Institute Challenges NHTSA’s Estimate Of Air Bag Effectiveness

The Insurance Institute for Highway Safety has challenged a number of views held by the government and others.

The Institute included in the National Highway Traffic Safety Administration (NHTSA) docket on Federal Motor Vehicle Safety Standard (FMVSS) 208 four papers covering air bag effectiveness, underestimates of crash injuries, risk compensation theory, and crash test repeatability.

The papers contained the following points:

- NHTSA recently revised its estimate of air bag effectiveness in its preliminary regulatory impact analysis of safety standard 208 from 40 percent to a range of between 20 and 44 percent, assuming current lap belt usage. (See Status Report, Vol. 18, No. 18, Dec. 18, 1983.) The lower end of that range suggested by the agency cannot be supported, the Institute noted, and a conservative lower boundary estimate should be more like 35 percent.

- NHTSA’s estimate of nonfatal injuries contained in its impact analysis relies on police-reported data. Such data underestimate hospital-treated motor vehicle crash injuries by about 30 percent, studies have shown. Recalculation of the figures would increase the benefits estimated for all types of restraint systems.

- Contrary to speculation by the Pacific Legal Foundation and others, drivers forced to be safer than they choose to be voluntarily — for example, those required to use seat belts or those protected by air bags — would not be likely to take more driving risks. A new Institute study shows that in Newfoundland, where driver belt use was raised from 16 to 77 percent by a belt use law, driver risk-taking behavior did not change.

- NHTSA’s 208 crash test requirements produce repeatable results when procedures are strictly observed. In the agency’s recent 35 mph repeatability crash test series, head injury criterion values did not vary greatly in four General Motors tests in which the car maker modified the test procedures. (Ford has said that 208 test requirements should be changed because of repeatability “problems” with the rule.)

(Cont’d on page 2)

Automatic Protection Benefits Would Exceed Costs, Economist Says

In dollars and cents, automatic air bags or seat belts could save the nation between $2.7 billion and $4.1 billion each year, a prominent economist has told the Department of Transportation (DOT).

Every year of delay in issuing a rule increases fatalities by about 5,000 and moderate-to-critical injuries caused by automobile crashes by 70,000, Yale economist William Nordhaus, a former member of the Council of Economic Advisors, said in a study submitted to DOT.

Furthermore, the economic costs of injuries and fatalities to front seat occupants in car crashes amount to about $20 billion each year. Only one-half those costs are paid for by those who are injured. “Fully half are borne by government or insurers through third-party payments,” said Nordhaus, therefore “…society has a very high stake in reducing the economic costs of fatalities and injuries.”

“A rule requiring automatic crash protection is…as important as any environmental, health, or safety rule on the books,” said Nordhaus.

(Cont’d on page 2)
Automatic Protection Benefits Would Exceed Costs, Economist Says (Cont’d from page 1)

"According to my estimates of its impact on fatalities and injuries, a rescission would be equivalent to repealing a law that cuts in half the homicide rate," said Nordhaus. Few government rules have such large benefits spelled out, Nordhaus said.

Using a methodology called “break even analysis,” Nordhaus said his study showed that if automatic seat belts were the sole method used to comply with an automatic restraint rule, and if belt use rose 8 percentage points over current use rates, benefits would equal costs. "These break-even levels are far below any reported reliable data on incremental belt usage [achieved with automatic belts]," Nordhaus said.

"Similarly, if air bags were the sole method of compliance," said Nordhaus, "the benefits will equal costs if their effectiveness is only 19 percent." Furthermore, said Nordhaus, air bags would have to cost $825 before costs would exceed benefits.

The National Highway Traffic Safety Administration (NHTSA) has estimated air bags (both driver and right front passenger) would cost about $320. (See Status Report, Vol. 18, No. 18, Dec. 19, 1983.)

Nordhaus noted a University of Michigan study by economists Barbara Richardson and Sherry Borener in which the unemployment impact of implementation of a rule requiring compliance with 208 with air bags was assessed. The study, funded by the Motor Vehicle Manufacturers Association, concluded that an air-bags only rule would raise unemployment by about 60,000 to 200,000 jobs in the transportation industry over the short term. Richardson said the study did not attempt to quantify the benefits of such a rule.

The Nordhaus study found, however, that unemployment in the automobile industry itself would be more than offset by new employment generated by implementation of FMVSS 208, something the Richardson study did not attempt to assess. Nordhaus strongly criticized that omission, adding that his broader study found "no significant effect on national output, unemployment, or inflation." Furthermore, said Nordhaus, "nonregulatory considerations [such as] the effect on auto sales, the profits of the automobile companies, employment, or freedom of choice arguments are not material in weighing the economic merits in this rulemaking."

Additionally, said Nordhaus, many consumers look at the total cost of operating a car, not just first-time purchase costs. The addition of air bags or automatic belts should result in insurance savings over the life of a car, as medical costs are lowered.

Finally, said Nordhaus, both his study and that of Richardson ignore "much broader societal issues of disability and joblessness due to accidents." The studies "ignore the favorable economic impact from lower injuries and fatalities."

Lowering the burden of medical insurance costs, legal costs, and including the retained productivity of workers who survive car crashes with their health intact, must be considered when calculating such a rule’s impact in a cost-benefit analysis of an automatic restraint rule, Nordhaus said.

U.S. Court of Appeals Upholds Mississippi’s Ban on Liquor Ads

The Fifth U.S. Circuit Court of Appeals has upheld a Mississippi ban on intrastate advertising of some alcoholic beverages.

Mississippi statutes and regulations that have the effect of prohibiting billboard, radio, newspaper and television advertising of hard liquor and wine, do not violate commercial free speech, the court ruled, because the state has a “substantial interest” in protecting the health and welfare of its citizens.

It reasonably can be assumed that the advertising of alcoholic beverages will increase their consumption, the court said. "The state’s concern is not that the public is unaware of the dangers of alcohol, but that advertising will unduly promote alcohol consumption, despite its known dangers," the majority held.

Arguments that the advertising ban discriminates unduly against local businesses, since some out-of-state media advertising can enter the state, should not be accorded too much weight, the court said. "The state has reasonably chosen to restrict its regulation to those over which it has control.”

The case, Dunagin v. City of Oxford, Miss., was brought by the editor of a university newspaper, who challenged a state statute making it unlawful to publish a newspaper containing advertisements for hard liquor or wine.
Archie R. Boe, president of Sears, Roebuck and Co., cites a number of errors he found in a Barron’s editorial in a letter to Editor Robert M. Bleiberg.

I find Barron’s extremely knowledgeable in matters of finance, economics, and corporate affairs. Opinions and editorials relating to these subjects are well written, thought-provoking, and informative. I look forward to your expressions of opinion in these areas of editorial expertise.

Accordingly, I was dismayed to read your editorial of December 19 on automobile air bags — a subject on which you evidently possess no expertise and are substantially misinformed.

During the years I was president and later chairman of Allstate Insurance, we at Allstate operated the largest air bag equipped privately owned automobile fleet, including the first cars factory equipped with air bags. This fleet was comprised of over 600 automobiles including five makes (Mercurys, Chevrolets, Oldsmobiles, Buicks, and Volvos) spanning a decade of operation (1972-1982) and covering over 30 million miles. Allstate also engaged in the first live crash testing of air bag cars.

The performance of the Allstate fleet clearly demonstrated the reliability and effectiveness of air bags in cars driven by Allstate employees in every geographic area of the country, and under all climatic and traffic conditions. No inadvertent inflations or misfires — no failures to inflate in a crash situation. I myself have driven and ridden in air bag cars since the 1972 model year — and Mrs. Boe and I currently own and drive two air-bag-equipped automobiles.

During all this period, we employed one of the most knowledgeable of automotive engineers in the field of crash protection and consulted with automobile manufacturers, suppliers, and persons well qualified in vehicle safety. I feel I have acquired some expertise on the subject — certainly adequate to comment on your editorial.

You refer to sodium azide, a chemical used to inflate the air bag, as a “gas,” inferring it is highly volatile and dangerous. In fact, sodium azide is a solid propellant in tablet form, very stable, and sealed in a hardened steel container within the air bag module — totally protected. When ignited to inflate the air bag, it turns to harmless nitrogen. It is certainly much more stable and less susceptible to mischief than either battery acid or gasoline.

You mention that the AAA Club of Michigan opposes air bags. It is true that the AAA of Michigan, located in the home state of the principal automobile manufacturers, has supported their safety views and has opposed air bags and automatic crash protection. You neglect to point out, however, that the National AAA supports automatic crash protection as do most local AAA clubs other than Michigan.

Several times in the editorial you quote with approval the criticisms of the Pacific Legal Foundation concerning air bag effectiveness and performance. The Pacific Legal Foundation for many years has opposed all attempts to provide automatic crash protection and in fact took the issue to court. In fairness, you should have told your readers that this organization lost two cases in the United States Court of Appeals. In the first of those cases, the United States Supreme Court refused certiorari. In the second case, a unanimous Supreme Court recently ruled against the Pacific Legal Foundation. It lost these court cases because its allegations, which you repeat as fact, turn out in an evidentiary environment to be unsupported by the facts.

Every court and every Secretary of Transportation in both Democratic and Republican administrations (Volpe to Dole) has found the air bag effective. Justice White said for a unanimous Supreme Court, “the inflatable restraint has proved sufficiently effective.” That is the law of the case from the highest court in the land.

Your editorial also states that the government chose weak grounds to defend itself in the case. The government was represented by the Solicitor General of the United States, joined by the Motor Vehicle Manufacturers Association, represented by one of the most prestigious law firms in the country, and by the general counsels of all four principal American auto manufacturers, and the Pacific Legal Foundation. This imposing array of legal talent lost because the air bag is effective, reliable, and cost beneficial and because the record and facts clearly demonstrated this to be the case.

Barron’s comments on the air bag activities of a “foreign car maker” without identifying that company. That company is, of course, Mercedes-Benz of Germany, which has been selling air bag equipped cars in Europe for three years and is now making them available in the United States. Mercedes expresses no doubts about air bag effectiveness, saying:

“In total over 25,000,000 Deutchmarks have been invested (by Mercedes) in this additional safety innovation. It has now been thoroughly tested and proven — over 50 million kilometers with no malfunctions.”

On whose engineering and air bag expertise should we rely — Mercedes or Barron’s?

Barron’s also contends that insurance companies support the air bag from self-interest. That is the only supportable allegation in the editorial. Insurance companies (which almost unanimously support air bags) want to reduce losses and make automobile insurance more affordable. The only way air bags can achieve these purposes is by saving lives and preventing injuries — and incidentally — reducing insurance costs.

You conclude the editorial by relying upon the most discredited concept of all — that improving vehicle safety makes people drive more recklessly. Even those automobile manufacturers who are opposed to air bags reject that allegation as unsupported and untrue. If it were true, persons who use seat belts would have many more crashes than those who refuse to use belts — allegedly because the users felt safer. Just the opposite is true. Belt users have many fewer crashes than those who reject belts.

(Cont’d on page 4)
Institute Challenges NHTSA’s Estimate Of Air Bag Effectiveness

(Cont’d from page 1)

In its analysis of the effectiveness of air bags, NHTSA noted that the actual field experience of about 12,000 air bag-equipped cars in the 1970s seems to indicate a lower effectiveness in preventing fatalities than had been used in earlier estimates used by the agency in its rule-making proceedings. Because the sample is so small, the 90 percent confidence limits of air bag effectiveness based on that experience, 18 percent, ranges from -39 percent to +56 percent. It is statistically meaningless.

The Institute reminded NHTSA that the earliest scientifically competent study using field data to assess the value of wearing seat belts was based on 28,000 crashes and included results from about 10,000 lap-shoulder belted occupants. “Disagreement continued in the scientific literature about the precise levels of seat belt effectiveness until the mid-1970s — many years after the belts became standard equipment in all cars,” the Institute pointed out.

Now, as then, the agency must base its estimates of the fatality reducing potential of air bags on laboratory crash test data. “In most direct comparisons of the restraint systems, air bags have offered better protection,” the Institute said.

In nonfrontal crashes, the chief protection afforded by lap-shoulder belts is provided by the lap portion of the belt, the Institute noted. Like the air bag, the shoulder portion of the belt restrains occupants in frontal crashes. Thus, people protected by air bags who are also wearing lap belts would be afforded more protection in frontal crashes than lap-shoulder belted occupants, because of air bags’ superior ability to absorb greater crash forces. This leads to a minimum level of effectiveness for an air bag/lap belt combination of 55 percent — at least the same as that of lap-shoulder belts, and probably more.

People who do not wear their lap belts will be afforded at least as much protection in frontal crashes as lap-shoulder belted occupants. In other crashes, where there is significant forward deceleration during the crash sequence, the air bag alone would provide some protection, the Institute said.

The minimum level of effectiveness for the air bag can be assessed by taking into account the current level of belt usage, along with data showing that half of all serious crashes involve frontal impacts, leading to a lower-boundary estimate of 34 percent instead of the 20 percent calculated by NHTSA on the basis of inadequate field data, the Institute noted.

Injury Estimates Too Low

Recent research sponsored by the Institute has shown that only about 70 percent of the people treated in emergency rooms as the result of motor vehicle crashes are actually reported by police departments. (See Status Report, Vol. 18, No. 11, July 27, 1983.) In its estimates on the extent of injuries caused by crashes, NHTSA relied on the National Accident Sampling System (NASS), which relies on police-reported data only.

Such underreporting is not unique to the United States, the Institute noted. Similar epidemiological studies in Sweden showed there were police reports for only 42 percent of all people injured in crashes, and in England, there were police reports for only 82 percent of those treated in emergency rooms for motor vehicle related injuries.

Risk Theory Debunked

In recent hearings on whether the 208 rule ought to be reinstated, the Pacific Legal Foundation opposed both a requirement for automatic restraint systems and any effort to adopt seat belt usage laws, saying that according to a theory called “risk compensation” some people would be encouraged to drive less safely.

“This behavior is not likely to occur,” said the Institute. “This hypothesis has been repeatedly proposed even though there is no scientifically sound evidence to support it.”

In a Newfoundland study conducted by Institute researchers to directly test that theory, driver behavior both before and after implementation of a mandatory belt use law showed that driver risk-taking behavior did not change. Newfoundland drivers were compared to control groups in Nova Scotia, where there is no belt use law, and in only one situation did Newfoundland drivers differ from the control group — after the belt law was enforced, drivers in Newfoundland drove more slowly on four-lane highways.

Quoted Without Comment
(Cont’d from page 3)

The air bag is effective, reliable, and cost beneficial. Installed in all cars it would save annually about 9,000 lives and prevent 200,000 or more serious injuries.

I look forward to future editorials by Barron's upon the subjects of financial affairs, corporate activities and economic matters — areas in which Barron's possesses extraordinary expertise and performs exceptionally — areas in which editorial opinions have a sound and substantial basis in fact and a reasonable conclusion.
The researchers examined driver behavior at sharp curves on two-lane rural roads, traffic lights, unsignalized T-intersections, on medium and high speed two-lane roads, and on high speed four-lane roads. Actual behavior contradicted the "risk compensation" thesis that has been touted by a number of economists and psychologists since the mid-1970's.

"The claim that driver risk taking increases following the adoption of a seat belt law received no support in this study," said the researchers. "Not only is it unlikely that mandatory belt use is offset by riskier driving, but it seems even less likely that risk-compensation has occurred, as claimed by [economist Sam] Peltzman, in response to the protective features that have been required on U.S. cars since the late 1960s. In contrast to drivers' awareness of the protection afforded by mandatory seat belt use, U.S. drivers were, and probably still are, largely unaware of many of these features. The claim that such inconspicuous vehicle modifications have resulted in risk-compensation has little credibility in light of the ... results."

The Pacific Legal Foundation also claimed in its testimony that some people in air bag equipped cars might be more inclined to drive after drinking and cited nine fatal air bag crashes as having demonstrated "a disproportionately high incidence of alcohol involvement." First, the sample is too small to provide a reliable estimate of such behavior, the Institute noted, but even if it were, a comparison of alcohol involvement "in equally severe collisions of cars without air bags might well be the same or greater."

**Compliance Tests Repeatable**

Recently, NHTSA sponsored crash tests of 20 essentially identical 1982 Chevrolet Citation. The cars were crashed at 35 mph into barriers to determine whether the tests would produce repeatable results. The tests, which measured dummy response and vehicle crush, were conducted at four facilities: General Motors, Calspan, Transportation Research Center, and Dynamic Science, Inc. (DSI).

The Institute analyzed the crash test results and found "There are significant differences in both vehicle and dummy response when results for all testing laboratories are included. However, when GM test results are excluded, there are no significant differences between laboratories in dummy response. The significant difference in dynamic crush is attributable to the lower values measured by DSI."

The reason for the variation in dummy test results was GM’s failure to follow NHTSA test procedures, the Institute found. Thus, statistically valid and repeatable estimates of vehicle performance can be obtained, the Institute found, so long as NHTSA's procedures are strictly observed.

Two of the papers are in the form of comments to the 208 docket. They are: "A Note on Air Bag Effectiveness," by Brian O'Neill, and "Comments to Docket No. 83-03, No. 1, Crash Test Repeatability Program," by Ian Jones.


**Teamsters Urge NHTSA To Require Wider Axle On New Tractor Trailers**

The International Brotherhood of Teamsters has filed a petition with the federal government seeking a regulation requiring the axle/tire track on 102-inch wide trailers to also be 102 inches wide.

"Recent studies made for the Department of Transportation clearly show stability can be improved up to 30 percent by using the 102-inch wide track," said Durham, in a letter to National Highway Traffic Safety Administration (NHTSA) head Diane Steed.

Durham said the Teamsters learned that a major trailer manufacturer intends to stay with the track width used for 96-inch trailers because of the re-tooling costs of moving to the longer axle that would be more appropriate for the wider trailers.

In addition to tooling costs, Durham said railroads have raised objections to the wider axle widths because of problems associated with loading on flatcars for "piggyback" hauling. Piggyback equipment is fitted with guide rails set up for the old 96-inch wide undercarriage widths. "Unfortunately," said Durham, "the trailers used in 'piggyback' operations are mingled with the other trailers and are used on the highways."

In a meeting of the Motor Carrier Advisory Committee, Durham told the committee that nearly a thousand Teamster drivers died in fatal crashes in 1982. At that meeting, the advisory committee agreed to recommend the wider axle width for 102-inch trailer units if studies show the more narrow width poses a safety problem.
GSA Chief Says Agency Still Wants New Fleet Equipped With Air Bags

Departing General Services Administration’s (GSA) head Gerald Carmen expects the agency to continue efforts to buy air-bag-equipped cars after he leaves.

In remarks before the Public Citizens forum chaired by Ralph Nader, Carmen was joined by Raymond Peck, former head of the National Highway Traffic Safety Administration (NHTSA), under whose aegis the agency agreed to fund the GSA purchase of 5,000 air bag equipped cars for the government’s interagency motor pool. (See Status Report, Vol. 18, No. 10, July 7, 1983.) Peck told the audience that the administration — including the Office of Management and Budget — had offered “no resistance” to plans for the demonstration fleet.

Carmen said he was disappointed, though, with the automotive industry’s lack of interest in providing safety improvements.

So far, only Ford has bid on the air bag contract and lower-level GSA officials have confirmed that the parties are still some distance apart on the question of cost. Under the law, GSA may not pay more than $6,000 for the base price of its automotive fleet purchases, although there is some flexibility in pricing of additional equipment.

Carmen said his agency was merely exercising its powers as a major consumer in a free market environment when negotiating for additional safety-related and other equipment from car makers. “Through our market power, we are able to set procurement standards that take the place of regulations,” Carmen said. The agency has also stipulated that its 1984 automobiles be equipped with 5 mph bumpers.

Carmen said he believes that in the marketplace, “we ought to have [the] option to purchase such equipment.” Efforts to obtain cars equipped with anti-lacerative windshields met with failure, Carmen said, and he was disappointed with the lack of interest in providing air bags and other equipment.

Instead of getting manufacturers to provide high-mounted brake lights for its 1983 fleet as part of the entire car package, GSA had to buy the stop lamps as supplemental equipment and, in 1984, the agency expects to buy 17,000 stop lamp kits for after-market installation on all new passenger vehicles it buys.

“If an industry is so uncompetitive that they won’t offer the option[s], then something is wrong with the industry,” Carmen said, thus providing an impetus for government intervention.

“It is hard to get the auto industry to move in the direction [of providing the options] ... that they ought to” (Cont’d on next page)

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Brain Injuries: ‘A New Epidemic’

A television news documentary on brain injury, prepared by Washington D.C. Metromedia reporter Mary Norton, has stirred a surprising response, she says.

The four-part series focused on “a new epidemic,” the survival of a population of brain-injured people who, up to just recently, would not have survived their injuries. Most of them received their injuries in car crashes. For those who have survived severe head injuries, rehabilitation is a life-long process. Many must relearn everything they ever knew.

“It’s a tip of the iceberg story,” Norton told Status Report. “It’s far worse than the numbers show. It really is awful. These people are baffled.” Following the airing of the series, many head-injured people called her looking for help, Norton said. She said she hopes to follow up the series with a look at what happens to people who have received what are termed “minor” head injuries. For them, the consequences can be quite serious.

Recently, the Insurance Institute for Highway Safety issued a new study showing that some 180,000 people are brain injured annually as the result of car crashes. (See Status Report, Vol. 19, No. 1, Jan. 10, 1984.) During recent hearings before the Department of Transportation, families, organizations, and victims themselves urged the agency to require air bags in cars, which could help alleviate the problem. (See Status Report, Vol. 18, No. 18, Dec. 18, 1983.)

“The one thing that really impressed me is this business of air bags,” said Norton. “It really catches your eye. It’s something that’s feasible. It kind of makes you wonder why they’re not available as an option. As a consumer, I’d like to have that option.”
## Expanded Edition Of Automobile Design Liability Now Available

An updated reference work, *Automobile Design Liability*, has been published recently.

The two-volume edition revises a 1970 version and provides a handbook format for quick access to background information on automobile design, warranty, and technical information. The book, coauthored by Richard M. Goodman and the staff of the Center for Auto Safety, includes:

- A comprehensive listing of recalls by manufacturer and component.
- A complete listing of defect investigations.
- Information on federal safety standards

## Alcohol Death Rates

Men are twice as likely as women to die of acute alcoholism and acute alcohol poisoning, the Centers for Disease Control have reported.

In the December 23 issue of *Morbidity and Mortality Weekly Report*, the Centers said that between 1968 and 1978, about 23,000 people died of acute alcoholism-ethylysm and alcohol poisoning. The proportion of deaths from both causes was found to be greatest for rural males, but that regardless of area of residence, the death rate for males was twice that of females.

The median age at death from alcoholism for both sexes was 50 years of age, the Centers said.

and an extensive listing of state regulations and lemon laws.

- Three chapters dealing with references, including a list of specialists cited by geographic area and expertise.

The second edition will be updated by annual cumulative pocket-part supplements and additional editions, as needed.

The set can be purchased for $129 from either The Lawyers Cooperative Publishing Co., Microlex Bldg., Rochester, New York 14694, or west of the Missouri River, from Bancroft-Whitney Co., 301 Brannan St., San Francisco, Calif. 94107

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### GSA Chief Says Agency Still Wants New Fleet Equipped With Air Bags (Cont'd from page 6)

have," Carmen complained. "That raises a real concern in a free market person ... if our industries [are not interested in competing for business from] the likes of GSA, if they are not competitive and not well-run, then it bears an onus for the future."
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