

Technology Is Available To Make U.S. Trucks Safer, Review Shows

If truck manufacturers would take advantage of available advances in technology, the braking capacity of heavy trucks could be improved by one-third, bringing truck stopping distances closer to those of cars, a researcher for the Insurance Institute for Highway Safety has reported.

Large trucks currently operate on U.S. highways using "1950s technology" because American manufacturers have fallen behind their counterparts in Europe, who have steadily improved braking performance to meet higher European standards, said Ian Jones, the author of a state-of-the-art review of heavy truck braking requirements presented to the American Association of Automotive Medicine at a meeting in Denver.

Since the controversial antilock brake rule, Federal Motor Vehicle Safety Standard (FMVSS) 121, was

Budget for DOT's Buckle-Up Campaign Jumps to \$160 Million

The Department of Transportation is planning a four-year, \$160 million campaign to obtain state passage of seat belt use laws, an effort that — if successful — could help auto manufacturers avoid a mandate to equip cars with automatic seat belts or air bags.

In a hearing before the Senate Surface Transportation Subcommittee, National Highway Traffic Safety Administration head Diane Steed said that the \$160 million, to be spent at an annual rate of \$40 million, would be provided half by private sector sources and half by the Department of Transportation.

(Cont'd on page 5)

struck down by a federal court, large trucks have essentially no stopping distance requirement that they must meet except for a Bureau of Motor Carrier Safety rule requiring trucks to be able to stop from 20 mph in 35 to 40 feet on a dry road. (See *Status Report*, Vol. 18, No. 4, March 8, 1983.)

(Cont'd on page 3)

Consortium Challenges DOT's Latest Ruling On Automatic Restraints

Saying the Reagan Administration has found yet another way to rescind a requirement for automatic seat belts or air bags in new cars, a consortium of insurers, health groups, and others have filed suit challenging the Transportation Department's latest rule.

The group said it agreed with DOT Secretary Elizabeth Dole's decision to reinstate the automatic restraint provisions of Federal Motor Vehicle Safety Standard (FMVSS) 208, but said a section that permits as few as 16 state legislatures to revoke the rule by adopting mandatory seat belt use laws is illegal. (See *Status Report*, Vol. 19, No. 13, July 28, 1984.)

"...For the first time in the history of the [National Traffic and Motor Vehicle] Safety Act, states will be given the power to veto a federal standard," the appellants argued in a brief submitted to the U.S. Court of Appeals for the District of Columbia. "By the terms of the Department of Transportation's mandatory [belt] use provision, as few as 16 state legislatures could make a national decision about the fate of passive restraints, terminating the federal requirement and leaving more than 75 million people in the remaining 34 states without the protection of either passive restraints or mandatory seat belt use laws."

The federal rule now states that the automatic restraint provisions will be revoked if two-thirds of the nation's population is covered by belt use laws.

(Cont'd on page 2)

'Withdrawing Protection for One-Third of the Nation'

The State of New Mexico has filed an objection to the Department of Transportation's latest automatic restraint rule.

In a brief filed in support of a lawsuit challenging the legality of DOT's decision to link rescission of the automatic restraint provisions of Federal Motor Vehicle Safety Standard (FMVSS) 208 to state passage of mandatory belt use laws, New Mexico said the rule is likely to leave the state without relief from the burdens imposed by traffic deaths and injuries.

"New Mexico led the nation in traffic deaths during 1983, under three different measures: deaths per mile driven, deaths per vehicle registered, and deaths per capita," said the state's attorney general, Paul Bardacke. Over one-third of the 531 people killed in such crashes were between 15 and 24, he added.

Bardacke said the disproportionate deaths and injuries among young people result in a loss of future resources for the state. The state must also provide emergency medical services in rural areas "at great expense" in order to deal with traffic crashes, he said. In addition, the state must provide medical and rehabilitative services, along with associated welfare payments rising from permanent disabilities.

Noting that twice the state legislature has rejected mandatory belt use laws and that forces seeking passage of such laws are unlikely to target the state because of its small population, Bardacke said the state must look to a uniform, national standard for automatic restraint systems.

"New Mexico is concerned the current administration would consider withdrawing protection for up to one-third of our population," Bardacke said in the brief.

Consortium Challenges DOT's Latest Ruling On Automatic Restraints (Cont'd from page 1)

The lawsuit was filed by State Farm Mutual Automobile Insurance Co., the National Association of Independent Insurers, the American Insurance Association, Nationwide Mutual Insurance Co., the National Association of Insurance Commissioners, and the State of New York. Groups filing as *amici curiae* in support of the lawsuit include the State of New Mexico (see above), the Automotive Occupant Protection Association, the American College of Preventive Medicine, the American Academy of Pediatrics, the American College of Emergency Physicians, the American Public Health Association, the Association of Teachers of Preventive Medicine, and the Epilepsy Foundation of America.

A separate lawsuit filed by the Automobile Importers of America in California's Ninth Circuit Court of Appeals has been dropped.

There are two issues to be litigated, Arnold and Porter, the lead attorneys in the case, said in their main brief. First, the court will need to decide whether it is unlawful under the National Traffic and Motor Vehicle Safety Act for DOT to adopt as a part of a motor vehicle safety standard a provision permitting state legislatures to cause the rescission of a safety rule. The second issue, Arnold and Porter argued, is whether the DOT decision was arbitrary and capricious under the Administrative Procedures Act.

The brief noted that federal safety standards were

intended by Congress to preempt state rules that are not identical to federal requirements.

Under the terms of DOT's latest rule, state mandatory belt use laws must meet four criteria before they can count toward revocation of the automatic restraint rule. They must provide for:

- At least a \$25 fine for failure to wear seat belts;
- A program to encourage compliance;
- A legal provision that would reduce damages that could be collected by persons who are involved in traffic crashes and are not wearing seat belts at the time of the crash;
- Only medically approved waivers to the laws.

"These criteria do not require that state mandatory use laws actually succeed in raising seat belt use," said the brief. "Thus the rule does not require the states to enforce the laws they enact, nor does it penalize them for failing to do so." In addition, the brief said, the latest rule does not require even an assessment of the impact of the belt use laws on lowering traffic fatalities and injuries before activating the revocation provision. The rule does not require the states to keep the belt use laws on their books beyond September of 1989, it added.

DOT should have considered "the obvious common-sense alternative of permitting state mandatory use laws to supplement, rather than replace, a passive restraint standard," the State Farm brief said, adding that the assumption that mandatory use laws will be an effective substitute for automatic protection "lacks an adequate basis in the record."

Separately, the National Association of Insurance Commissioners (NAIC) argued that the latest decision will result in a "patchwork" pattern of state belt use laws. "The secretary's new rule...has put the states and their insurance regulators in an untenable situation," said the NAIC. "All states are faced with the Hobson's choice of either favoring mandatory use law adoption, with the possible consequences of thereby contributing to the rescission of the federal passive restraint rule and a consequent diminution of highway safety, or opposing adoption of a mandatory use law, with the consequence of foregoing the immediate benefit it might bring, particularly for drivers of cars already on the road."

Technology Is Available To Make U.S. Trucks Safer, Review Shows (Cont'd from page 1)

The disparity between the braking abilities of U.S. cars and trucks is enormous. Automobiles are required to be able to stop from 60 mph in 216 feet on a dry road and most considerably surpass that requirement. However, a loaded tractor trailer can take between 250-300 feet to stop from 60 mph; an unloaded truck can take 400 feet or more; and a tractor without an attached trailer can take 500 feet. In a crash involving a large truck and a car, the car occupant is 30 times more likely than the truck occupant to be killed.

Although heavy trucks have a lower crash rate per mile than do automobiles, they are overrepresented in fatal crashes. In 1978, large trucks were involved in about 6 percent of all crashes, but contributed to 12 percent of the national fatality total, said Jones. The fatal accident rate per 100 million miles was 5.3 for trucks, compared to 2.8 for cars.

In contrast to the United States, the European Economic Community (EEC) and the United Nations Economic Commission for Europe (ECE) have gradually adopted regulations, including an antilock provi-

Brake Performance—Problem Areas

- Lack of front brakes
- Disparity in braking performance empty vs. loaded
- Lack of maintenance and adjustment
- Poor timing
- Torque imbalance—from poor adjustment and mixed brake systems

Possible Improvements to Current Systems

To improve braking distances to no more than 250 feet from 60 mph:

- require adequate front brake performance
- require automatic slack adjusters

To eliminate braking disparity between empty and loaded trucks:

- require load sensing valves

To further improve braking distances and maintain steering control:

- require antilock systems
- require faster timing

sion that together with the incorporation of a new ECE regulation will require stopping distances that give levels of deceleration equivalent to the original FMVSS 121 standard, Jones noted.

Reasons for the relatively poor braking performance of U.S. trucks include:

Frequent absence of brakes on front axles;

Poor brake adjustment; for example, nearly half of the heavy trucks examined by the California Highway Patrol were found to have one or more maladjusted brakes;

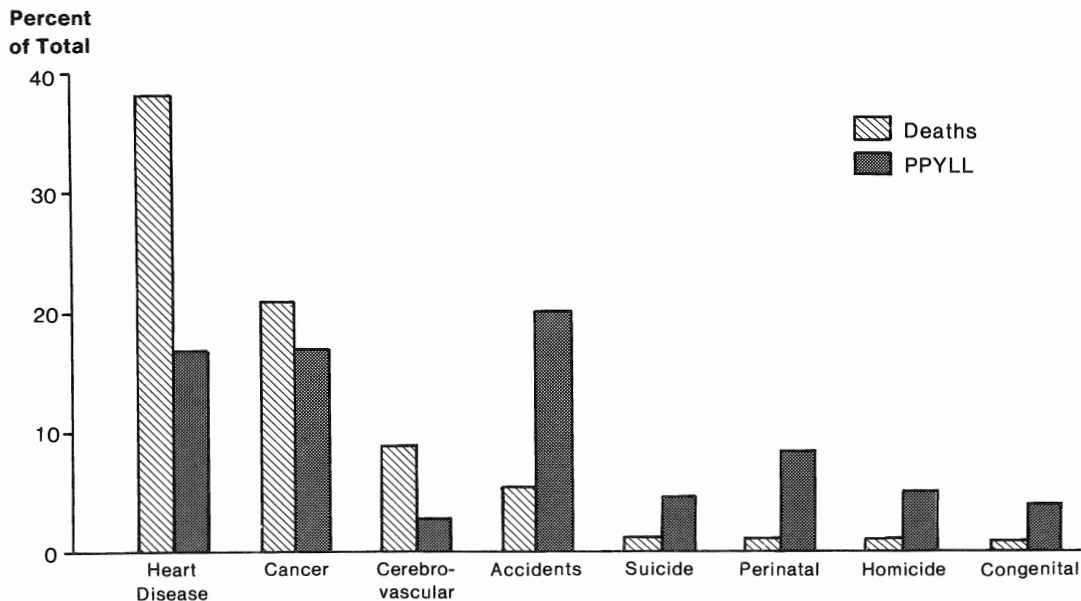
Slow brake activation timing; typically, more than a full second elapses between the time the driver hits the brake pedal and the full activation of the truck's brakes — an interval that is much longer than is necessary.

The technology to achieve "vastly improved stopping distances" for large trucks is available right now, the review says. Stopping distances could be lowered to 250 feet or less by requiring brakes on the front axles of large trucks and automatic adjusters to ensure that brakes stay in adjustment. Other improvements could achieve the European standard of a 0.6 second brake activation time. And load-sensing devices could be required to help lower the braking disparity between loaded and empty trucks. In addition, reliable antilock brake systems are now available to help maintain steering control and eliminate jackknifing.

Available data "suggest that improving braking performance could reduce truck crashes by about 12 percent," said Jones. A NHTSA study showed that about 10 to 20 percent of all large truck crashes could be avoided or reduced in severity by improved brakes.

The report, "Truck Air Brakes — Current Standards and Performance," by Ian S. Jones, may be obtained by writing Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Leading Causes of Death and Potentially Productive Years of Life Lost (PPYLL), 1979



— Journal of Public Health Policy

Years of Life Lost: Premature Death Examined

Accidents are the leading cause of loss of productive years of life, according to a study published in the *Journal of Public Health Policy*.

Setting aside the standard death rate tables that emphasize deaths among the elderly, the researchers focused on the loss of productive years caused by premature death and came up with new guidelines for health care programs.

The researchers found that accidents account for one-fifth of the total of productive years of life lost. Of those, motor vehicle crashes caused 61 percent of the lost years, they noted. The lead author, Janet D. Perloff, is director of the Department of Health Services Research of the American Academy of Pediatrics.

Cancer, which ranks second as a cause of death and loss of productive years of life lost, was followed by heart diseases, perinatal diseases, homicide, suicide, congenital abnormalities, stroke, chronic liver disease, and pneumonia.

"...[A]ccidents are far more common in males than females," the researchers noted, adding that the age-standardized rate of years of life lost for males from

inadvertent injuries is three times that of females.

In a book published recently by the Insurance Institute for Highway Safety, the authors noted that of the 160,000 deaths caused by injuries each year, the male death rate far exceeds that of females. (See *Status Report*, Vol. 19, No. 7, April 27, 1984.)

"Accidents, malignant neoplasms, and heart diseases are prominent causes both of death and of potentially productive years of life lost," the researchers said. "Each of these causes includes many conditions that could be prevented entirely or reduced in incidence or severity. The preventable aspects of most accidents are evident, and a growing body of evidence strongly supports the preventable nature of most heart disease and many cancers."

Among the available preventive strategies, they said, are public education, regulatory legislation, and environmental design — including safer auto design.

The article, "Premature Death in the United States: Years of Life Lost and Health Priorities," by Janet D. Perloff, Susan A. LeBailly, Phillip R. Kletke, Peter P. Budetti, and John P. Connelly, can be found in the June 1984 issue of the *Journal of Public Health Policy*.

Patient's Intoxication Can Falsely Magnify The Degree of Brain Injury

Intoxication in persons with brain injuries can lead to false impressions of the severity of the injuries, researchers at the University of Virginia and the Insurance Institute for Highway Safety have found.

Alcohol intoxication is common among brain-injured patients, the researchers noted. They studied the level of consciousness of 257 brain-injured patients admitted to the University of Virginia Hospital, both on arrival in the emergency room and six to ten hours later.

Because levels of consciousness are depressed by alcohol, the researchers said, some intoxicated patients initially may be misclassified and assigned to a more severely injured category than their injury warrants. When the alcohol wears off, the resulting improvement can falsely suggest improvement in brain injuries when, in fact, such patients may actually be doing no better than others who have not been drinking.

The researchers found that the patients with the highest blood alcohol concentrations on admission showed the largest apparent improvements in level of consciousness in the measurements taken several hours after admission.

Most of this effect occurred in the 70 patients admitted with blood alcohol concentrations of 0.20 percent or higher.

The report appeared in the September issue of *Neurosurgery*, and was supported by the Insurance Institute for Highway Safety.

For copies of the article, "Effect of Alcohol Intoxication on the Diagnosis of Brain Injury," by Janine Jagger, Daniel Fife, Katherine Vernberg, and John A. Jane, write Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037

New Position

After 15 years with the Insurance Institute for Highway Safety, Albert Benjamin Kelley, a senior vice president, has resigned to join the firm of Lesnik & Company. Kelley, who will serve as president of the Lesnik communications management firm, will establish and manage a Washington, D.C., office for the Chicago-based company.

Air Bags

A booklet entitled "Air Bags: A Chronological History of Delay" may be obtained free by writing Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Budget for DOT's Buckle-Up Campaign Jumps to \$160 Million *(Cont'd from page 1)*

In comparison, the total spending allowed for each presidential candidate in the general election campaign is \$40.4 million, according to the Federal Election Commission.

Steed's statement considerably expands what had been described as a \$40 million joint government and private sector effort to promote seat belt laws. Originally, Transportation Secretary Elizabeth Dole announced the publicity campaign at a July press conference when she released the Reagan Administration's decision to require automatic seat belts or air bags in all new cars beginning with the 1990 model year. The rule would be rescinded, she said, if two-thirds of the nation's population were covered by belt use laws by 1989. (See *Status Report*, Vol. 19, No. 13, July 28, 1984.)

The federal funds would be split three ways, Steed said. A portion would be spent on a nationwide public relations campaign to promote seat belts. Part would go to other organizations that would, in turn, "get the belt use message out." The rest would be disbursed to "aid states in their efforts to enact belt use laws," Steed told Sen. Jack Danforth, Missouri Republican, chairman of the subcommittee.

"I'm not sure about the idea of trying to lobby state legislatures with federal funds," said Danforth, adding that he finds advertising for belt use "mostly useless." Danforth pressed Steed on whether any of the federal funds would be spent on air bag education.

"My understanding is that our \$20 million will be used as a general buckle-up campaign," replied Steed.

"I think that's the wrong approach," responded Danforth.

Steed's statement was later contradicted by Dole who, in a speech to the Detroit Economic Club, said the program will include education on passive restraints, although the department's "primary focus will be on getting people to use the effective safety belts already in their vehicles."

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(Cont'd from page 5)

Separately, Charles Hurley, executive director for federal affairs of the National Safety Council, said that the American people deserve "straight answers" on automatic restraints. Hurley said the safety council will lobby for state passage of belt use laws that include language making it clear that such laws are not aimed at overturning the federal rule.

Turning to other issues, Danforth asked Steed, "Are we stuck with the 2.5 mph bumper or can we get back to a real bumper?"

Steed said it would be a year before the agency would have enough information from State Farm Mutual Insurance Company claims to indicate whether the lowered standard is cost-effective. She added that the rule was revoked because many people do not have low speed crashes. However, when cars do get involved in fender benders, Steed admitted, the difference in claims damage between a 5 mph bumper and a 2.5 mph bumper is substantial. She said the agency is now developing a crash test methodology to be used for a consumer rating system.

Danforth, voice rising, said: "I think you're going back to square one.... It's like launching the next space shuttle by starting out with paper airplanes." Noting that auto companies produce replacement parts and make a profit on them, he said the current rule amounts to a "very questionable subsidy" for the auto industry.

Clarence Ditlow, head of the Center for Auto Safety, testified that since NHTSA lowered the bumper standard in 1982, his organization has been "inundated with thousands of consumer requests for bumper information." At that time, he reminded Danforth, the agency promised to provide consumers information on which cars kept 5 mph bumpers and which did not. Steed's statement that a rating test procedure must be developed "is patently ridiculous," said Ditlow, "since NHTSA already has a good test procedure and rating system — the one it used for five years to determine compliance with the revoked 5 mph bumper standard."

Ditlow also charged that NHTSA's defect and recall program is now in "shambles" with many possible defects now being hidden through a secret process through which the agency screens complaints about possible safety problems.

Noting a recent 6 percent rise in the traffic fatality rate, Ditlow urged the agency to refocus on improved vehicle safety, particularly for small cars.

Bumpers Report

A "1984 Report on Bumpers," which reviews the federal bumper standards and includes a run-down on bumper protection levels on 1984 model cars, may be obtained free by writing Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Study Dispels Opinion That Belted Motorists Take More Risks

There appears to be no basis in fact for a hypothetical argument that assumes motorists riding in safer cars or wearing seat belts will take more risks to compensate for their increased protection, new research shows.

In England, where drivers have been required to wear seat belts since January 31, 1983, surveys of risk taking by drivers both before and after the law went into effect show little change in the behavior of drivers, a study supported by the Insurance Institute for Highway Safety reveals.

Some people have challenged the efficacy of belt use laws and safer vehicle design requirements. They contend that "the effectiveness of mandatory approaches are partially or wholly offset by changes in behavior by drivers who take greater risks, thus maintaining the same level of overall risk as before," the researchers said.

The most recent study and an earlier Canadian study, also supported by the Institute, "strongly indicate that risk compensation, if it exists at all, is not an important factor in the success or failure of regulation intended to protect car occupants from injury."

In England, where drivers have been required to wear seat belts during the past year, precise surveys of risk taking by drivers both before and after the law went into effect show little change in driver behavior, even though between 94 and 98 percent were wearing seat belts at the time of the second survey, the researchers reported. They looked at speeds on sharp curves, speeds on two- and four-lane straightaways, and following distances.

In the Canadian study, driver speeds on sharp curves on two-lane rural roads, speeds on high-speed two- and four-lane straight roads, responses to yellow signals, and turning and following distances were

examined. (See *Status Report*, Vol. 19, No. 2, Jan. 27, 1984.)

“The studies in Canada and England are the most carefully controlled assessments of risk compensation to date,” the researchers said. “Neither study found evidence that driver behavior becomes riskier when drivers are required to use seat belts, even though at least half of the Canadian and British drivers were receiving more protection as car occupants than they had chosen voluntarily before belt use laws.”

The paper was presented to the International Symposium on Human Behavior and Traffic Safety sponsored by General Motors in Detroit. For copies of “Mandatory Belt Use and Driver Risk Taking: An Empirical Evaluation of the Risk-Compensation Hypothesis,” by Brian O’Neill, Adrian K. Lund, Paul Zador, and Steve Ashton, write Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Right-Turn-On-Red Intersections: A Turn for the Worse

A review of the literature on the effect of laws permitting motorists to turn right on red, shows that right turn impacts at those intersections have increased dramatically, a researcher for the Insurance Institute for Highway Safety has reported.

In a paper to appear in *Accident Analysis and Prevention*, Paul Zador reports that at about 80 percent of signalized intersections where drivers may turn right on red, all right-turning crashes increased by 23 percent; impacts with pedestrians rose by 60 percent; and bicyclist crashes with cars rose a hundredfold.

Between 1974 and 1980, all the states moved to adopt statutes permitting right-on-red unless such turns are specifically prohibited by a sign. Only New York City does not permit the practice. The laws were adopted following enactment of the Energy Policy and Savings Act of 1975.

In 1980, Zador found that right-turn impacts had risen by about 20 percent due to the adoption of the laws. (See *Status Report*, Vol. 15, No. 18, Dec. 9, 1980.)

For copies of the paper, “Right-Turn-on-Red laws and Motor Vehicle Crashes: A Review of the Literature,” by Paul L. Zador, write Publications, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Center Seeks Stricter Requirements for New Hybrid III Test Dummy

The National Highway Traffic Safety Administration (NHTSA) has agreed to consider rulemaking to tighten head injury criteria set under its automatic restraint rule.

The petition was filed by the Center for Auto Safety and Ralph Nader, who asked for stiffer requirements if the agency agrees to allow the use of a new dummy developed by General Motors in compliance tests set under Federal Motor Vehicle Safety Standard (FMVSS) 209.

NHTSA had initially denied the petition just one day after it was filed, but following protest from the Center, the agency withdrew its denial and agreed to grant the petition.

Separately, GM has asked NHTSA to allow the car maker to use the new test dummy called the Hybrid III in FMVSS 208 tests.

“The available literature on the Hybrid III dummy indicated that the Hybrid III will yield responses to impact testing that are significantly different from the responses currently shown by the Part 572 dummy [now used for compliance testing],” the petition said.

“In particular, the head injury criteria levels recorded by the new dummy are much lower for a given impact speed, decidedly so in the higher speed ranges,” the petition said, adding “impacts that would exceed the current maximum HIC level of 1,000 if measured by the Part 572 dummy would be likely to fall below that level and to be deemed ‘acceptable’ if measured by [the] Hybrid III.”

Such a consequence, they said, would degrade the safety rule and lower its life saving benefits.

The Center and Nader noted that the new dummy is potentially superior to the old one in some respects because it is capable of measuring possible injury to more parts of the body.

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