

NTSB Renews Call For Underride Protection

For the second time in three months the National Transportation Safety Board has taken issue with the National Highway Traffic Safety Administration's decision to abandon plans for underride protection on rear ends of trucks.

The safety administration dropped plans for such protection in June 1971, saying that, "At the present time, the safety benefits achievable in terms of lives and injuries saved would not be commensurate with the cost of implementing" underride protection.

In a letter to Safety Administrator Douglas Toms, Safety Board Chairman John Reed now has asked "whether a cost/benefit assessment should be the only basis for such decisions, or whether other requirements of society should also be considered in determining the need for motor vehicle safety. Statistical evidence of truck-passenger car crashes indicates that a serious imbalance exists."

Citing Bureau of Motor Carrier Safety figures, the safety board calculates that, when collisions occur between passenger cars and trucks, an average of 39.2 fatalities occur in the passenger cars for each fatality in the trucks. This is "unbalanced against those who are driving or riding in passenger cars. Occupants of passenger cars in these crashes are suffering 97.5 per cent of the fatalities," the board letter says.

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It cautions against attributing "such unbalanced casualties" solely to the comparative sizes of the vehicles. Safety board investigations "demonstrate that structural crash incompatibility, and not only differences in mass, affect crash survival," the letter to NHTSA says.

"Cost/benefit comparison is not an adequate basis for withholding a corrective standard," the letter says, and in cases where cost/benefit studies are conducted, they "must be made on a very broad basis if they are to avoid undervaluing the results." An analysis of underride protection

benefits should consider such things as increased protection for truck and car fuel tanks, and reduced chances for trucks to override guard rails or "throw blinding spray," the letter says. If truck sides and bumpers are lowered to achieve the desired protection it would "help to protect pedestrians in street maneuvers," it adds.

In developing its now discontinued underride protection rule, the safety administration "lumped all types of trucks and trailers above 10,000 pounds gross vehicle weight into a single category," the letter recalls. "Some of the technical difficulties in providing underride protection, however, seem to apply only to narrow classes of vehicle types rather than the whole category" of vehicles in that weight class, and further, it "appears that due to differences in construction, the cost of modifying some types of vehicles would be lower than others," the letter tells NHTSA.

"An analysis and a rulemaking which consider the particular types of motor vehicles, as opposed to a broad overall class, seem not only authorized, but required (by the law)," it concludes.

The safety board first urged NHTSA in November 1971, to renew its abandoned plans to require underride protection. The board's recommendation followed an investigation of a car-truck underride crash near Washington, D. C., that resulted in the death of the driver and passenger in the car. The truck driver was uninjured.

In making its recommendation then, the safety board also suggested that NHTSA determine whether there is an alternative method of protecting passenger car occupants by altering automobile design.

In the letter, Reed says the board now is withdrawing that recommendation because, "It appears that a workable protective device able to engage a truck bed would impede the driver's vision in most passenger cars, and that the device on the passenger car is not technically feasible."

Car Structures Related To Pedestrian Safety

The contours and structural stiffness of vehicles can "play an important role" in raising or lowering the severity of injuries received by struck pedestrians, whether their injuries resulted from impacting the vehicle or the ground, a research report recently issued by Cornell Aeronautical Laboratory, Inc., has concluded.

The finding is contained in a technical report prepared by the laboratory (CAL) for the National Highway Traffic Safety Administration. The report details the results of (a) field team investigations of 319 real-world vehicle-pedestrian impacts in the Toronto area, (b) computerized mathematical simulations of pedestrian-vehicle impacts, (c) crash tests of vehicles into adult and child-sized test dummies, and (d) test impacts of a head-like sphere into parts of a standard car.

"It is obvious," the study report states, "that non-functional sharp-pointed objects should be eliminated from the exterior design, that pointed edges of hoods and fender corners be eliminated, and that, whenever possible, the design should include large areas of predominantly flat or shallowly curved surfaces."

The report states that elimination of sharp pointed structures "would also serve to eliminate snagging and dragging of a pedestrian during a collision."

In congressional testimony, Dr. William Haddon, Jr., president of the Insurance Institute for Highway Safety, has criticized "fanciful — and dangerous — front end snouts, spearheads and jutting lips styled into today's cars."

In April 1971, NHTSA Administrator Douglas Toms said at a press conference that his agency would not take standards-making action or issue a public advisory on pedestrian-hostile designs until it received reports from its research into the effects of vehicle structures and design on "the dynamics of a pedestrian in a crash . . . whether or not the pedestrian is thrown to the pavement (or) is thrown up," for example. The CAL study is one of these research efforts.

In a finding related to the criticism of sharp-edged contours on cars, the CAL report states that, based on its detailed crash investigations, "75 per cent of all (pedestrian) injuries . . . are produced by contact with the ground or the hood edge and bumper of the automobile." It adds, however, that "ground related injuries were relatively minor in nature."

It also states, "It appears that the major pattern of events in pedestrian-versus-front-of-car accidents is that the pedestrian most frequently comes into contact with the bumper and edge of hood (and) strikes recessed areas of the vehicle with less frequency"

Additionally, CAL's mathematical simulations indicate "an improved pedestrian environment (would include) a more rounded front contour and a less stiff front structure of the vehicle."

According to CAL, such findings agree "in a very general sense" with results of its small number of pedestrian crash investigations involving smaller cars. In that sample, pedestrians fared better in impacts with smaller "foreign or sport automobiles (a sample of 35 crashes) than with American full size automobiles." Of the foreign and sport models involved in the CAL sample, impacts with Volkswagens (13 crashes) resulted in "somewhat less severe injuries" than those with "the more box-like foreign and sport automobiles."

The report recommends that "more data be sought with respect to these vehicle types either by contact with foreign sources where such vehicles are more prevalent, through a study encompassing a large number of metropolitan areas in order to gain sufficient exposure, and/or through controlled crash testing in order to test these highly inferential hypotheses."

Further testing is needed in the entire area of the effects of vehicle structure and design on pedestrians, the report states. It recommends "full scale . . .

simulated pedestrian-vehicle tests" that would incorporate "modifications to vehicle structure in an attempt to define methods of accident severity reduction."

Other CAL findings include:

- Undersides of engine compartments and windshields were only very infrequently struck by pedestrians.

- Computer simulations comparing "very stiff" and "very soft" car front ends showed that "the stiff vehicle, at initial contact, causes a more rapid initial rotation (cartwheeling) of the pedestrian . . . (while) the soft-structured vehicle allows a distribution of force application over a greater body area, thus reducing unit pressures."

- "Another significant feature of the soft-vehicle response is the increased retention capability The stiff vehicle results in an undesirable (pedestrian) exit from contact. Subsequent ground contact would occur in a very uncontrolled manner, probably resulting in a wide distribution of ground-related injuries. The soft-vehicle departure is much more orderly and at a much lower energy level."

- Most real-world crashes between cars and pedestrians in CAL's sample occurred at less than 20 miles per hour, with only one of the CAL sample occurring at more than 40 miles per hour.

"It should be noted," the report states, "that, with the exception of some unique accidents, serious injuries or deaths observed below 20 miles per hour occurred at the 15 mile-per-hour-or-greater range. Thus, impacts less than 15 miles per hour generally were relatively minor. It appears, in fact, that there may be a 'critical speed' level at about 15 miles per hour where serious injury begins to occur."

Copies of the technical report, "Research in Impact Protection for Pedestrians and Cyclists," may be obtained for \$3.00 each by writing National Technical Information Service, 5285 Port Royal Road, Springfield, Va., 22151, and citing its number: PB201260.

Congress Says 'No' To NHTSA On Two New State Standards

The House Public Works Committee is "strongly opposed . . . at this time" to the National Highway Traffic Safety Administration's plan to issue highway safety standards on pupil transportation and accident investigation reporting.

The Federal-Aid Highway Act of 1970 requires that NHTSA submit all new state highway safety standards to the Congress at least 90 days prior to their effective date. Although the Congress has no authority to prevent NHTSA from issuing the standards, "We're not going to cut off our nose to spite our face," a safety administration official observed in explaining that his agency would accede to the

committee by withholding the two standards. The committee controls authorization of funding levels for NHTSA's federal aid to state safety programs.

In a letter to Transportation Secretary John Volpe, Committee Chairman John Blatnik (D-Minn.) said that the committee's opposition "does not necessarily indicate a disagreement with some of the elements of the proposed standards."

However, the committee felt that portions of the proposed pupil transportation standard inappropriately included items of motor vehicle equipment over which the committee has no jurisdiction. ". . . Elements referring to motor vehicles and their equipment (should) be included in their proper place under standards of the 'National Traffic and Motor Vehicle Act of 1966,'" Blatnik told Volpe. (The Public Works Committee has jurisdiction over highway safety standards. Motor vehicle safety standards are under the jurisdiction of the Committee on Interstate and Foreign Commerce.)

The Public Works Committee also suggested that NHTSA incorporate acceptable portions of the two proposed standards in its current consolidation of all state highway safety standards, rather than issue them separately. NHTSA's effort to consolidate the standards began more than a year ago when an internal task force was established to review, refine and re-issue the 16 standards used by states and local governments as guidelines for highway safety programs. (See Status Report, Vol. 6, No. 4, March 1, 1971.)

The safety administration plans to make the revised standards public in early March 1972, according to Glenn Carmichael, head of NHTSA's Office of Standards Development and Implementation. The revised standards are slated to become effective March 1973, he said.

Budget Increase Sought For Safety Programs

President Nixon has asked the Congress for \$174.8 million to finance highway and motor vehicle safety programs in fiscal 1973. This represents an increase of about \$25 million from the programs' congressionally approved budget for the current fiscal year.

The National Highway Traffic Safety Administration says emphasis will continue to be placed on its "alcohol countermeasures program to identify and control problem drinkers on the highway, research to improve the crash survivability of motor vehicles, and the development of an experimental safety vehicle."

As authorized by the Highway Safety Act of 1970, two-thirds of the funds for highway safety programs will come from the Highway Trust Fund. The remainder will be financed from the general treasury.

All funds for motor vehicle safety are derived from the general treasury.

The agency is also asking for a 24-man staff increase, which it says is part of a "phased staffing plan" for its long awaited compliance test facility being constructed in East Liberty, Ohio.

In millions, the FY 1973 budget request compares with congressionally approved levels for FY 1972 as follows:

	FY 1972 Budget	FY 1973 Budget Request
Research and Development (Sec. 403)	\$ 38.6	\$ 47.9
State and Community (Sec. 402):		
NHTSA (13 Standards)	67.0	76.7
FHWA (3 Standards)	13.0	13.3
Traffic and Motor Vehicle Safety	<u>30.7</u>	<u>36.9</u>
	\$149.3	\$174.8

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