the highway
loss reduction

STATUS REPORT

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Motorcycle Crashes Explored By Researchers

A California-based study comparing motorcyclists in general to those hurt in motorcycle crashes has found differences between the two groups involving age, size of motorcycles and claimed motorcycle training experience.

The study, carried out in Sacramento County by four researchers at the University of California, found that, "About one out of 28 motorcycles registered in Sacramento County in 1970 was involved in an injury producing collision in that year alone." The authors suggest that police records may be seriously underreporting the extent of death and injury being generated in motorcycle crashes. "The first major finding of the study," they report, "was that of the 18 fatalities found in the Health Department and Coroner's records, 12 were not found in police records .... After matching police and hospital records, it was found that 57 per cent of the 769 identified serious injury cases had not been reported to police."

In a summary of the study prepared for presentation to the epidemiology section of the American Public Health Association during APHA's annual meeting currently underway in Atlantic City, N.J., the four researchers—Drs. Jess F. Kraus, Richard S. Riggins, Walter Drysdale and Charles E. Franti—explain that they studied all reported motorcycle-related injuries occurring in the county in 1970. They compared these with a random sample of all owners of motorcycles in the study area.

Inside

Their other findings:

- Although only 37 per cent of the sample of all owners were in the 15-24 year old age group, 58 per cent of the serious injury cases and 58 per cent of other injury cases were in that age group.

- "A greater percentage of persons with motorcycle collision injury (13 per cent) claimed to have had training in motorcycle use than the noninjured controls (7 per cent)."

- Nearly two-thirds of the injuries surveyed resulted from a motorcycle collision with another motor vehicle.

- "Motorcycles with more powerful engines (250 or more cc's) were more often

involved in serious injury-producing collisions (43 per cent) and all collisions (44 per cent) than would be expected from their distribution" in the sample of all owners, which was 31 per cent. Conversely, motorcycles with small engines—less than 126 cc's—were found to account for 43 per cent in the sample of all owners but only 29 per cent in the serious injury cases and 31 per cent of all injury cases.

- Of serious injury cases, 35 per cent reported their primary road use as being divided roads or freeways, 7 per cent reported their primary use as race tracks, and 26 per cent reported their primary use as dirt roads and trails. The corresponding primary use figures for the sample of all motorcycle owners were 28 per cent for divided roads or freeways, one per cent for race tracks, and 36 per cent for dirt roads and trails.

The study is being sponsored by the Insurance Institute for Highway Safety. Single copies of the preliminary report may be obtained by writing "Motorcycles," Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

NHTSA Finds Motorcycle Helmets Substandard

Almost 90 per cent of the motorcycle helmets tested for the National Highway Traffic Safety Administration in a recent testing program failed to meet the performance requirements of the helmet industry's six-year-old voluntary standards. 54 helmet models were tested in the program; 8 complied.

In spite of the widespread failures, there will be no recall of the helmets that failed since, according to an NHTSA press release, the tests are "not regarded as conclusive." Some of the helmets will be retested in larger quantities to establish "conclusive evidence of performance," NHTSA Administrator Douglas Toms said in announcing the findings.

"The 54 different model helmets used in the first test program were purchased at random from various retail dealers throughout the country. Four sample helmets of each model were subjected to tests in three performance areas—impact attenuation (shock absorption), penetration (resistance to a pointed object), and retention (chin strap strength)," NHTSA said.

Those tests were completed in March of this year. NHTSA released the test results in October. According to Andrew Detrick, Director of NHTSA's Office of Defects Investigation, release of the test data was delayed because of "analysis time." He also said that NHTSA had planned to publish the test results in a consumer information booklet on motorcycle helmets. But a spokesman for NHTSA told *Status Report* that now "the booklet is not likely to be published" because, among other things, it is "too technical" for the consumer.

The agency said it undertook its motorcycle helmet defect investigation because of reports that:

- Helmets made of polycarbonate materials "may be very susceptible to common chemicals and cleaning agents and exposure could degrade their protective ability.

- "Quality control among many of the helmet manufacturers appeared to be minimal."

- Helmets were "cracking apart" after falling from store shelves.

NHTSA recently proposed its own standard to govern motorcycle helmet performance. The proposed standard is scheduled to become effective in two stages beginning March 1, 1973. The first stage is "based in large part" on the voluntary existing industry standards, according to NHTSA. The second stage of the

proposed helmet standard is slated to become effective Sept. 1, 1974. It would increase the level of crash protection that a helmet is required to provide.

Model-by-model results of the motorcycle helmet tests can be obtained by requesting release number 96-72 from the National Highway Traffic Safety Administration, Office of Public Information, Room 5232, 400 Seventh Street, S.W., Washington, D.C. 20590.

Bumper Bill Signed On DOT's Reluctant Endorsement

President Nixon has signed the "Motor Vehicle Information and Cost Savings Act" into law. It is intended to promote motor vehicle bumper standards, improve information to consumers about motor vehicle loss characteristics, and set up a series of demonstration auto diagnostic inspection projects. (See *Status Report,* Vol. 7, No. 19, Oct. 16, 1972.)

He signed the bill (PL 92-513) after the Department of Transportation—whose National Highway Traffic Safety Administration will be responsible for administering the new law—reluctantly advised that he refrain from vetoing it.

DOT's recommendation against a veto was contained in a letter from the agency's general counsel, John W. Barnum, to Casper Weinberger, Director of the Office of Management and Budget. The letter recalled that DOT had opposed the new law's bumper standards provisions from the outset, with the argument that DOT's required administration of the provisions "would result in the diversion of personnel and other resources currently devoted to the motor vehicle safety program unless sufficient additional funding and personnel were provided. Such diversion would be completely unacceptable given the relative value of a lost life and a dented fender." DOT's opposition, the Barnum letter said, was also on two other grounds:

"Second, governmental intrusion into the marketplace should be limited to matters of necessity involving public health and safety. Nuisance problems associated with consumer products, such as vehicle damageability, would be most appropriately solved by marketplace processes, aided as necessary by a government information program. Third, the bumper safety standard which the Department has already promulgated (FMVSS 215) . . . would accomplish much, if not most, of what could be achieved by issuing a bumper property damage reduction standard under the enrolled bill."

(cont'd. on page 4)

Comment Date Extended On Highway Standards

The National Highway Traffic Safety Administration has extended to Feb. 1, 1973, the deadline for comments on its proposed revision of highway loss reduction program standards.

The agency had asked that all comments on the proposed changes be submitted by Nov. 3, 1972. However, by that date only five states had submitted comments on the proposals, according to an NHTSA official. The proposed changes would materially affect state loss reduction programs since states are required to follow the standards or face possible loss of federal highway loss reduction and construction funds. (See *Status Report*, Vol. 7, No. 14, Aug. 7, 1972.)

After it became clear that the Congress would "adopt the concept of property damage reduction standards" despite the Administration's opposition, "the Department shifted the focus of its efforts to keeping the standard setting authority as narrow as possible," the Barnum letter recalled. It supported the narrower House version, which was limited to bumper standards, instead of the broader Senate version, which "would have permitted the setting of standards for any vehicle component or system." The House version prevailed.

"Philosophically," the Barnum letter told the White House, "even this provision could warrant a Presidential veto. However, we believe that this was the best compromise that could be achieved under the circumstances in this or the next congress. Accordingly, it is our recommendation that the subject bill be signed."

The letter also disclosed that the new Act's consumer information provisions –"very similar to the Department's (proposed) 'Automobile Owners' Information Act of 1972' "–were proposed "solely for the purposes of countering the Senate version of the enrolled bill," which was the version containing tough property damage standards-setting authority for DOT. "Instead of substituting the Department's proposed consumer information program for the enrolled bill's direct regulation of vehicle dameagability, the Senate simply added the program as a new title to its bill," the letter said.

Now that the consumer information provisions are law, the Barnum letter suggested, DOT may have problems in implementing it. "The logistics of the dissemination" of the required vehicle safety information to consumers "may be very difficult," he said. "Since 10 million or more new domestic passenger motor vehicles are sold annually, the number of prospective purchasers should be considerably greater than 10 million," he added. (NHTSA already requires that auto makers supply prospective purchasers with consumer information on tire reserve load, passing and acceleration and braking capabilities.)

Barnum said in his letter that implementation of the law will require "considerable" resources. He estimated that NHTSA will need "$10–15 million for fiscal year 1973; $30–35 million for fiscal year 1974 and $50 million for fiscal year 1975."

NTSB Urges Action On 'Nonoperating' Hazards

The National Transportation Safety Board has urged that the federal government move to reduce hazards associated with nonmoving motor vehicles. The board said that such hazards "threaten–sometimes kill–and all too often painfully injure" people.

NTSB reported that in 1969 nearly one out of every three motor vehicle injuries was related to motionless vehicles. A "considerable reduction" in nonmoving injuries might be achieved by auto manufacturers with a "relatively simple engineering effort," the board said in a recent report entitled, "Nonoperating Motor Vehicle Safety Study."

The board pointed out that under the National Traffic and Motor Vehicle Safety Act of 1966, the Department of Transportation is charged with regulating the "nonoperation safety" of motor vehicles as well as reducing death and injuries in vehicle crashes. NTSB recommended that the National Highway Traffic Safety Administration "identify nonoperating hazards" and provide consumers with information about them. Since DOT's first priority is preventing fatalities rather than reducing injuries, NTSB said that elimination of the hazards might be accomplished through "voluntary methods" rather than "mandatory standards." The board suggested that manufacturers "could be encouraged to undertake a study of nonoperating hazards and design changes which might prevent them."

(cont'd. on page 6)

Australians Take Jazzy Approach To Loss Reduction

A new slick magazine is on sale at newsstands in Australia. At first glance, it looks like just another car enthusiasts' publication: glossy cover, full color photos of speeding vehicles, snappy headlines. But where other magazines are selling speed, this one is selling safety.

The magazine, called AUTOSAFE, is the brainchild of Dr. Michael Henderson, an Australian highway loss reduction leader. He wanted a way to popularize research findings in the field to reach a wider audience.

"A magazine like AUTOSAFE has never been produced before," the first issue sets out. "In the past, road safety magazines have traditionally been house journals, generally circulated free of charge . . . but the idea behind AUTOSAFE is circulation on a far wider scale, among people who hitherto may have had no particular interest in traffic safety."

A summary of the first issue's contents exemplify the magazine's approach. It includes articles on an Australian broadcast idol known as a motorbiking enthusiast, "who surrounds himself with as much protective gear as he can muster"; a survey of Experimental Safety Vehicles from around the world; recommendations on child restraint equipment; a car-of-the-month tested for safety features; a dramatized case history of an actual crash and the factors that could have mitigated it; and a piece that raises the question of whether super-cars are really necessary.

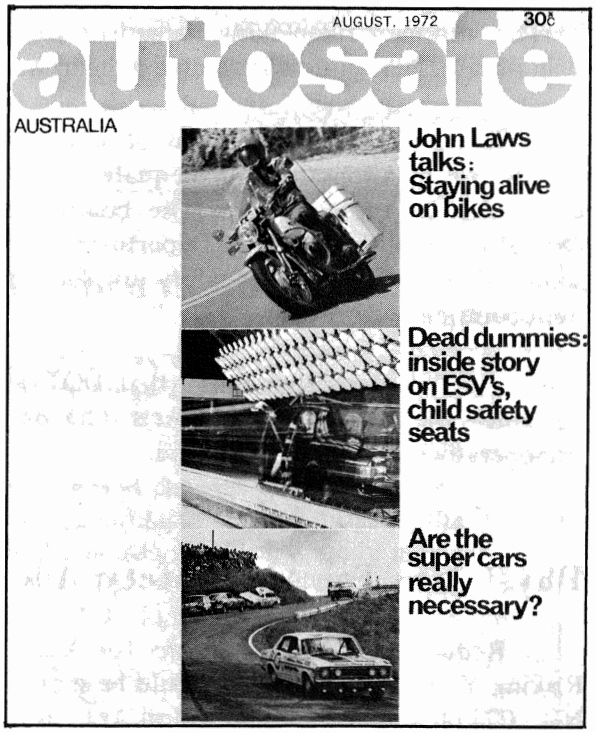
AUTOSAFE sells for 30 cents in Australia (about 25 cents U.S.), just under the newsstand price of other automotive magazines. It accepts commercial advertising from leading makers of cars and equipment, adding to its appearance as an independent publication despite government backing. The magazine is an official publication of the New South Wales Department of Motor Transport. Sales figures have not yet been reported.

"Because we wanted as many people to read it as possible, it had to be popular," Dr. Henderson told *Status Report* on a recent visit to this country. "We had to present safety in an attractive way. Otherwise, it was bound to fail. Our model was flight safety magazines."

In the public health area, Dr. Henderson added, "more friendly" family health approaches have been successful.

"Take the kid on the motorbike out there," he said. "There is no other way that you can get him to read it."

Information on annual subscription rates can be obtained from AUTOSAFE Magazine, Box 28, GPO Sydney, N.S.W. Australia 2001.



It said that many nonmoving vehicle hazards can be reduced by changes in "existing design" rather than "investing in new safety devices." These changes can be made "within the cost range of cars today," according to the board.

Among the hazards pointed out by NTSB are:

- **Trunk and hood lids.** Sharp corners and protrusions on trunk and hood lids "can inflict head injuries on people loading or unloading trunk compartments" or "when they stand upright after looking into the engine compartment," the board said. (Although this report did not discuss hazards that unnecessary exterior protrusions pose to pedestrians, NTSB has previously recommended that an "increased effort" be made by NHTSA to develop vehicle safety standards which will reduce injuries to people struck by moving vehicles. See *Status Report,* Vol 6, No. 14, July 26, 1971.)

- **Radiators.** The board pointed out that some radiators build up extreme levels of pressure under operating conditions. A person removing a radiator cap while an engine is hot can encounter "a geyser-like explosion of scalding water into the face or onto the arms and chest," the board said. (In January of this year, NHTSA dropped rulemaking, begun in 1967, on radiator caps.)

- **Bumper-jack design.** NTSB said that the "single-post" bumper-jack has little resistance to any horizontal movement of a vehicle. This problem is aggravated because many vehicles do not have "bumper-jack holding slots" to prevent lateral movement of the jack, it noted. (In October, 1971, NHTSA dropped its rulemaking , begun in October, 1967, on bumper jacks.)

- **Carbon monoxide poisoning.** According to NTSB, carbon monoxide can leak into a nonmoving vehicle's interior because neither "the vehicle flooring" nor the "panel between the passenger and engine compartments" is airtight. (Four Maryland public health researchers have projected that some 500 Americans may be dying each year from carbon monoxide poisoning in "vehicles that are defective due to deterioration, damage or poor automotive design." See *Status Report,* Vol. 7, No. 9, May 8, 1972.)

- **Power windows.** Children playing with power windows can "catch their heads, arms, hands, or fingers in them" NTSB said. (NHTSA has a standard–FMVSS 118–that went into effect on Feb. 1, 1971, prohibiting power windows from operating when the vehicle ignition is off. However, earlier this year, NHTSA dropped rulemaking, begun in 1969 , which proposed that power windows have mechanisms to stop or reverse a window if an arm or head were caught between the closing window and its frame.)

In investigating the scope of nonmoving vehicle hazards, the board found that government and private organizations had "inadequate injury data" on both the frequency of injuries and on factors that contribute to those injuries. The board said that the National Electronic Injury Surveillance System (NEISS), established by the Department of Health, Education and Welfare to determine the nature and scope of consumer product safety problems, could be easily modified to provide DOT with data on specific nonoperating hazards.

The board recommended that DOT negotiate with HEW about the use of the NEISS data system. Although the HEW system collects data on nonoperating vehicle hazards, it "does not identify specific, nonoperating hazards," NTSB said.

Physicians For Auto Safety: Address Correction

Requests for the Physicians for Automotive Safety's new brochure on child seats, entitled "Stop Risking Your Child's Life!", should be sent to Physicians for Automotive Safety, 50 Union Ave., Irvington, N.J., 07111, rather than 500 Union Ave., as reported in *Status Report*, Vol. 7, No. 18, Oct. 2, 1972.

State Held Liable For Outdated Highway Design

The California Supreme Court has held that a citizen can sue the state for a crash caused by a highway design which was originally considered safe, but later became dangerous because of "changed physical conditions." Previously, the court had ruled that the state was immune from such claims.

Ronald Harrison, an attorney for California's Department of Public Works, says that as a result of the decision "all public entities" can expect "a more than ordinary increase in exposure" to personal injury and other types of law suits.

The Court's decision came in a suit over faulty intersection design. The crash victim, Jesse Baldwin, had stopped his truck in the northbound passing lane of a four lane highway in order to make a left hand turn at an intersection. The intersection did not have a separate left hand turn lane. His truck was struck from the rear and pushed into oncoming traffic where it was struck head on by another vehicle.

Baldwin's attorney claimed that because of an increase in the volume of traffic on the highway and a history of crashes at the intersection, the state should have corrected the hazard. Baldwin presented evidence to show that over a six year period the state Division of Highways had been repeatedly notified of the hazardous intersection.

The state argued that under the California Government Tort Claims Act it could not be held liable for Baldwin's injuries. The statute provides that an agency is not liable for injuries resulting from a plan or design if the agency acted reasonably in approving that plan or design. The state's attorneys presented evidence to show that when the plans for the intersection were approved and the intersection was constructed in 1942, it met "accepted highway engineering practices."

In deciding that the state was liable for the injuries, the California Supreme Court said that when the legislature passed the tort claims act, it did not intend to give the state unlimited, perpetual immunity. When the state knows or should have known that "changed physical conditions" have produced a "dangerous condition," it must act to correct it, the court said. The immunity statute does not allow state agencies "to shut their eyes to the operation of a plan or design once it has been transferred from blueprint to blacktop," according to the court.

The court rejected arguments from the state that extending state liability will "bankrupt public entities." The court remarked that "no fiscal disaster" has occurred in Illinois or New York – states which already follow the concept of liability for changed conditions. The court said that in many instances, "inexpensive remedies, such as warning signs, lights, barricades or guardrails will be sufficient."

FEDERAL GOVERNMENT ALSO SUED

Another instance of alleged inadequate highway design has resulted in a suit of $1.8 million being filed against the federal government. The suit alleges that a bridge on a U.S. parkway near Washington, D.C., was constructed with "defective guardrails and supports" which did not restrain a vehicle striking them. In addition, the suit charges that when the parkway's speed limit was increased, "no changes to improve" the bridge and guardrails were made. The suit was brought as a result of a December, 1970, crash in which a stationwagon, allegedly thrown out of control by a blown tire, crashed through the bridge guardrail and plunged 97 feet into a ravine. Three persons died and three other occupants were seriously injured in the crash.

[The California case is *Baldwin v. Calfornia,* 491 P. 2d 1121 (1972). The parkway suit includes civil action numbers 408-72 through 413-72, in the U.S. District Court for the Eastern District of Virginia, Alexandria Division.]

Neck Study Progress Reports Available

The Highway Safety Research Institute of the University of Michigan, under the sponsorship of the Insurance Institute for Highway Safety, is conducting a bioengineering study of human physical and psysiological measurements related to susceptibility to cervical hyperextension-hyperflexion injury. Such injuries constitute a prominent catogory of damage to people in vehicle crashes. These injuries include those sometimes described under the term "whiplash." Technical progress reports—which are of a *preliminary* nature—being forwarded by HSRI to the Insurance Institute may be useful to other researchers in this field. Single copies of the preliminary reports will be made available, on request, to interested researchers. Requests should be sent to Neck Injury Study, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

Correction

Status Report, Vol. 7. No. 20, Oct. 31, 1972, reported in error that the Federal Aid Highway Act of 1972, which died in the House for lack of a quorum, carried an authorization of $100 *thousand* to eliminate high crash frequency locations and $150 *thousand* to fund roadside boobytrap removal. The figures should have been $100 *million* and $150 *million* respectively.

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