard to protect against unreasonable risk of rollover in all vehicles. The agency said at the time that the petition was "consistent with the Agency's steps to address the rollover problem." But NHTSA backed away from setting a standard. In fact, in 1994 NHTSA halted rulemaking on a universal minimum-stability standard, concluding that a standard applicable to all vehicles would require the redesign of nearly all SUVs, vans and pick-up trucks -- at an unacceptably high cost.

In 1996, Consumers Union once again petitioned NHTSA, asking for the development of a consumer information program that would produce meaningful, comparative data on the rollover characteristics of different makes and models of SUVs. We asked that this information be made available to consumers. NHTSA granted CU's petition for a consumer information program, calling CU a "welcome partner" in the quest for improved rollover safety.

The end of this long three decade-plus saga is that not until Congress mandated in TREAD that NHTSA develop a dynamic test for a rollover consumer information rating program did NHTSA to develop such a test. Today NHTSA uses a "fishhook" maneuver to evaluate vehicle rollover resistance. That test is now combined with another measure, the Static Stability Factor, to arrive at rollover consumer information ratings, which are available to consumers on NHTSA's website and published in Consumer Reports magazine as well as ConsumerReportsOnline.org. As noted above, Consumers Union has supported a standard for rollover resistance. There is currently no standard. What we have today, instead, is a consumer information program that involves testing vehicles and publishing comparative vehicle rollover resistance ratings. But there is public support for a rollover resistance standard. According to a Louis Harris poll commissioned by Advocates for Highway and Auto Safety, 85 percent of Americans support a federal minimum standard for rollover prevention.

CU believes that setting a rollover resistance standard is far more easily accomplished today than it might have been even three years ago. NHTSA has done the hard work of developing a repeatable dynamic rollover resistance maneuver. The fishhook test that NHTSA is currently using is tough and rigorous, and could be the basis for a rollover standard that has consistently eluded the agency. Our engineers have also found in our testing that vehicles with aggressive electronic stability control systems (ESC) (also called vehicle stability control systems or VSC), have better emergency handling characteristics and are far less prone to rollover than vehicles without this feature, and CR recommends that ESC be standard equipment in all light trucks. However, NHTSA has never formally tested and evaluated this relatively new technology that is finding its way into more and more vehicles. We support S. 1072's direction to NHTSA to report on electronic stability control systems as warranted and sensible.

Finally, CU believes that any vehicle that tips up in NHTSA's fishhook maneuver testing should be regarded as falling below the minimum standard for rollover resistance. In NHTSA's testing, only two vehicles tipped up. *Consumer Reports* will not recommend any vehicle that tips up in NHTSA's fishhook test.

S. 1072:

Sec. 4156 - Improved Crashworthiness :

- *Requires issuance of a rollover resistance standard that includes improvements on the basic design characteristics of passenger vehicles to reduce rollover, and requires NHTSA to consider additional technologies to improve vehicle handling including electronic stability control systems;*

AGGRESSIVITY AND VEHICLE COMPATIBILITY

NHTSA has been looking at the issue of vehicle compatibility for 30 years; outside groups and researchers have identified vehicle compatibility as a serious safety issue as well.

- In 1974, NHTSA presented a paper on aggressivity calling for safer bumpers for heavy cars.
- In June 1998, NHTSA Administrator Dr. Ricardo Martinez announced that NHTSA research and crash tests showed that vehicle mismatch between cars and light trucks was causing as many as 2,000 additional deaths each year on American roads. In response, the auto industry, including Ford Motor Company, promised Dr. Martinez that it would make modifications to achieve safer designs, mainly by adjusting vehicle suspension.
- In 1999, an Insurance Institute for Highway Safety study found that for every million registered cars weighing between 3,500 and 3,900 pounds, 45 deaths occur in vehicles struck by these cars while 76 deaths occur in vehicles struck by SUVs in the same weight class. While occupants of a car hit in the side by another car are seven times more likely to die than people inside the striking car, the fatality rate of car occupants is *twenty-six* times higher when the car is broadsided by an SUV or pickup truck. IIHS concluded that changing vehicle geometry and design can improve compatibility.
- In March of 2002, aggressivity research done by Marc Ross, of the University of Michigan, and Tom Wenzel, of Lawrence Berkeley National Laboratory for the Department of Energy, showed that vehicle design played a large role in the amount of risk a vehicle imposes on other vehicles on the road and charted make/model differences using real-world crash data.
- In 2002, NHTSA research contractor Hans Joksch published a report, *Vehicle Design versus Aggressivity*, showing that more than 445 people died in 1996 in collisions with light trucks who would not have died if the other vehicle in the collision was a car *of the same weight*.
- Last year, NHTSA released its “2002 Annual Assessment of Motor Vehicle Crashes” and noted that between 2001 and 2002, the number of car occupants who died in two-vehicle crashes with a light truck (SUV, van or pickup) increased (to 4,465) while the number of fatalities in the light trucks decreased (to 1,125). NHTSA also found that in two-vehicle crashes between cars and light trucks the car occupants were 3.3 times more likely to be killed in a head-on collision and 20.8 times more likely to die in a side impact (with the LTV hitting the side of the car).

Last December, the Alliance of Automobile Manufacturers, at the urging of the NHTSA Administrator, announced a *voluntary program* to address SUV aggressivity issues. The program proposed to phase in side air bags by 2007, as well as phasing in lower light truck bumper heights and perhaps lower frame-rail heights for the tallest pickups and sport-utility vehicles. The plan failed to address light truck design problems, however, such as the steel bars and frame-on-rail construction, which make light trucks vehicles more damaging to vehicles they strike in crashes than if they had a unibody construction.

Cautionary Note on Voluntary Industry "Commitments" and Auto Safety

A cautionary note is warranted here on voluntary commitments and auto safety regulations. As with any voluntary effort, there is no requirement that all vehicles comply, nor is there an outside body, like NHTSA, to verify vehicle adherence. Further, consumer groups, educators, independent experts, and others have no regular input into the development of the voluntary agreement, nor can the public offer comments on such a voluntary effort, as they would with a federal mandatory rule. The voluntary plan on vehicle compatibility offers no procedural or judicial oversight, no mechanisms for accountability, and no baseline for safety. Voluntary commitments, because they are developed by a consensus within the industry, also suffer the real possibility of being adjusted downward to ensure that all members in the industry can still conform.

We argued last year before the Senate Commerce Committee, when the industry embarked on the voluntary effort for compatibility, that if NHTSA were going to recommend action on vehicle compatibility, it should do so through its statutorily granted regulatory powers, developing a mandatory standard to which all vehicles must comply. I know, for example, that IIHS's director, Brian O'Neill, whom I respect and consider a friend and colleague, was instrumental in formulating the voluntary program with the Alliance of Automobile Manufacturers. He and I will simply have to disagree. The argument in favor of voluntary programs is that they achieve the desired results more quickly than can mandatory standards. We hasten to point out, however, that the 2003 voluntary compatibility document agreed to by the automakers for head injury and for less aggressive bumper designs do not call for 100% automaker conformity until 2010. That means that automakers have 7 years to bring their vehicles into conformance. We would hardly call that a "fast track." And, unless the agency commits the resources to developing in-depth expertise and research, it cannot properly and independently evaluate the effectiveness of the voluntary program.

Moreover, what is lost in the process? Vehicle compatibility is simply too important an issue to be left to a voluntary effort. CU believes that the public's substantive and procedural rights to participate in regulatory matters that affect its safety are absent when automakers set their own agreements, and the democratic process is the worse for it.

S. 1072:

Sec. 4155 - Aggressivity and Incompatibility Reduction Standard

- *Requires NHTSA to issue a safety standard to reduce vehicle incompatibility/aggressivity which shall consider factors such as bumper height, weight, and design characteristics to manage crash forces in frontal and side impacts;*
- *Requires development of a standard metric to evaluate and rate comparative incompatibility/aggressivity among different vehicles;*
- *Requires development of a public information program including ratings based on risk to vehicle occupant and risk to occupants of other vehicles;*

- *NPRM to be issued by Jan. 31, 2007, final rule due 18 months later (July 31, 2008).*

Sec. 4173 - Child Safety

Power Windows: In the past two years, six children have died when power windows closed on their necks, strangling them, according to the nonprofit safety group, Kids and Cars, the only source for data on this problem. I'd like to submit for the record Consumer Reports' (CR) article on power windows from our August 2003 issue. CR found that the vast majority of European and Japanese vehicles have a safe power window switch design that prevents a child from accidentally closing the window on his or her neck, and have featured that design for a number of years. A number of cars have an added safety feature in their power windows, an auto-reverse or "pinch-proof" device that uses sensor technology that reverses the window if it meets with minimal resistance. Unfortunately, the American automakers have lagged behind, with many continuing to feature a window switch that can be inadvertently operated by a child leaning out the window with her or his knee pressed against the switch. Indeed, the 2004 Ford Explorer, which is marketed as a family vehicle, and other 2004 models have the old-fashioned design. NHTSA, for its part, has failed to upgrade its 1991 standard on power windows, proposing a change in 1996 but failing to complete the rulemaking to this day.

We noted NHTSA Administrator Jeff Runge's comment in The Washington Post on Tuesday of this week (March 16, 2004) relating to the power window problem. "It's ripe for regulation or voluntary action," he said. "I think this problem will resolve itself."

This statement left us dumbfounded. The safer power window designs have been around and in widespread use for over a decade. The American automakers have failed to incorporate them across their fleet of vehicles. Even with the increased publicity about the dangers of power windows on such prime time news programs as NBC's Today Show and ABC's Good Morning America, a number of 2004 American automaker's cars feature the old designs that pose a hazard to children. This is a matter that obviously cannot and must not be left to a voluntary standard. CU believes NHTSA can and should put a standard in place to fix this safety hazard—and should do so quickly. The numbers of deaths may be small, but they should be zero. Moreover, the death of a child scars a family for eternity. We have the technology to prevent these predictable, yet preventable tragedies—and we should use it.

S. 1072:

Sec. 4173 - Child Safety

- *Requires report to Congress on technologies that reduce injuries from power windows to unattended children left inside motor vehicles;*
- *Requires completion of pending rule on design of power window switches and issuance of performance-based regulations to reduce accidental closing of power windows by children within 180 days of enactment, with regulation to take effect not later than Sept. 1, 2006;*

Backover warning devices research

Last year, at least 72 children, more than one every week, according to Kids and Cars, were backed over and killed, often by a parent or caregiver and often in their own driveway. In 2002 that number was 58. Parents involved in these tragedies say they looked as they backed up but because the child was in the vehicle's blindspot, it was impossible to see them. Consumers Reports has begun measuring blindspots for every vehicle we test and reporting on its the width and length. I'd like to submit for the record CR's April 2003 article on blindspots. We were shocked to learn that for a woman at 5' 1", the blindspot in a Chevrolet Avalanche, a pickup truck was 51 feet in length. For 51 feet behind her, the driver could literally not see anything 28 inches or shorter. This problem is sure to become more serious as the fleet becomes dominated by larger, longer and higher light trucks.

Consumer Reports also tested backup warning devices and cameras, and found some were more effective than others in detecting objects behind vehicles. I'd like to submit for the record our October 2003 ratings of these devices.

We have already seen an increase in backover deaths to children from 2002 to 2003. We need to give parents the technology they need to do what they want to do anyway - there is no behavioral problem to change in saving lives in this instance - avoid hitting a child they cannot see behind them. CU supports making backup warning devices standard equipment in all larger vehicles, and we'd like to see these devices in all vehicles eventually. As we said above in relation to power windows, the numbers of deaths may not be spectacular, but they should be much closer to zero. Again, we should use technology to prevent these predictable, yet preventable tragedies.

S. 1072:

Sec. 4153 - Vehicle Backover Avoidance Technology Study

- *Requires NHTSA to study methods to reduce death and injuries resulting from vehicles backing into pedestrians especially children;*
- *Requires the study to analyze and compare backover prevention technologies, and provide estimated cost benefits of reduction in deaths, injuries, and vehicle damage; Study to be submitted to Congress one year from enactment*

Data Collection for Non-Crash, Non-Traffic Automotive Events

NHTSA has the authority to gather data for non-traffic, non-crash events - injuries in vehicles in parking lots, on a highway shoulder or in a driveway, like backover or power window incidents - but has consistently declined to do so. The only source for data about injuries to children in and around cars comes from the children's safety advocacy group, Kids and Cars. Janette Fennell, founder and president of the organization, has collected incident data involving children injured or killed in and around cars for seven years, and has done so at no cost to the government. Nevertheless, NHTSA has

resisted collecting these data and adding them to its renown Fatality Analysis Reporting System (FARS), arguing that doing so would cost too much.

We are chagrined that our federal highway and auto safety agency, rather than working with groups like Kids and Cars to better understand safety hazards, instead question the validity of such group's data. A *Washington Post* article Tuesday, March 16, 2004, quoted a NHTSA official as saying, "But officials said Fennell's figures are probably overstated." Fennell's database consists of actual news accounts of accidents and is open to any who wants to see it. Such remarks by a federal safety regulator is a disservice to the concerned citizen who tries to fill an obviously gaping hole in the federal safety net.

Omitting information about deaths and injuries from the federal database, and keeping fatalities in non-crash, non-traffic events out of FARS data, deprives regulators of information they need to make regulatory and recall decisions. We support the provisions in S. 1072 to direct NHTSA to begin to collect these data.

S. 1072:

Sec. 4154 –Vehicle Backover Data Collection (Deaths and Injuries In Non-Traffic Non-Accident Incidents)

- *Authorizes NHTSA to establish a method to collect and maintain data on the number and types of injuries and deaths involving motor vehicles in non-traffic, non-accident incidents.*

Sec 4173 -Child Safety

- *Requires new database to collect data on injuries and deaths from non-traffic, non-crash events involving motor vehicles, and specifies that the database will be available to the public.*

Side Impact Protection

About 10,000 people die each year in both single- and multiple-vehicle collisions involving side impacts, even though many of these deaths could be prevented by improved side impact safety standards. Side impact crashes have increased in both severity and the number of deaths over the past decade due to the explosive growth in the number of light trucks on the roadways. We are concerned that too many light trucks were designed without much regard for the damage they will inflict smaller or lighter vehicle, in a collision.

The National Highway Traffic Safety Administration has made little progress towards improving side impact occupant protection, despite proven technologies such as side air bags. Improvements for both lower and upper side impact collisions are necessary to provide the protection occupants need in these crashes. Unfortunately, NHTSA has not acted when it has had the opportunity to strengthen both side impact safety regulations, Standards No. 201 (upper interior head impact protection) and 214 (lower interior side

impact protection). The agency adopted a weak lower interior side impact standard, No. 214, in 1995 that only extended the requirements for a dynamic test to light trucks and vans 6,000 pounds or less gross vehicle weight rating. It also adopted a moving barrier test for hitting SUVs, pickup trucks, and vans in their sides that was only equal to the weight and size of a mid-size car, even though NHTSA made it clear in Federal Register notices that it actually favored using a taller, stiffer, heavier barrier perhaps weighing as much as 3,600 to 4,000 pounds.

As for Standard No. 201 governing upper interior head impact protection, the agency recognized in the late 1990s that side impact air bags were being used by the vehicle manufacturing industry to protect occupants from lethal head injuries, but it only adopted an optional test for using this crucially important safety technology. In the case of both standards, manufacturers can often meet the weak compliance requirements with little or no changes to how they already are making passenger vehicles or by using inexpensive foam padding added to both the upper and lower sides of vehicle interiors. Most importantly, no side impact air bags are required by the agency or even fostered by the weak compliance requirements of both standards. However, S.1072 addresses the deficiencies of both standards.

S. 1072:

Upper Interior Side Impact Head Protection (FMVSS No. 201):

- *Requires the evaluation of additional barriers and measurements of head and neck injuries, consideration of the need for new dummies for full range of occupants and a review of Insurance Institute for Highway and Safety criteria.*

15-Passenger Vans

Senator Olympia Snowe (R-ME) championed this issue in the Senate Commerce Committee after a terrible crash in her state, stating that "I quickly learned that this was the latest in a long line of deadly crashes involving the popular vans, which were initially designed to carry cargo rather than passengers and are highly prone to rollovers, especially when fully loaded." Senator Snowe introduced legislation to require NHTSA to include 15-passenger vans in their New Car Assessment Program (NCAP) rollover resistance ratings, and to test vans at various load conditions.

15-passenger vans currently fall into a regulatory black hole. Because they carry over 10 passengers, they are categorized as a bus, but they are far smaller than motor coaches, which are lightly regulated for safety purposes. Fifteen-passenger vans also need not meet small school bus standards, which are far stronger. Furthermore, because they are not passenger cars or multipurpose passenger vehicles, 15-passenger vans are exempt from a number of federal motor vehicle safety standards (FMVSS), including the following:

FMVSS 201: interior impact;
FMVSS 202: head restraints for rear seats;
FMVSS 206: for door locks and retention;
FMVSS 214: for side impact dynamic testing; and
FMVSS 216: for roof crush resistance.

Their lack of crash protection under key standards is particularly hazardous because 15-passenger vans are highly prone to devastating rollover crashes, and often carry school sports teams, van pools, church groups and pre-school and school-age children. In a November 2002 letter, Public Citizen asked NHTSA close this safety gap by applying crash protection standards to these vehicles. To date, the agency has taken no remedial action in response to that letter.

NHTSA has sent out letters over the past decade to National Automobile Dealers Association, state directors of pupil transportation, and independent education groups outlining the Federal requirements for school bus safety and NHTSA's policy that pre-school and school aged children not being transported in 15-passenger vans due to safety concerns. NHTSA also released a Research Note on the rollover propensity of 15-passenger vans finding that, for example, a fully loaded 15-passenger van had 6 times the rollover risk, in a single vehicle accident, than the same van with only 5 passengers and issued a Consumer Advisory warning consumers about the risks of 15-passenger vans, but NHTSA has declined to impose regulations on these vans.

The prevalence of 15-passenger vans, their propensity to roll over when carrying heavy loads, and their use as transportation for children and students demand that we close the loopholes and bring these popular people-movers under all appropriate federal safety regulations.

S. 1072:

Sec. 4157 - 15-Passenger Vans

- *Requires NHTSA to issue a final rule by Sept. 31 [sic], 2005, requiring 15-passenger vans to meet all existing and prospective safety standards for occupant protection and crash avoidance relevant to such vehicles;*
- *Requires NHTSA to issue a final rule by Sept. 31 [sic], 2005, to include 15-passenger vans in the New Car Assessment Program (NCAP) rollover resistance program;*
- *Requires evaluation of technology that would improve driver control of 15-passenger vans.*

Sections throughout the bill:

- *Require that new safety standards for ejection, rollover prevention and rollover crashworthiness are applicable to vehicles weighing up to 10,000 lbs.*

Tire Safety Standards

Mandated to do so under TREAD, NHTSA issued a final rule in June 2003 to improve tire safety, concentrating on tire endurance and speed performance to reduce failure and extend the standard to tires used by light trucks and vans. However, the agency left areas of the proposed standard unfinished, including important safety issues such as reducing failure from tire impacts with road hazards, improving tire resistance to unbeading, and controlling tire failure because of gradual deterioration during tire service life. The agency also has not addressed the issue of wet weather anti-skidding performance, an issue specifically directed by Congress in separate legislation.

CU supports efforts to complete the process of setting effective standards for tires. For example, on modern low profile tires, the plunger and unseating tests are not effective. The current tire strength and bead unseating tests do a poor job of evaluating low profile radial tires-radial tires; these tires too easily pass these tests. In fact, tire strength and bead unseating tests were designed around bias tire technology common in the sixties. Consumers Union supports new testing methods that will set an effective minimum standard for radial tires. We also support a tire aging test. This test is not a sell-by-date requirement; rather it is a laboratory method of rapidly aging the tire using heat or some other means (e.g., "cook" the tire in an oven) and then evaluating belt adhesion using a tensile pull test or wheel test. We understand that Ford Motor Co. has been working on an aging test and reported recently that "aged" tires often perform *better* on high speed wheel tests because the rubber is stiffer, allowing the tire to run cooler.

S. 1072

Sec. 4158 - Additional Safety Performance Criteria for Tires

- *Requires NHTSA to issue a tire safety performance standard that includes criteria for strength and road hazard protection, resistance to bead unseating, and aging;*
- *Requires NHTSA to reconsider the decision not to require use of shearography analysis;*

NPRMs to be issued by June 30, 2005, for strength and hazard protection, and by Dec. 31, 2005, for aging and bead unseating, with final rules due 18 months after each NPRM (Dec. 30, 2006 and June 30, 2007, respectively).

Seat Belt Reminder Technology

According to the U.S. Department of Transportation (DOT), seat belts save 13,000 lives each year, but 7,000 people die because they do not use seat belts. In 2001, 73 percent of restrained passengers involved in fatal crashes survived, compared to 44 percent of unrestrained occupants. More than half of all highway fatalities occur among people who are not wearing seat belts. The deaths and injuries that result from non-use of safety belts cost society an estimated \$26 billion annually in medical care, lost productivity and other injury-related costs.

The importance of seat belts in saving lives is indisputable. We should do everything possible to get people to buckle up. European vehicle manufacturers employ seat belt use reminder systems using chimes and other audible sounds, which become more insistent based on increasing vehicle speed or distance driven. In 2003 the National Academy of Sciences conducted a study of new seat belt reminder technologies for NHTSA, recommending, among other actions, that all new light-duty vehicles be equipped with an enhanced belt reminder system that includes an audible warning and a visual indicator for front seat occupants and that the current 4-8 second limitation on audible warnings be amended to remove the time limit. (CU's Auto Test Division Director, David Champion, was a member of that NAS panel.) See *Buckling Up: Technologies to Increase Seat Belt Use*, Transportation Research Board Special Report No. 278 (prepublication copy available online at <http://trb.org/publications/sr/sr278.pdf>).

CU believes we need to enhance the reminders drivers and their passengers now receive to buckle up.

S. 1072:

Sec. 4159 - Safety Belt Use Reminders

- *Requires NHTSA to issue a rule to encourage driver and passenger seat belt use;*
- *NPRM to be issued within 12 months and final rule within 24 months;*
- *Permits regulations that require or permit seat belt/ignition interlocks and use of seat belt reminder systems with audible buzzer that lasts longer than 8 seconds.*

Administration's Opposition to Effective Seat Belt Legislation

We wish to make one additional observation on improving seat belt usage. CU believes there is a disconnect in this Administration's stance on seat belts. Secretary of Transportation Norman Mineta and NHTSA Administrator Jeffrey Runge, who testified earlier this morning, have each stated that increased seat belt use is an Administration priority and each has acknowledged the importance of primary seat belt laws. In November 2003, Secretary Mineta said in a press release, "I urge states to enact primary safety belt use laws because they have been proved effective in convincing people to buckle up. Saving lives is one of the Bush Administration's highest priorities." NHTSA's administrator, Dr. Jeffrey Runge, as well, has continued to stress the importance of getting motorists to buckle up in order to save lives. "It would be impossible to overstate the lifesaving and dollar saving impact of increases in safety belt use. It remains vitally important that all of our citizens buckle up," he said last year.

Yet this Administration has declined to support a bipartisan effort to motivate states to enact primary seat belt laws. S. 1993, the National Highway Safety Act of 2003, introduced in February of this year by Senator John Warner (R-VA) and Senator Hillary Clinton (D-NY), is supported by over 130 national, state and local groups representing consumer, health, safety, medical and child advocacy organizations, the insurance industry, the auto industry, law enforcement, African-American mayors and state legislators, and drunk driving victims. The bill aims at getting states to enact a primary enforcement seat belt law or raise its seat belt use rate to 90 percent. If a state fails to

accomplish one or the other within three years, it faces the loss of two percent of their federal highway funding, growing to four percent in subsequent years. The administration apparently won't support the bill because it contains penalties for noncomplying states. We cannot understand this decision. It does not appear that the Administration is opposed, as a matter of principle, to sanctioning states. Indeed, the 2002 No Child Left Behind Act, considered a landmark bill for this Administration, includes a number of sanctions for schools whose students don't meet testing standards.

Moreover, the sanctions in S. 1993 mirror those in other highway safety bills. For example, federal law encouraging each of the states to pass a 0.08% blood alcohol level laws has a sanctions provision. That law has been very effective getting the states to take action. We believe the Administration's failure to back S. 1993, on one hand, and its statements about the importance and value of primary seatbelt laws, on the other, is inconsistent and we respectfully suggest that it reconsider its position and throw its weight behind S. 1993, National Highway Safety Act of 2003.

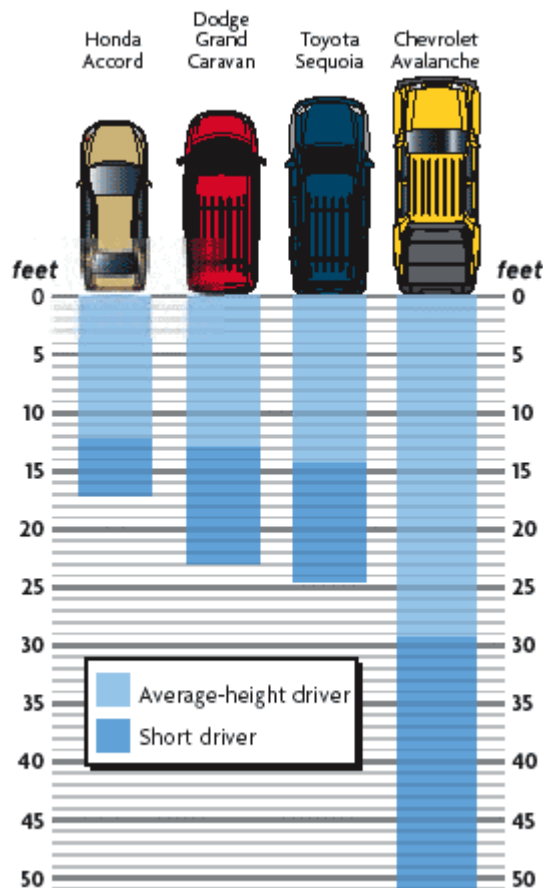
This subcommittee has an important responsibility here today. Each of the provisions we have highlighted will help to save lives, but without Congressional action that ensures they become law, we are concerned that too little progress will be made in reducing the number of deaths and serious injuries that plague our nation's highways each year.

Thank you for this opportunity to share our views.

The problem of blind spots

The area behind your vehicle can be a killing zone.

Every year, children are injured and killed because drivers (in some cases, parents) don't see them while backing up. According to Kids and Cars (www.kidsandcars.org), a nonprofit group that wants to improve child safety around cars, backover incidents killed at least 58 children in 2002. A contributing factor is that larger vehicles (SUVs, pickups, and minivans), which have become increasingly popular, have larger blind spots than passenger cars. A blind spot is the area behind a vehicle that a person can't see from the driver's seat.



To help consumers understand how large some blind spots are, *Consumer Reports* has measured the blind spots of a number of popular models. The results for both an average-height driver (5 feet 8 inches) and a shorter driver (5 feet 1 inch) are listed in the chart below.

To measure the blind spots, a 28-inch traffic cone was positioned behind the vehicle at the point where the driver could just see its top. As the illustration shows, longer and taller vehicles tend to have significantly larger blind spots. (The shading shows the length of each blind spot; lighter for an average-height driver, darker for a shorter driver.)

Bottom line: Your best defense against backover accidents is to get out of your vehicle and check behind it just before you back up. If kids are nearby, make sure you can see them while backing up.

Blind-spot measurements

This chart shows the length of the blind spot of each listed vehicle. The distance noted is how far behind the vehicle a 28-inch traffic cone had to be before the person, sitting in the driver's seat, could see its top by looking through the rear window.

Make/model	Model year	Average-height driver (5 feet 8 inches)	Short driver (5 feet 1 inches)
Family sedans			
Hyundai XG350 L	2003	8' 6"	23' 10"
Kia Optima EX	2004	9' 4"	13' 3"
Volkswagen Passat GLX	2003	9' 5"	23' 2"
Mazda6 s (6 cylinder)	2003	11' 10"	18' 8"
Nissan Maxima 3.5 SE	2004	11' 7"	26' 6"
Mazda6 i (4 cylinder)	2003	11' 9"	22'
Pontiac Grand Prix GT2	2004	12' 10"	19' 8"
Chevrolet Malibu	2004	12' 5"	17' 1"
Honda Accord EX (4 cylinder)	2003	12' 6"	17'
Honda Accord EX (6 cylinder)	2003	13' 5"	23' 1"
Subaru Legacy L	2003	13' 5"	25' 5"
Saturn L300	2003	13' 5"	27' 2"
Chevrolet Impala LS	2004	13' 9"	25' 9"
Ford Taurus SES	2004	20' 6"	23' 4"
Small sedans			
Chevrolet Cavalier LS	2003	8' 11"	16' 11"
Saturn Ion	2003	14' 4"	25' 0"
Dodge Neon SXT	2003	17' 3"	43' 5"
Suzuki Aerio GS	2003	22' 9"	48' 6"
Large sedans			
Buick Park Avenue Ultra	2003	9' 3"	19' 7"
Mercury Grand Marquis LSE	2003	10' 11"	23' 5"
Toyota Avalon XLS	2003	14' 11"	24' 7"
Upscale sedans			
Infiniti G35	2003	10' 15"	19' 10"
Cadillac CTS	2003	11' 1"	25' 0"
Lexus ES330	2004	12' 0"	19' 0"
Volvo S60 2.5T	2004	12' 7"	19' 2"
Saab 9-5 Arc	2004	13' 2"	19' 2"
Lincoln LS Premium	2003	14' 8"	25' 7"
Saab 9-3 Aero	2003	15' 9"	28' 10"
Acura TL	2004	16' 1"	21' 6"
Luxury sedans			
Lexus LS430	2003	8' 10"	15' 11"
Jaguar XJ8 Vanden Plas	2004	10' 10"	19' 4"
Mercedes-Benz S430	2003	10' 7"	22' 3"
Lincoln Town Car standard wheel base	2003	11' 10"	21'
BMW 745Li	2003	14' 5"	24' 7"
Audi A8 L	2004	20' 26"	10"
Wagons & hatchbacks			
Pontiac Vibe	2003	16' 8"	32' 8"
Small SUVs			
Subaru Forester 2.5 X	2003	6' 6"	12' 2"
Pontiac Aztek	2003	8' 7"	14' 2"
Kia Sorento EX	2003	14' 5"	26' 3"

Mitsubishi Outlander XLS	2003	15' 2"	25' 10"
Honda Element EX	2003	18' 1"	35' 0"
Midsized & large SUVs			
Mitsubishi Montero Limited	2003	10' 10"	22' 10"
Volkswagen Touareg	2004	11' 3"	21' 10"
Toyota 4Runner SR5	2003	13'	22'
Acura MDX Touring	2003	14' 1"	23' 6"
Nissan Murano SL	2003	14' 1"	25' 5"
Lexus RX330	2004	14' 2"	27' 7"
Toyota Sequoia Limited	2002	14' 4"	24' 7"
Volvo XC90	2003	14' 5"	24' 10"
Infiniti FX35	2003	15' 2"	22' 2"
Nissan Pathfinder Armada LE	2004	17' 5"	24' 1"
BMW X5 3.0i	2003	18' 3"	33' 6"
Mitsubishi Endeavor XLS	2004	18' 4"	29' 10"
Cadillac SRX V8	2004	18' 6"	26' 10"
Dodge Durango Limited	2004	19' 1"	24' 4"
Chevrolet TrailBlazer EXT	2003	19' 1"	34' 11"
Chrysler Pacifica	2004	21'	38' 6"
Lexus GX470	2004	TBD	TBD
Minivans			
Mazda MPV ES	2004	13' 0"	16' 5"
Ford Freestar SEL	2003	13' 9"	23' 0"
Dodge Grand Caravan EX	2003	13' 9"	23' 0"
Toyota Sienna LE	2004	14' 9"	22' 8"
Nissan Quest 3.5 SL	2004	16' 9"	27' 9"
Honda Odyssey EX	2003	17' 4"	30' 7"
Kia Sedona EX	2003	18' 1"	35' 4"
Fuel-efficient cars			
Honda Civic Hybrid	2003	12' 0"	27' 10"
Full-sized pickups			
Chevrolet Avalanche 1500	2002	29' 5"	51' 1"
Sporty cars			
Hyundai Tiburon GT	2003	9' 11"	23' 5"
Nissan 350Z Touring	2003	11' 8"	20' 5"
Subaru WRX Sti	2004	13' 10"	20' 8"
Mazda RX-8	2003	14'	19' 5"
Mitsubishi Lancer EVO	2003	14'	31'
Chrysler Crossfire	2004	17' 9"	22' 5"
Roadsters			
Porsche Boxster 2.7	2002	1' 6"	19' 9"

For complete Ratings and recommendations of appliances, cars & trucks, electronic gear, and much more, subscribe today and have access to all of ConsumerReports.org.

Which power-window switches are safer?

At least 25 children have died during the past decade from injuries involving power windows in cars, according to Kids and Cars, a nonprofit group that tracks auto-safety issues involving children. Typically, the child has his or her head out the window of a parked car and accidentally leans on the window switch. The glass moves up forcefully, choking the child.

Two types of switches are inherently riskier than others if they're mounted horizontally on the door's armrest:

Rocker switches move the glass up when you press one end of the switch, down when you press the other.

Toggle switches work when pushed forward or pulled back.

A third type, the **lever** switch, is safer because it makes it harder to raise the window accidentally. Lever switches must be pulled up to raise the glass. They generally have not been implicated in fatal injuries, according to Kids and Cars. Switches of any design mounted vertically or on an upswept armrest are harder to activate by accident.

Lever switches and autoreverse sensors are common in Europe. But autoreverse is required in the U.S. only in vehicles with auto/one-touch-up windows and remotely controlled windows. (BMW is [recalling](#) some vehicles because of problems with the autoreverse mechanism.)

Clarence Ditlow, director of the Center for Auto Safety (and a member of Consumers Union's board of directors), says, "If garage doors can have a reversing sensor, power windows should." His organization has petitioned the government for upgraded safety standards.

The Big Three automakers say they abide by the safety standards in place wherever their cars are sold. For example, Kristen Kinley, a spokeswoman for Ford Motor Co., says its power windows meet and in some cases exceed federal standards.

Kids and Cars is working with Consumers Union for legislation requiring a national performance standard for power windows.

WHAT YOU CAN DO

Never leave children alone in a car or the keys in the car when kids are nearby. Pay close attention to the design and location of window switches when shopping for a new car. Here's a basic rundown for the vehicles we've reviewed:

Horizontal rocker switches. Most vehicles from Ford, Lincoln, Mercury, Chevrolet, Buick, Cadillac, GMC, Oldsmobile, and Pontiac, and the Saturn Ion.

Horizontal toggle switches. Some vehicles from Chrysler including the Dodge Neon, Stratus, and Intrepid, and Dodge trucks.

Lever switches, the safer type. Acura, Audi, BMW, Chrysler Pacifica, Honda, Hyundai, Infiniti, most Isuzu models, Jaguar, Kia, Lexus, most Mazda models, Mercedes-Benz, Mitsubishi, Nissan, Saturn L and Vue, current Saab models, Subaru, Toyota, Volkswagen, and Volvo.



RISKY DESIGNS
Horizontal rocker switches (above) and toggle switches (below).



SAFER Lever switches have to be pulled up to raise a car window.

October 2003

Driving blind

Every year, children are injured and killed because drivers don't see them while backing up.

According to Kids and Cars, a nonprofit group that wants to improve child safety around cars, backover incidents last year killed at least 58 children.

A contributing factor is that consumers continue to buy larger vehicles--minivans, pickups, and sport-utility vehicles--with larger blind spots. A blind spot is the area behind a vehicle that the driver can't see.

To help drivers back up, carmakers and aftermarket companies offer two types of devices for vehicles: sensors and rear cameras. The cameras are marketed as safety devices; the sensors, as parking assists. Kids and Cars has called for vehicles to come equipped with such systems. Now, sensors are optional in many larger vehicles; cameras are optional in some higher-priced models.

We tested several aftermarket sensors and cameras that can be installed on any vehicle, comparing them with original-equipment versions.

The bottom line: Your first line of defense against backover accidents is to get out of your car and check behind it just before you back up.

Rear-mounted video cameras also help prevent backover accidents because they let you see much of the area that's usually hidden in the blind spot. But they tend to be expensive, from \$400 to \$799, not including the cost of professional installation, which is recommended.

A plastic fish-eye lens that adheres to a rear window can provide almost as much help as a video camera on certain vehicles and costs only about \$20.

The sensor systems in our tests, which cost \$130 to \$500 not including professional installation costs, worked well for parking but they aren't sensitive enough to be a reliable safety aid.

CR Quick Take

The best way to prevent so-called backover accidents is to walk behind your car and check for obstructions.

- If you want an extra margin of safety, first try the \$20 Rear View Safety Lens, which works on vertical rear windows like those in many SUVs and minivans.
- Camera systems provide a clearer picture and will work on any vehicle, but they are expensive.
- Rear sensor systems can help you park, but they aren't reliable safety devices.



THE TYPES OF BACKUP AIDS With camera systems, left, a monitor shows obstacles in the driver's blind spot; this one mounts under the rear-view mirror. A plastic fish-eye lens, right, also reduces the rear blind spot. A sensor unit, center, sits on the dashboard. It beeps and lights up to help the driver park.

Photos by Bob Mescavage

THE PROBLEM OF REAR BLIND SPOTS

Backover accidents usually occur when a person, often a child, is hidden in a vehicle's rear blind spot. The longer the vehicle and the higher the rear window, the bigger the blind spot and the more difficult it is to see a child or object on the ground behind the vehicle.

To illustrate that point, we measured the blind-spot area of a sedan, a minivan, an SUV, and a pickup truck. We placed a 28-inch-high traffic cone at varying distances behind the vehicle to measure how far back it would have to be before a driver of average stature (5 feet 8 inches) and one of short stature (5 feet 1 inch) could see it.

We found that a Honda Accord sedan has a blind spot of roughly 12 feet for an average-height driver. That is, the driver may not see a small object up to 12 feet behind the bumper. The blind spot for a short driver in the Accord is 17 feet.

The Dodge Grand Caravan minivan has a blind spot of 13 feet for the average-height driver and 23 feet for the short driver. The Toyota Sequoia SUV is slightly worse: 14.5 feet for an average-height driver; 24.5 feet for a short driver. By far the biggest blind spot, however, occurred with a Chevrolet Avalanche pickup: 30 feet for an average-sized driver, 51 feet for a short driver.

YOUR CHOICES

Camera systems. When the vehicle is shifted into reverse, a camera sends a wide-angle view of the area behind the vehicle to a monitor near the driver.

- Best for seeing small children or objects in a vehicle's blind spot. Camera systems also work as parking aids.
- But neither model in our tests emits an audible alert when you approach an object. These systems are expensive.
- Details: To use the HitchCAM, your vehicle must have a tow hitch; the camera is mounted in the trailer-hitch receiver and broadcasts to a video screen attached to the inside of the windshield. The camera for the Magna Donnelly Video Mirror mounts to the rear of your vehicle and sends the image to a small flip-down screen below the rear-view mirror.

Because it looks straight out the back, the HitchCAM shows more area. The Video Mirror, which looks downward, displays less area overall--about 4 feet behind the rear bumper--but enough to help prevent a backover accident. This view works better as a parking aid. The Video Mirror also helped us back up to a trailer. (You must remove the HitchCAM from the trailer hitch when connecting a trailer.) But the Video Mirror was much less effective at night than the HitchCAM.

With both systems, image clarity and screen size didn't match those of factory-installed cameras in the Acura MDX and the Lexus RX330. But they provide a reasonable image.

Both systems worked well even when splashed with muddy water.

Wide-angle lens. The plastic lens sticks to the rear window and allows you to see a wide-angle rear view.

- Best for seeing objects in the blind spot, parking.
- But the lens works only with vertical rear windows, such as those in many SUVs, minivans, and wagons. It may interfere with normal rear visibility. Back-seat passengers or cargo may block the view, and the lens is subject to reflections. You must keep it free from smudges.

The model we tested, the Elite Enterprises Rear View Safety Lens, www.rearlens.com, is 6x8 inches and made of plastic. Because the lens is small, details are hard to see. But the lens significantly reduced the blind spot on most vehicles from 15 or more feet to about 2 feet.

Sensor systems. Using ultrasonic or microwave energy, sensors detect objects within about 6 feet behind the vehicle and alert the driver via a beep and/or a lighted display.

- Best for a parking aid to help drivers avoid dinging fenders and bumpers.

Models in our tests detected large stationary objects. For example, they generally picked up a 3-inch-wide pole when it was 3 to 4 feet away from the vehicle.

- But most could not detect objects low to the ground, such as a bicycle or basketball, or a small moving object.

False signals can also be a problem. They were often caused by dips in the road and surface changes. Systems with sensors near the rounded edge of the bumper can pick up the sides of a garage and emit a false warning. In time, these “false positives” may lull drivers into ignoring the warnings.

All require professional installation.

The Rostra model may require cutting and bending the license plate and could interfere with the tailgate latch. It might also prevent the license-plate lights from illuminating the plate. The Guardian Alert requires a 2-inch receiver tow hitch and 5-pin trailer wiring socket, but is the only model that didn't require drilling into the vehicle. All aftermarket systems performed about the same as factory-installed sensors.

[what you can do](#)

HOW TO AVOID A BACKOVER ACCIDENT

- If children play in your driveway, park your car at the end of the driveway close to the street.
- Show your children how hard it is to see out the back of your car. Let them see you disappear into the blind spot.
- Just before backing up your vehicle, walk behind it to make sure your path is clear. Be sure children are not so close as to be able to dart behind you.
- Look in your mirrors before you put the car in reverse to monitor the rear area.
- Look around while backing up, using all mirrors and looking over both shoulders.
- Back up slowly.
- If you have a backup aid, pay attention to its audible or visual warnings but don't rely solely on the aid

For complete Ratings and recommendations of appliances, cars & trucks, electronic gear, and much more, [subscribe](#) today and have access to all of ConsumerReports.org.