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Traffic Safety Material Found Ineffective

Traffic safety materials distributed to licensed drivers are ineffective in reducing subsequent six-month crash and conviction frequencies for those drivers, a study conducted by the California Department of Motor Vehicles has concluded.

Neither the topic of the material nor the manner in which it was presented had any effect on the subsequent driving records, the study found, nor were the results significantly affected by age or sex of the individual. Based on these findings, the author of the report recommended against preparation of such safety materials for the department's future programs. "The department's traffic safety dollars would be more wisely spent on developing and evaluating countermeasures other than traffic safety materials of the type evaluated," said James W. Anderson, who wrote the report.

Seven traffic safety booklets were developed for the study. Five of them consisted of general educational material directed to different age and sex groups. Another dealt with human factors in driving, such as emotions, attitudes, and physical state. And one booklet concentrated on highway signs and street markings.

LICENSED DRIVERS PICKED AT RANDOM

About 95,000 California residents who had valid driver's licenses were randomly selected for participation in the study and were designated to receive one of the booklets or to be in a comparison or control group.

More than six months after the mailing of the safety booklets, crash and conviction data for each individual driver were extracted from the Department of Motor Vehicles computer files. Conviction information is routinely placed in those files by the courts, and crash data are filed either by the California Highway Patrol or the individual driver.

Summarizing the results of the study the report observes, "all the driver record comparisons have indicated that none of the campaign materials were clearly effective in improving subsequent driving performance."

The study report is titled "The Effectiveness of Traffic Safety Material in Influencing the Driving Performance of the General Driving Population." The work was prepared in cooperation with the Federal Highway Administration and is available through the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22151.

NHTSA Announces Five-Year Rulemaking Priorities

New federal motor vehicle safety standards in the next five years will be directed primarily toward vans, light trucks, braking systems, pedestrian protection, and passenger protection in side impact collisions under a proposed rulemaking timetable issued by the National Highway Traffic Safety Administration (NHTSA).

Stricter standards in these areas hold the most promise for reducing deaths and injuries, according to the federal safety agency, which calls the plan an attempt to efficiently concentrate its "limited" and scattered rulemaking resources. The plan, which also provides for the issuance of new fuel economy standards, in addition would end rulemaking proceedings in 13 motor vehicle safety areas (see story, page 5).

In addition to serving as a benchmark against which the agency's performance can be measured, the timetable will permit early public participation in the rulemaking process, and will allow vehicle manufacturers to prepare for possible future requirements, according to NHTSA.

SIDE IMPACTS TAKE PRIORITY

With added protection against frontal collisions already mandated by Transportation Secretary Brock Adams' passive restraints ruling (see *Status Report*, Vol. 12, No. 12, July 26, 1977), NHTSA lists improving passenger protection against side collisions as its top rulemaking priority. Side crashes claimed 7,000 lives in 1976, the agency said.

The plan proposes to issue an amendment upgrading Federal Motor Vehicle Safety Standard (FMVSS) 214 to protect against side collisions by requiring the additional padding of interiors and by limiting the intrusion of colliding vehicles into passenger compartments. FMVSS 214, which currently applies to automobiles, would be extended to apply to vans, light trucks, and multipurpose vehicles under the amendment, which would be issued in 1981 and would take effect either in model year 1984 or 1985. Although no timetable is specified, the agency said it plans to eventually issue comprehensive standards requiring protection against frontal, side, rear, and rollover crashes. "This requires the development of an advanced test dummy, an activity which will be given very high priority," the agency said.

OTHER STANDARDS TO BE APPLIED TO LIGHT TRUCKS AND VANS

According to NHTSA, the great increase in the use of vans and light trucks has created a serious safety problem. Standards governing automobiles generally have not been applied to such vehicles, the agency said, adding that in 1976 almost 5,000 occupants of light trucks and vans died in collisions. "With the enormous increase in the use of these vehicles in lieu of conventional passenger cars, the number of preventable, accident-related injuries, and fatalities is growing," NHTSA asserted.

In addition to the side intrusion standard (FMVSS 214), existing rules that would be applied to motor vehicles weighing less than 10,000 pounds – among which are light trucks, vans, and other multipurpose passenger vehicles – include:

- FMVSS 208, which requires automatic protection for automobile passengers in frontal collisions. Tests are planned to study the feasibility of using passive restraint systems in such vehicles. NHTSA tentatively has scheduled the amendment to take effect in model year 1984.

• FMVSS 201, which requires that automobile interiors afford impact protection to occupants in collisions. The amendment is scheduled to take effect sometime during model years 1981-1984.

• FMVSS 203, the requirement that automobiles be equipped with energy-absorbing steering assemblies. (See *Status Report*, Vol. 12, No. 18, Dec. 23, 1977.) Compliance is to be required sometime during model years 1981-1983.

• FMVSS 204, which requires that the rearward displacement of steering columns be limited to reduce the likelihood of chest, neck, and head injuries to drivers in frontal collisions. (See *Status Report*, Vol. 12, No. 18, Dec. 23, 1977.) Compliance with this amendment also is to be required sometime during model years 1981-1983.

PEDESTRIAN SAFETY RULES PLANNED

NHTSA listed pedestrian safety as a third major rulemaking priority. Little has been done so far, the agency explained, to design motor vehicle safety standards to protect pedestrians, some 7,500 of whom were killed in vehicle collisions in 1976. NHTSA said at least 50 percent of serious pedestrian injuries in such collisions are caused by impact with the car, rather than by subsequent impact with the ground, and that it is considering issuing a rule in 1979 to eliminate external protrusions used only to decorate or identify, because they have been shown to increase the probability of serious injury. The agency also will accelerate research efforts to initiate rulemaking, possibly resulting in other vehicle modifications to protect pedestrians, including changes in bumper and hood designs.

BRAKING CHANGES CONTEMPLATED

The fourth major rulemaking priority listed by the agency was the improvement of braking systems. Contemplated changes include:

• The issuing of a rule, effective in model year 1982 or 1983, specifying certain levels of brake pad and brake lining degradation as unsafe, and establishing tests for measuring the performance of inspection systems in identifying unsafe degradation. "Brake systems have been identified as a contributing factor in a significant portion of the accidents caused by vehicle equipment failures," the agency said, adding that "it is believed that brake degradation is a primary source of brake failures."

• The extension of FMVSS 105-75, effective in model year 1983, to establish performance standards for hydraulic brake systems used in buses, all trucks, and in multipurpose vehicles. The amendment would be designed to reduce the vehicles' stopping distances, and to make stopping distances between such vehicles "compatible."

• Amending FMVSS 108 to upgrade requirements for brake and signal lights beginning in model year 1983. The revised standard might require that additional brake lights be mounted in the rear of vehicles in areas separate from other taillights. A recent study of a taxi fleet showed that vehicles equipped with brake lights mounted on the trunk and centered beneath the rear window were involved in 54 percent fewer rear-end collisions than conventionally-equipped vehicles. (See *Status Report*, Vol. 13, No. 3, March 2, 1978.) NHTSA plans to study the lighting concept further.

The agency also is contemplating eventual rulemaking to:

• Establish performance tests and standards for replacement brake shoes and brake pads, which NHTSA says may be less safe than original equipment.

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• Require that the stopping distances of passenger cars be shortened, that the performance of their brakes in turns and on varying and/or slippery surfaces be improved, and that a long-life braking system be developed. Several approaches to improving passenger car brakes will be investigated, NHTSA said. These include the use of a device to prevent or reduce the locking of wheels during braking, and of other devices which would warn the driver to apply the brakes, or would automatically apply the brakes.

FUEL ECONOMY STUDIES SCHEDULED

In the area of fuel economy, NHTSA Adminstrator Joan Claybrook said emphasis will be placed on studying fuel-saving technologies. According to the timetable, fuel economy standards for 1984-1986 model year automobiles will be issued in 1979, and standards for 1986-1988 model year automobiles will be issued in 1981. Rulemaking actions will include a reassessment of previous standards, including a review of the current requirement that 1985 model-year automobiles average 27.5 miles per gallon.

Final fuel economy standards for 1980 and 1981 model year light trucks and vans are scheduled to be issued this year, and standards for the 1982, 1983, and perhaps the 1984 model years will be issued in 1979, according to the timetable. Standards for 1984-1986 model year vehicles are to be set in 1980.

The five-year plan contemplates the issuance of a variety of other new rules. They would:

• Require, starting in the 1980 or 1981 model year, the rear ends of heavy trucks and trailers to be equipped with protective devices to prevent underride by other vehicles and to dissipate crash forces. (See *Status Report*, Vol. 12, No. 6, March 29, 1977).

• Revise FMVSS 109 by setting minimum standards effective in model year 1982 governing the traction of passenger car tires on wet surfaces.

• Set performance standards for low tire-pressure warning devices. The rule, which would take effect in the 1981 model year, would require that all new vehicles be equipped with the devices.

• Require manufacturers in model year 1980 or 1981 to use the same internationally standardized vehicle identification number system on all motor vehicles. NHTSA says the rule would facilitate the identification of vehicles that have been stolen or recalled.

• Upgrade FMVSS 111, beginning in model year 1981 or 1982, to require that the drivers of all vehicles be able to see a larger area directly behind and to either side of the rear of the vehicle from their rearview mirrors, and to require that outside mirrors meet breakaway or foldaway requirements to reduce pedestrian injuries.

• Amend FMVSS 114, effective in model year 1981, to set requirements further protecting vehicles from theft. The rule would require that separate door and ignition keys be used, and that inside door-lock buttons be relocated. The standard would be extended to all vehicles under 10,000 pounds, including light trucks, vans, and other multipurpose passenger vehicles.

• Amend FMVSS 208 to encourage the use of seat belts by requiring that their comfort and convenience be improved. The rule, which would first apply to 1981 model year vehicles, also would require improved effectiveness and reliability.

• Amend FMVSS 108, beginning this year, to permit greater candlepower in high beam lights on passenger cars, and to place requirements on headlight aiming and low beam patterns.

'No Damage' Specified For Filler Panels

The National Highway Traffic Safety Administration (NHTSA) has withdrawn its proposal to permit damage to so-called "filler panels" and stone shields in bumper systems during low-speed crash tests.

The proposal was made last year as part of NHTSA's Part 581 standard, effective for 1979-model cars, requiring bumpers that limit the amount of damage that new cars can sustain in specified low-speed impact tests. (See *Status Report*, Vol. 12, No. 16, Nov. 8, 1977.)

The withdrawal means that under the second phase of the standard, effective for 1980-model cars, no damage will be permitted to filler panels in the test crashes, and that for other parts of the bumper system damage must be limited to three-fourths of an inch deviation from the original contours and dents no more than three-eighths of an inch in depth.

NHTSA noted in the withdrawal notice that the "view of insurance companies, their trade associations, and the Insurance Institute for Highway Safety was essentially that these shielding components serve no function in protecting the vehicle as do the bumpers, but rather are cosmetic features that reduce fuel economy, and increase initial purchase and repair costs unnecessarily."

Addressing the question of the cost of upgrading filler panels to provide "no damage" performance in crash tests, the agency said: "The ideal cost-saving solution adopted by some manufacturers is the deletion of these components from their designs. This course of action has the added benefit of reducing vehicle weight for fuel efficiency purposes."

The authors of the plan stressed the "dynamic" nature of the document, saying that "it is expected to be updated and amended in response to technological innovations, changes in resource availability, new crash injury findings, persistent safety hazards, or other pertinent information."

In 1971 a similar plan was issued, but a recent check revealed that only 22 of the 51 actions listed had been undertaken, according to Michael Finkelstein, associate administrator for NHTSA plans and programs. The safety agency is requesting public comment on the current document, due by June 14, 1978. Comments should refer to docket number 78-0, and should be sent to Docket Section, National Highway Traffic Safety Administration, Room 5108, 400 Seventh St., S.W., Washington, D.C. 20590.

NHTSA Proposes To Drop Some Rulemaking Actions

In order to allocate its regulatory resources effectively, NHTSA says it is contemplating terminating action on or merging into other proceedings 13 pending rulemaking proposals. Many of the proposals have long been dormant. (See *Status Report*, Vol. 12, No. 8, May 17, 1977.)

The proposals to be eliminated would have:

- Permitted the use of, and established performance requirements for, acceleration position indicator lamps and deceleration warning devices including panic stop signals.

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- Required a new laboratory test for measuring tire endurance. NHTSA says the test proposed may not represent actual road use conditions.

- Upgraded FMVSS 201 to require additional protection for automobile passengers against impacts with interior structures such as sun visors, instrument panels, seat backs, and armrests. NHTSA says no upgrading of this standard will be sought now that the passive restraints ruling has been adopted, although the current standard will be extended to light trucks, vans and other multipurpose passenger vehicles.

- Required that the height of driver head restraints be raised and made non-adjustable; that the head restraint standards, which now apply to automobiles, be extended to include light trucks, bus driver seats, and multipurpose passenger vehicles; and that seating and head restraint standards be consolidated. Any future upgrading of requirements for seats and head restraints would be a part of efforts to issue comprehensive standards requiring protection against frontal, side, rear, and rollover crashes, NHTSA said.

- Required that FMVSS 302, which sets standards to limit the flammability of vehicle interior materials, be extended to apply to campers and trailers other than those sold for cargo transport. NHTSA, however, says it is considering eventually amending FMVSS 302 to extend it to recreational vehicles and to generally upgrade anti-flammability requirements, including restrictions on the toxicity of fumes emitted by burning interior materials.

- Limited maximum vehicle speed to 95 m.p.h. and required a system of warning lights and horns which would operate at 81-85 m.p.h.

- Placed restrictions on bicycle carriers to reduce or eliminate sharp edges, limited their projection beyond a specific distance, and required labels warning against front-end mounting. NHTSA said any future work on these requirements will be included as part of an upgraded pedestrian protection standard.

- Required spray protectors to deflect spray and debris thrown up by rear wheels of passenger cars, multipurpose vehicles, trucks, buses, and trailers. NHTSA says it is monitoring truck spray tests being conducted by the Federal Highway Administration, however.

- Amended the definition of "multipurpose passenger vehicle" to require compliance by manufacturers with various safety standards. NHTSA says the amendment is no longer required because of its plans to extend a number of existing standards to include the vehicles.

- Gathered information on which to base performance requirements to decrease electrical system fires and to insure the crashworthiness of electrical systems. NHTSA says the proceeding will be revived only if current research efforts demonstrate a need for rulemaking.

- Defined a procedure for installing a Society of Automotive Engineers (SAE) manikin in the driver's seat and determined the extent to which differences can be tolerated in vehicle designers' estimates of the location of the driver's hip joint, and in the actual location of the hip joint as indicated by a SAE manikin. Designers' estimates of the location of the hip joint are relied on in determining whether vehicles comply with a number of federal motor vehicle safety standards. NHTSA said the International Standards Organization is currently investigating this question.

NHTSA also said it has incorporated research on the feasibility of requiring improved odometers into rulemaking action which includes both odometers and speedometers. The rule, issued March 9, sets standards to govern the accuracy of speedometers and odometers, limits the speed that can be indicated on speedometers, and requires a tamper-resistant odometer.

With the exception of a "minor" amendment, no further action is planned on FMVSS 206, which specifies requirements for vehicle door locks, latches, and hinges in order to decrease the likelihood that occupants will be thrown from a vehicle involved in a collision. The amendment would clarify compliance test procedures, and would extend FMVSS 206 to include "hatchback" doors. Further action to upgrade door lock and retention standards would be taken as a part of efforts to improve protection from side collisions.

Human Impact Tolerances Studied

Researchers at the University of Michigan's Highway Safety Research Institute (HSRI) have concluded a year-long study on human impact tolerances. The study, funded by the Insurance Institute for Highway Safety, concentrated especially on children, for whom little injury tolerance data exist.

In order to develop more information about the ability of the human body to withstand impact, the researchers selected for on-site investigation 100 free-falls primarily involving children, out of 2,100 reported falls.

The researchers found, among other things, that "virtually any headfirst fall of greater than 10 feet onto a rigid surface may be expected to cause skull fracture or concussion and injuries . . . for adult or child." A fall from a height of 10 feet would give an impact velocity of approximately 17 miles per hour; an impact speed exceeded by the heads of thousands of children injured annually in impacts against instrument panels, windshield frames, and other surfaces which have not been designed to gently absorb their impact. In addition, mopeds and bicycles commonly far exceed this speed.

The Michigan researchers suggested that bone maturity and body mass differences tend to result in a higher incidence of injury among adults than among children, with children being injured "less severely than adults under similar impact conditions." Children and adults, however, showed different injury patterns under similar fall circumstances, with children having a greater proportion of head injuries because they tended to land headfirst more often, regardless of the fall distance or position at the start of the fall.

According to the report, falls are "exceeded only by motor vehicle crashes as the major cause of accidental death in the United States." In 1976, according to the National Safety Council, 14,900 people were killed in falls. Reported free falls occurred at a rate of more than 30 a day, but authorities speculate that many go unreported.

The study, "Impact Tolerance Through Free Fall Investigation" by Richard G. Snyder, David R. Foust, and Bruce M. Bowman, can be obtained from the Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

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