the highway loss reduction

STATUS REPORT

INSURANCE INSTITUTE for Highway Safety

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Injuries, Horsepower, Seasonal Changes, '76 Models

HLDI Releases Loss Reports

The Highway Loss Data Institute (HLDI) has released a series of reports dealing with: injury claim frequencies of various types of cars; collision losses and horsepower; annual increases and seasonal variations in insurance losses, and the initial loss experience for 1976 model cars.

INJURIES (HLDI I 75-1)

A strong association between occupant injuries and *smallness* of vehicle size has been confirmed in a HLDI study of the frequencies of insurance payments for injuries.

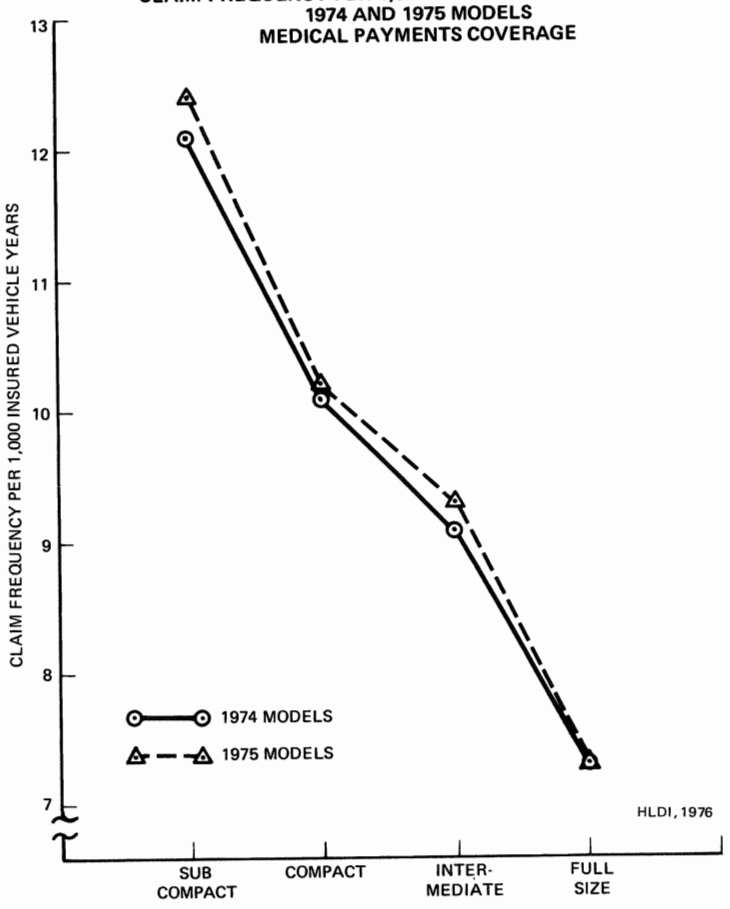
Among the four major market classes – sub compact, compact, intermediate and full size – there was a "strong relationship" between the frequency of injury claims and the smallness of the insured vehicles for both 1974 and 1975 model years.

The smallest vehicles – sub compacts – had the highest claim frequencies. These were more than 50 percent higher than the lowest claim frequencies, which were for full size vehicles, the report said. (See figure 1.)

"The *in*creased risk of occupant injury as vehicle size *de*creases has been repeatedly documented from other data sources,such as police accident reports," the HLDI study said. "The results presented . . . provide additional evidence from yet another data source of the generally increased risk of occupant injury in crashes as vehicle size decreases."

Among the three minor market classes – luxury, specialty and expensive specialty – results for the luxury class were comparable

FIGURE 1
COMPARISONS BETWEEN MAJOR MARKET CLASSES
CLAIM FREQUENCY PER 1,000 INSURED VEHICLE YEARS
1974 AND 1975 MODELS
MEDICAL PAYMENTS COVERAGE



to the full size results. Both specialty and expensive specialty market class results, however, show higher claim frequencies.

Within three of the four major market classes – compact, intermediate and full size – the study presented results separately for two door and four door vehicles. Since most sub compacts are two door vehicles, similar results were not presented for that class.

"In every instance, the two door vehicles had higher claim frequencies than the four door vehicles in the same market class," the report said. In cases where there was sufficient exposure to compute results for station wagons within a market class, the claim frequencies were similar to those for four door models from the same market class.

The report analyzed claims under medical payments coverages and personal injury protection ("no-fault") coverages. These coverages provide medical expenses reimbursement to injured occupants of the insured car. The so-called bodily injury liability type coverages were not analyzed since they reimburse occupants of third party cars, for which adequate vehicle data are not generally available.

Medical payments coverages data have limitations, including the low limit in many policies on maximum payable benefit and the fact that some claims are made under other coverages, such as health insurance.

Experience under personal injury protection coverages in the "no-fault" states of Florida and New Jersey was analyzed. Unlike medical payments coverages, data from this type of coverage "tend to include most vehicles involved in injury producing crashes, whether or not the vehicle is considered at fault." Thus, "the mix of crash configurations resulting in claims is likely to be different for the two coverages." The relationship between vehicle size and injury, however, was found to be similar under both types of coverage.

HORSEPOWER (HLDI A-6)

In four market classes – compact, intermediate, specialty and sports – car buyers are offered substantial differences in engine sizes within a particular vehicle series. A HLDI study has found that as horsepower increased or weight to horsepower ratio decreased, both the frequency and size of claims for vehicles increased compared with the overall experience of the series.

To obtain adequate exposure data for vehicles with specific engines, HLDI studied the collision experience of 1973 models over their first three calendar years of coverage.

Figure 2, opposite, shows the relationship between the weight to horsepower ratio and the relative loss experience for 1973 specialty cars. The more powerful the engine in relation to the vehicle's weight, the smaller the weight to horsepower ratio. For example, the most powerful Corvettes would be in Group 1 and the least powerful Chevelles in Group 12. Figure 3 (page 4) is an example taken from the HLDI study showing the collision coverage experience of two door Chevrolet Novas with different size engines.

SEASONAL VARIATIONS (HLDI A-7)

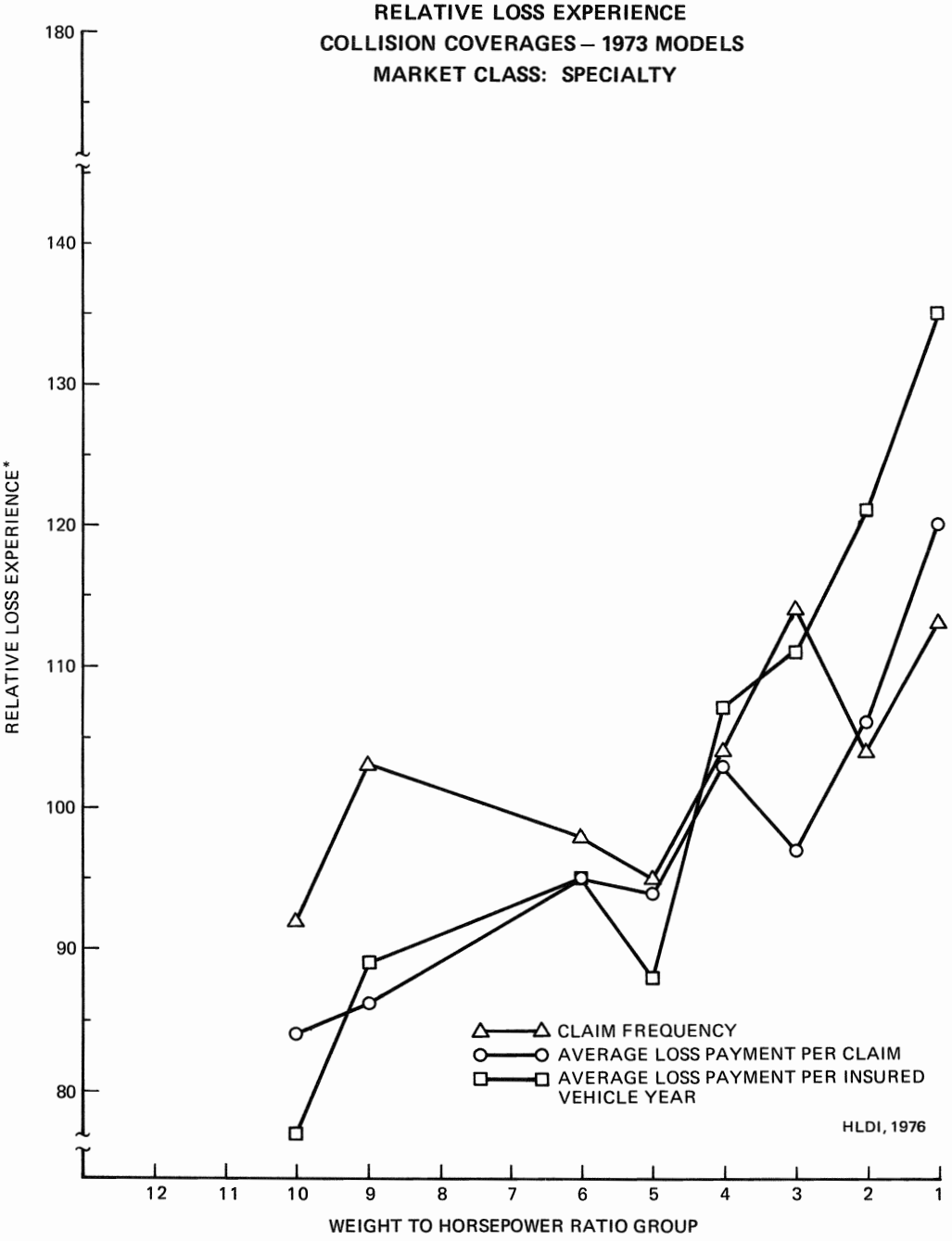
External factors and events – such as very rapid increases in the cost of repairing automobile crash damage, the gasoline shortage during late 1973 and early 1974, and lower speed limits – have complicated year-to-year comparisons of HLDI collision coverage results for recent model years.

Therefore, HLDI separately analyzed monthly collision coverage loss results of 1972 through 1975 autos during calendar years 1973, 1974 and 1975 in order to determine trends and annually recurring seasonal variations in claim frequencies.

The monthly seasonal variations in average loss payments were less pronounced and did not show major differences among regions. Below average results were obtained for the first four months of each year, about average results for the next three months and above average results for the remaining five months.

(Cont'd on page 4)

FIGURE 2
RELATIONSHIP BETWEEN WEIGHT TO HORSEPOWER RATIO GROUPS AND RELATIVE LOSS EXPERIENCE
COLLISION COVERAGES – 1973 MODELS
MARKET CLASS: SPECIALTY



*These results are exposure weighted averages of the percentage deviations for each vehicle series's overall result.

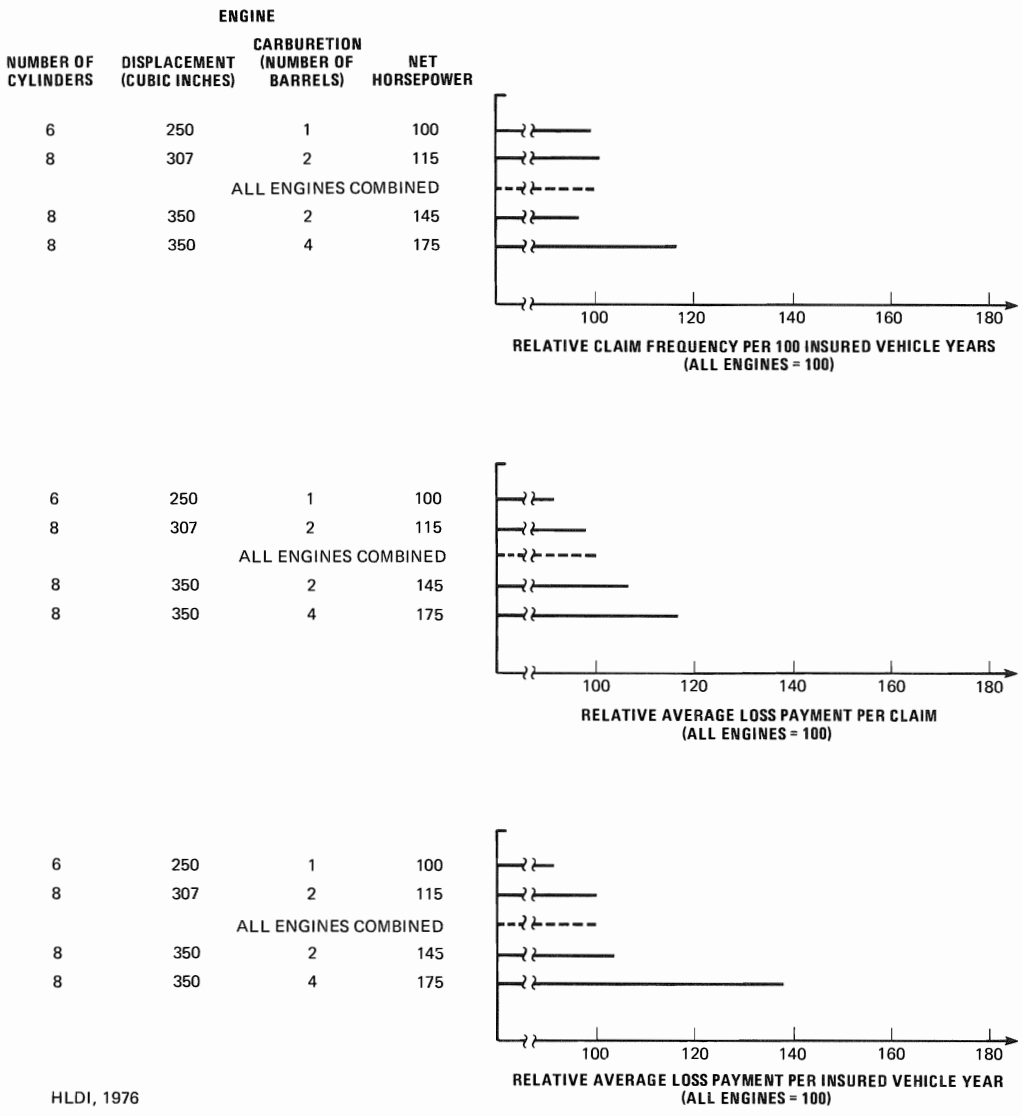
The overall trends in claim frequencies showed a decline throughout most of the three year period. The trends in average loss payments, however, increased throughout most of the period, with only a slight decline during calendar 1973. (See figure 4.)

The average loss payment trends for 1972 and 1973 models had the same patterns, but the 1973 model values were consistently higher. As with the claim frequency trends, the full size models had the lowest values and the sub compacts had the highest values among the same major market classes.

Results presented for 1974 and 1975 models, based on shorter periods of exposure, indicate that both their claim frequencies and average loss payments were much higher than the corresponding results for the earlier models, with the 1975 model results having by far the worst loss experience of all of the model years studied.

FIGURE 3
COMPARISONS BETWEEN ENGINES WITHIN SERIES – COLLISION COVERAGES
1973 MODELS

MARKET CLASS: COMPACT
MAKE: CHEVROLET
SERIES: NOVA TWO DOOR MODELS



HLDI, 1976

The claim frequency differed for vehicles garaged in northern states compared with southern states. Vehicles in the North had above average claim frequencies during the winter months and below average for the remainder of each year. Vehicles garaged in the South had below average claim frequencies for the first four months of each year and about average or slightly above average results for the rest of the year. The monthly seasonal variations in average loss payments were less pronounced and did not show major differences among regions.

1976 MODELS (HLDI R76-1)

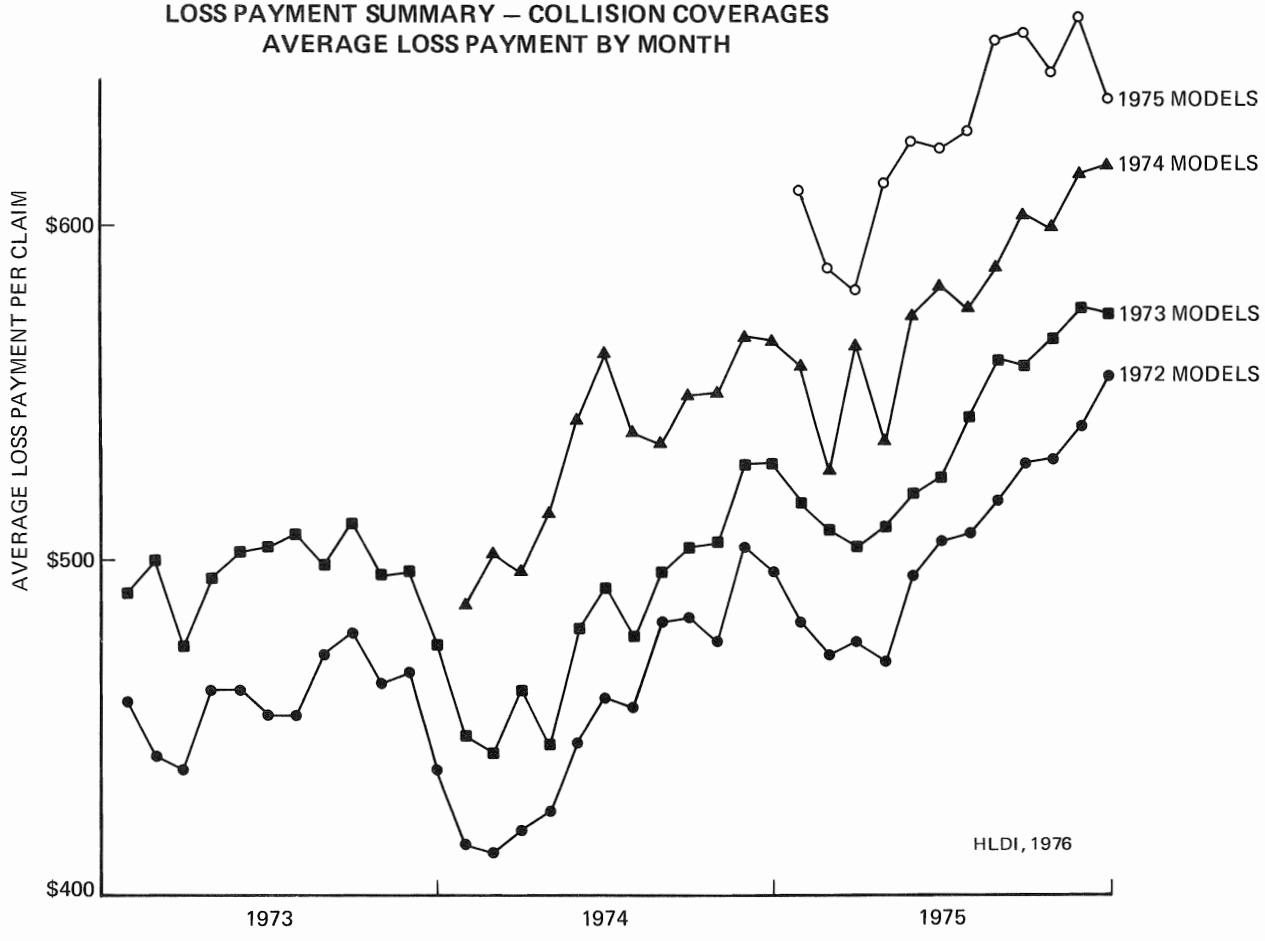
The average size of collision claims for 1976 models shows a 10 percent increase in average loss payments per claim, for all series combined, over corresponding initial 1975 model year results.

The 1976 model year result was $659, compared with $596 in 1975. Average loss payment per insured vehicle year showed an 8 percent increase for 1976 models over the corresponding 1975 result. Claim frequency, however, was slightly lower than the corresponding 1975 model year result. In 1976, the claim frequency was 10.5; in 1975 it was 10.7.

Claim frequencies, as in the past, varied substantially between market classes. For the four major market classes the results were: full size (9.1), compact (9.5), sub compact (10.1), intermediate (10.2). Specialty, expensive and luxury classes had the highest results of all classes for claim frequencies, average loss payments per claim and average loss payment per vehicle year.

(Cont'd on page 6)

FIGURE 4
LOSS PAYMENT SUMMARY – COLLISION COVERAGES
AVERAGE LOSS PAYMENT BY MONTH



HLDI DATA

All HLDI results are standardized to minimize differences that might be attributed to driver age and insurance deductible amounts. It should be kept in mind that, in general, the greater the exposure of a vehicle series the more confidence can be placed in the results presented for it.

Single copies of the following reports can be obtained by writing to the Highway Loss Data Institute, Watergate 600, Washington, D.C. 20037:

- *Automobile Insurance Losses, Injury Coverages; Claim Frequency for 1974 and 1975 Models* (HLDI I 75-1);

- *Automobile Insurance Losses, Collision Coverages; An Investigation of Relationships Between Losses and Engine Specifications Using 1973 Models* (HLDI A-6);

- *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974, and 1975 Models* (HLDI A-7);

- *Automobile Insurance Losses, Collision Coverages; Initial Results for 1976 Models* (HLDI R76-1).

Action On Rulemaking

Passive Restraint Law To Be Introduced

A member of the House Commerce Committee plans to introduce a bill this month to require that all new automobiles be equipped with passive restraints within three years. This measure would take the decision-making process away from the Department of Transportation, which has been formally considering passive restraint rulemaking for eight years.

On August 3, Secretary of Transportation William Coleman, Jr. will hold a one-day public hearing on restraints. Coleman has promised a decision on DOT's plans for occupant restraint rulemaking "on or before Jan. 1, 1977." (See *Status Report*, Vol. 11, No. 10, June 28, 1976.)

DOT has prepared an economic analysis of the various options being considered by Coleman. The department is currently collecting additional information on the cost of passive restraints.

Rep. James Scheuer (D-N.Y.) told *Status Report*, "It is now transparently clear that despite the proven cost-effectiveness of safety belts, there is no chance for passage of state laws mandating safety belt use. Secretary Coleman virtually admits that this is the case. Passive restraints are the only alternative for significantly reducing traffic injuries and fatalities."

"If DOT does decide to promulgate a passive restraint rule, then my bill will serve as a groundbreaker," Scheuer said. If DOT does not promulgate such a rule, "then it serves as a forum for discussion in this area. Further delay is inexcusable and tragic," the congressman said.

SNOW HEARING

Passive restraint rulemaking was also the subject of several questions at the June 29 confirmation hearing of John Snow, President Ford's choice as the new head of the National Highway Traffic Safety Administration. Snow was confirmed by the Senate on July 2.

Sen. Vance Hartke (D-Ind.) questioned Snow about his attitude toward passive restraints. Snow refused to give his opinion, however, citing the upcoming public meeting and the need to avoid any predisposition until he reviews the record.

At the hearing, Ralph Nader and Clarence Ditlow III, director of the Center for Auto Safety, cited the proven effectiveness of air bags. Nader charged that continued delay in passive restraint rulemaking is the result of auto maker pressure on the "highest levels of the executive branch."

Snow promised that the issue of passive restraints would be his "number one priority." Hartke said that he hoped so, adding that the question was, "Will the restraint system be used on you or on the cars?"

ECONOMIC IMPACT ANALYSIS

DOT recently issued a summary inflation impact analysis of the occupant crash protection requirements it will be considering at the August public meeting. Such analyses are mandated by presidential order. (See *Status Report*, Vol. 10, No. 2, Jan. 21, 1975.)

DOT's analysis of a mandatory passive restraint rule for all cars concludes that while its economic impact "would be great," its "benefits would far outweigh the costs." DOT's assessment of a rule requiring manufacturers to offer passive restraints as options on at least one model within each market class is that although its economic impact "would be substantially less than the impact of an amendment requiring passive restraints in all cars," its benefits "would be more than proportionally lower."

DOT said that while the economic costs of a mandatory belt use law "would be minimal," its "outstanding disadvantage is the extreme uncertainty of its successful implementation." Similarly, postponing any decision until a large-scale federally-funded fleet test of passive restraint cars is completed would represent "a substantial . . . but certainly not excessive" cost. But such a move "could delay (for a period of at least three to five years) implementation of available countermeausures with great life-saving and other beneficial potential."

COST DATA

In its inflation impact analysis, DOT announced it was requesting domestic auto makers to provide up-to-date cost and weight information on passive restraints to "resolve the discrepancies between various passive restraint cost estimates."

Following that DOT request, Hartke wrote to Coleman urging him also to obtain needed cost data from suppliers of passive restraint equipment.

"As a matter of historical fact," Hartke said, "these suppliers have been reticent to offer this important data for public consideration . . . . Some have suggested that this failure to come forward with the data has been due to a fear of reprisal by motor vehicle manufacturers."

"If the suppliers will not submit this data voluntarily, would the Department resort to compulsory process?" Hartke asked Coleman.

The DOT letter to AMC, Chrysler, Ford and General Motors, asks each auto maker to provide, within 30 days, information on the cost and weight of "current" passive restraint systems providing driver-only and all front position occupant crash protection.

The auto makers were also directed to provide, within 60 days, estimates of the cost and weight of driver-only and all front position future production passive systems. DOT defined a "future production

system" as one "under development having the lowest weight and cost, and expected to be ready for production no later than the 1980 model year."

At least one auto maker, Ford, has requested and received DOT's permission to not respond to the question concerning the cost and weight of current production passive restraints. Ford said that since it is "lacking an actual 'current system'," the "only information Ford could provide would be cost and weight generated for past air cushion responses updated to present levels."

NHTSA Given Fuel Economy Authority

In addition to its motor vehicle and highway safety duties, the National Highway Traffic Safety Adminstration will now be responsible for establishing vehicle fuel economy standards.

In December 1975, Congress gave the Secretary of Transportation authority to set fuel economy standards for passenger cars when it amended the Motor Vehicle Information and Cost Savings Act of 1972. Secretary of Transportation William Coleman, Jr. formally delegated his authority to set those standards to NHTSA on June 22.

Congress directed that passenger cars are to average 18 miles per gallon for 1978 models, 19 mpg for 1979 models, and 20 mpg for 1980 models. NHTSA will now set standards for 1981-84 models to ensure that by the 1985 models cars average 27.5 mpg. NHTSA is to work with the Environmental Protection Agency in carrying out its new duties.

Task Force Seeks Heavier Trucks

Despite evidence that involvement in fatal crashes increases as a truck's weight increases, a federal interagency task force has recommended substantially increasing the weight of trucks.

The recommendations are contained in an interagency study of goals for commercial vehicles after 1980, undertaken at the request of the President's Energy Resources Council. Secretary of Transportation William Coleman, Jr. served as chairman of the task force. (See *Status Report*, Vol. 11, No. 9, June 7, 1976.)

The task force recommended that the current federal law limiting the weight and size of trucks using the Interstate highway system be changed by 1985 to permit trucks weighing 120,000 pounds instead of the current 80,000 pound limit, with truck widths increasing from 96 to 102 inches. The report also suggested that vehicle lengths, which are currently regulated by state law, be increased to permit use of 45 foot trailers. Currently many states do not limit the length of trailers, but set an overall length of 55 feet for tractor-trailer combinations.

The task force admitted that because crashes involving heavier vehicles produce "more fatalities, we may find little advantage to larger trucks in this area." The higher fatality rates, however, "should be overcome by lesser accident involvement, more stringent safety standards and lower vehicle exposure, but a net decrease in fatalities may not be apparent," it warned.

Earlier this year, the National Highway Traffic Safety Administration reported that the fatality rate for non-truck occupants in car-truck crashes increased as the weight of the involved truck increased. The NHTSA findings were based on a study of car-truck crashes reported to the Bureau of Motor Carrier Safety during 1973 and 1974. NHTSA emphasized that "there is no evidence to suggest" that the "fatality rate 'levels off' at a loaded weight of 70,000 - 80,000 pounds."

Work done by the Insurance Institute for Highway Safety and others has consistently found that tractor-trailers have significantly higher fatal crash involvement rates, particularly in multiple vehicle fatal crashes, than most other motor vehicles. (See *Status Report*, Vol. 10, No. 12, July 9, 1975.) According to the National Transportation Safety Board, "Approximately 40 occupants of passenger cars are killed for every occupant of a truck who loses his life in Interstate truck collisions with passenger cars." (See *Status Report*, Vol. 9, No. 23, Dec. 26, 1974.)

NTSB Reports On Trucks, RVs, Licensing, Bridges

The National Transportation Safety Board has recommended examination and upgrading of a variety of federal motor vehicle and highway standards following a series of crash investigations. The NTSB investigations involved tractor-trailer rollovers, recreational vehicles, probationary licensing for young drivers and bridge strength.

TRUCK ROLLOVERS

Following its investigation of five tractor-trailer rollover crashes, the safety board concluded that it is important to prevent separation of tractor and trailers because if the tractor remains attached to the trailer, the tractor will resist the overturn. "The tractor's low center of gravity reduces the unit's center of gravity and, consequently, the probability that it will overturn, by 10 to 20 percent."

NTSB recommended that the Federal Highway Administration develop more information on the initiation of rollovers and the severity of tractor-trailer rollover crashes. "If this information supports the board's belief that combinations should remain attached so that they can resist overturn and so that the consequences" will be less severe, then federal regulations should be upgraded after Jan. 1, 1978, to insure that tractor-trailers can resist separation during rollover.

RECREATIONAL VEHICLE CRASH

The safety board investigated the crash of a Winnebago motor home into a bridge column near Monroe, Mich. Seven of the ten occupants of the vehicle were killed in the crash and a subsequent fire fueled by leaking gasoline and propane gas. A refrigerator, which tore lose in the crash, was thought to have trapped one passenger and blocked the escape of four other passengers. "The failure of the driver and a passenger to use their seat belts prevented them from remaining in the vehicle, where they might have been able to rescue other passengers," according to NTSB.

The safety board recommended that the National Highway Traffic Safety Administration, "Undertake a pilot program in cooperation with the Recreational Vehicle Industry Association (RVIA) to inform and educate purchasers and users of recreational-type vehicles regarding the hazards and potential hazards attending the use of such vehicles . . . ."

The board also recommended that RVIA:

- amend "their standards to require some method of assuring that the supply of propane be contained temporarily should the tank valves, regulators, or service lines become damaged;"

- determine the best methods of securing appliances in recreational vehicles and amend their standards to adopt these methods (NTSB did not, however, recommend any criteria for these standards or suggest that NHTSA adopt federal standards in this area.);

- conduct a safety campaign aimed at recreational vehicle users to emphasize the benefits of seat belts.

PROBATIONARY LICENSING

After investigating an early morning car-train crash in Tracey, Cal. in which an alcohol-impaired, teenage driver with a poor driving record and two companions were killed, NTSB recommended that the National Highway Traffic Safety Administration and the National Committee on Uniform Traffic Laws and Ordinances study the effectiveness of probationary licensing for young drivers and federal guidelines for such licensing.

NTSB also recommended that NHTSA:

- determine the effectiveness of existing traffic information and control systems at railroad grade crossings, particularly their "ability to warn and achieve an appropriate reaction from impaired drivers;"

- develop "more effective systems and standards for conveying traffic information to impaired drivers;"

- promptly begin "programs which emphasize youth-oriented alcohol safety-driver improvement programs."

BRIDGE COLLAPSE

NTSB also investigated an incident in which an auto struck a vital structural member of the Yadkin River Bridge near Siloam, N.C. After the impact, which occurred in heavy fog, the bridge collapsed and both the auto and the bridge fell into the river. Six more vehicles drove off the bridge access ramps into the river in the 17 minutes before the bridge was closed. Investigators found that the timber railing was not adequate to sustain an impact at the posted speed limit. Four persons were killed and 16 injured.

Noting that the Federal Highway Administration estimates there are approximately 32,000 deficient bridges on Federal-aid highways, NTSB pointed out that the North Carolina Department of Transportation "is responding to the problems of bridge structures with a program which is of national significance." Included in this program are a computerized structural analysis of all state bridges which permits rating of all bridges rapidly after results are analyzed; an improvement program for traffic barriers on older bridges, and development of a low-cost bridge failure warning device which is planned for at least 100 selected bridges.

The NTSB report did, however, recommend that FHWA:

- publish guidelines for strengthening bridge railings;

- require that bridge inspection reports be analyzed and load limit changes be posted promptly;

- require comparable safety inspection of bridges not on the Federal-aid system;

- investigate bridge collapses and crashes in which bridge structural members are damaged, and

- determine whether timber roadway surfaces can meet existing federal recommendations for skid resistance.

Truck Driver Training Rules Proposed

The Bureau of Motor Carrier Safety is seeking public comments on minimum requirements for truck driver training courses.

Based on the public comments, BMCS says it will issue a "recommended practice" that training courses may, but will not be required to, comply with. The recommended practice would, among other things, set a minimum number of classroom hours of instruction and on-the-road training as well as specifying subject areas that should be covered in the course.

The effectiveness of the recommended practice will then be evaluated by BMCS with the intention of issuing a mandatory national commecial driver training standard.

Details of the proposal were published in the *Federal Register* for June 4. The agency has requested that comments be submitted by September 7, to: Docket No. MC74; Notice 76-14, Director, Bureau of Motor Carrier Safety, Washington, D.C. 20590.

NHTSA Publishes Performance Booklets

Three booklets comparing various aspects of performance for 1976 passenger cars have been compiled by the National Highway Traffic Safety Administration. The books and their prices are "Brakes" ($.95); "Acceleration and Passing Ability" ($1.65) and "Tire Reserve Load" ($1.85). They can be obtained from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Information for the booklets is furnished by foreign and domestic auto makers. The information is required by law, and must not only be available for the consumer's examination, but also be given to a prospective car buyer free of charge by the dealer.

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