

500 Deaths A Year Laid To Exhaust Leaks

More than 500 Americans may be dying each year from carbon monoxide poisoning in "vehicles that are defective due to deterioration, damage or poor automotive design," according to a group of Maryland researchers.

In a paper soon to be published in the *American Journal of Public Health* the four research workers have projected the 500 possible deaths a year by examining records for 68 deaths in Maryland involving carbon monoxide poisoning inside a vehicle. The 68 deaths were drawn from their review of records for all Maryland deaths attributed to asphyxiation from carbon monoxide during 1966 through 1971. Most such deaths occur in non-moving vehicles and therefore would not be reflected in traditional compilations of annual motor vehicle "accident" deaths. "Yet, probably no other group of deaths is more closely related to defective motor vehicles," the researchers conclude.

Authors of the study are Susan P. Baker, M.P.H., of The Johns Hopkins School of Hygiene and Public Health; Russell S. Fisher, M.D., the chief medical examiner of Baltimore; William C. Masemore, formerly of the chief medical examiner's office, and Irvin M. Sopher, M.D., formerly of the chief medical examiner's office and now with the Armed Forces Institute of Pathology. They were working under grants from the Insurance Institute for Highway Safety, the Maryland Medical-Legal Foundation and the National Highway Traffic Safety Administration.

Their study—which excludes homicides and suicides—produced the following findings:

VEHICLES

The deaths took place in 54 vehicles, including four trucks. Fifteen vehicles were parked in garages with the motors running, "apparently to provide heat," and the vehicle age was therefore not considered important. The remaining 39 vehicles, parked outdoors, had a median age of 7.6 years—significantly older than the 4.4-year median age of all vehicles registered in Maryland. Records showed that of these, 23 had been examined and "defects such as holes in the muffler and broken tailpipes were found in 21" of the vehicles.

"Poor design was noted in the case of a late-model sedan in which the tailpipe was

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too short to extend outside the rear fender; upward displacement of the tailpipe by an earlier impact had resulted in exhaust gases striking and corroding the inner fender panel. The only car in which the entire exhaust system appeared to be in good order had a gravel shield under the rear bumper, which deflected exhaust fumes forward toward a large rusted-out area in the rear fender," the researchers said.

For 16 of the 23 vehicles that had been examined after a carbon monoxide fatality, records showed that "a point of entry (for exhaust fumes) was sought and found. Usually fumes entered through holes in the floor of the passenger compartment, fender panels or trunk (from which fumes can easily enter the passenger compartment of most cars). In two instances, fumes apparently entered through holes in the trunk or spare tire well that were originally plugged with rubber at time of manufacture."

Rust was "a major factor in most cases, having caused a combination of exhaust system defects plus holes in the body. Even two-year-old cars had significant rust damage In addition to rust damage, mechanical damage to components of the exhaust system or to the body was involved in several cases."

Seven of the 23 examined cars had at least one window open for a distance of up to 4 inches, and in one of them "exhaust fumes may actually have entered through this window as well as through the trunk."

VICTIMS

Almost half of the persons who died had been drinking. Thirty-three of the 66 persons tested were found to have alcohol concentrations ranging from 0.04 per cent to 0.30 per cent. The median age of those who died was 30. Forty-three of the 68 were males. The bulk of the deaths occurred during winter months, and "usually it appeared that the engine had been left running so the heater could warm the car." Almost all the studied deaths occurred at night.

"Three-fourths of the deaths involved men sleeping in cars or couples parked in cars, under circumstances that reflect the wide variety of uses to which automobiles are put. Many of the men had been in the habit of sleeping in their cars after they had been drinking. Back trouble led one man to sleep in his station wagon. A married couple died at a drive-in movie; a young unmarried couple was sitting in a car in the girl's driveway; many couples were parked in remote areas suited to romantic activities No doubt there were some instances in which sleep was not intended but was induced by the combination of alcohol and carbon monoxide," the researchers said.

COUNTERMEASURES

Countermeasure possibilities that should be explored, the paper concludes, include:

- Designing vehicles so as to "completely eliminate the production of carbon monoxide" and thus to eliminate both deliberate and inadvertent deaths caused by it. "Reducing the concentration of carbon monoxide, now possible with exhaust emission control devices, would decrease the likelihood that lethal concentrations of carbon monoxide would build up inside cars." The authors noted that one car in their study was so equipped—"but the device had been disconnected to provide additional horsepower!"

- "Better separation of exhaust fumes from the passenger compartment," such as by release of fumes in altered directions, tighter sealing of openings between trunks and passenger compartments, location of exhaust system components so they are less subject to impact and resulting rupture and use of "less corrodible materials" to inhibit rusting of relevant structures.

Carbon Monoxide Deaths: Excerpts From The Report

CRASHES

“The present investigation raises the question of the possible role of sublethal doses of carbon monoxide in motor vehicle crashes. Occasional crashes have resulted from exhaust fumes in the passenger compartment, but investigations of large series of fatally injured drivers indicate that carboxyhemoglobin levels greater than those associated with smoking are uncommon. However, the growing popularity of air-conditioned cars can be expected not only to make death in closed cars a year-round phenomenon instead of one primarily associated with cool weather, but also to increase the likelihood of CO poisoning in moving vehicles.”

SMOKING, DRINKING

“There is also evidence of a synergistic effect of alcohol and carbon monoxide, leading to death at lower carboxyhemoglobin saturation levels when the blood alcohol concentration is high. . . .

“Furthermore, the marked association between heavy drinking and heavy smoking noted by (Dr. Julian) Waller and (Kenneth) Thomas (in an earlier paper) suggests that many intoxicated persons in the present study may have been smoking heavily, thus causing additional carboxyhemoglobin elevation.”

● “Effective periodic motor vehicle inspection (PMVI) might be expected to help,” the researchers said. However, they pointed out that “of the 32 states that have periodic inspections only 16 check for floor pan holes that would permit fumes to enter a car, and none requires inspection for holes in the fender panels. Two states with PMVI do not even require a check for defective exhaust pipes or mufflers.”

Although Maryland does not have periodic motor vehicle inspection (cars are inspected only at time of resale or transfer), the effectiveness of current inspection procedures in other states “may be questioned since three vehicles in this study were registered in states that include the exhaust system in their yearly or twice-yearly inspection,” the researchers reported.

One of the three, discovered by Masemore, “had been ‘inspected’ only a week before obvious and long-standing rust damage caused a death in a neighboring state. This car was of particular interest because a month later another person died while sleeping in it, in Maryland.

“There is a need for an established procedure to ensure that a car in which someone has been poisoned by carbon monoxide will be impounded until the problem is corrected. Unfortunately, police may close these cases without taking steps to protect future users of these cars. It is a matter of concern that many police reports—even those that were otherwise very detailed—made no mention of inspecting the vehicle to determine how poisoning had occurred, or of warning the owners of the hazards involved in using the car.”

The paper states: “Considering the power of human needs for sleep, sex and warmth, and the ready availability of automobiles which can provide not only heat but also privacy for the first two needs, perhaps the remarkable thing is that these deaths are not even more numerous

“The problem created by these hazardous defects in vehicles must be publicized so that owners and mechanics will recognize potentially lethal situations and correct them. Although some defects might not be noticed by owners, many vehicles in this series showed evidence of poor maintenance, with failure to repair obvious damage caused by rust and impacts Apparently many people need to be protected by measures that don't depend upon human discretion.”

Single prepublication copies of the paper are available by writing to the Insurance Institute for Highway Safety, Suite 300, Watergate Six Hundred, Washington, D.C. 20037.

House Gets Bill For Bumper Standards

The House Committee on Interstate and Foreign Commerce has approved and sent to the House a revised version of the “Motor Vehicle Information and Cost Savings Act” (HR 11627) that would require the Department of Transportation to establish “bumper standards for passenger motor vehicles” within 18 months after the bill becomes law.

The House is expected to vote on the bill later this month. If the bill is passed by the House it will be referred to a joint House-Senate conference committee for resolution of differences that exist between it and a Senate-passed version (S.976).

The most significant difference between the two bills is in the scope of damage-limiting authority each would give DOT. The House bill would restrict DOT's authority to issuing standards that deal with bumper performance only. The Senate-passed version would give DOT authority to regulate the overall susceptibility of a car to damage.

The House bill would require that before DOT issues a bumper standard it consider:

- The costs of implementing the standard and the resulting benefits.
- The effect of a standard “on the cost of insurance and prospective legal fees and costs.”
- Savings “in terms of consumer time and inconvenience.”

The bill also requires that bumper standards “not conflict with motor vehicle safety standards.”

Some weeks ago the House committee rejected a subcommittee version of the bill that scrapped standards-setting requirements and replaced them with a “consumer information” provision advocated by the auto industry. The bill was sent back to the subcommittee, which, upon reconsideration, restored the standards-setting authority.

Institute Profile Published

In response to numerous requests the Insurance Institute for Highway Safety has prepared a brochure on its staff and activities. The publication will be mailed to *Status Report* readers in the near future.

Congress Asked To Double State Safety Funds

The Department of Transportation has asked the Congress to double, by fiscal 1975, the amount of money that may be allotted to states for highway safety programs under the National Highway Safety Act of 1966. Further, it is asking that all the money come from the Highway Trust Fund.

The request, in the form of proposed amendments to the Highway Safety Act of 1966, was made in a legislative package that DOT has sent to the Congress. Transportation Secretary John A. Volpe said that these and other requested changes in the Act would "improve the department's effectiveness in preventing highway accidents and deaths and injuries."

DOT is seeking to increase its highway safety authorizations (Sec. 402) to \$180 million for fiscal 1974 and \$250 million for fiscal 1975, as compared to \$130 million for fiscal 1973. It has asked that the Congress not put a ceiling on the amount that the National Highway Traffic Safety Administration and the Federal Highway Administration are allowed to obligate for research and development (Sec. 403).

Under present law, two-thirds of the financing for federal-state highway safety programs come from the Trust Fund. Volpe said that it is "appropriate" for programs under the Highway Safety Act to receive "full financing" from the Trust Fund "since the cost of insuring the safe operation of highway transportation is properly considered an integral part of the cost of that mode."

DOT is also asking the Congress to give it "more flexibility" in what it can do when a state fails to have an "approved" highway safety program. It is requesting that the secretary be allowed to withhold "all or a portion of a state's highway safety funds for the non-implementation of an approved program." If the state remedies its failure within a specified period of time it "would receive the full amount of funds" that had been withheld, Volpe said in a letter to the Congress.

Under present law a state would not be able to recoup funds that had been withheld due to noncompliance. According to an NHTSA official, the change would "increase the probability" that DOT would use the penalty clause. He said that the penalty provision as now written has not been used because it is a "fairly drastic action."

The department is also requesting that:

- DOT be authorized to establish "national emphasis programs" that "have significant highway accident, death and injury reduction potential." States would be required to include such projects in their highway safety programs.
- An incentive program be authorized that would allow the secretary of transportation to award \$5 million annually to states that make "significant progress" in highway safety.
- Information collected by accident investigation teams not be admissible as evidence in court, which would "facilitate" the gathering of accident data.
- States be allowed to use Sec. 402 funds for manpower training programs and certain demonstration projects. Currently such programs can be funded only with money earmarked by the Congress for research and development.

Networks Refuse Motor Mount Warnings

The three major television networks have refused requests from the Center for Auto Safety that they broadcast "public service" announcements warning owners of approximately 6.7 million Chevrolets that the cars were built with potentially faulty engine mounts.

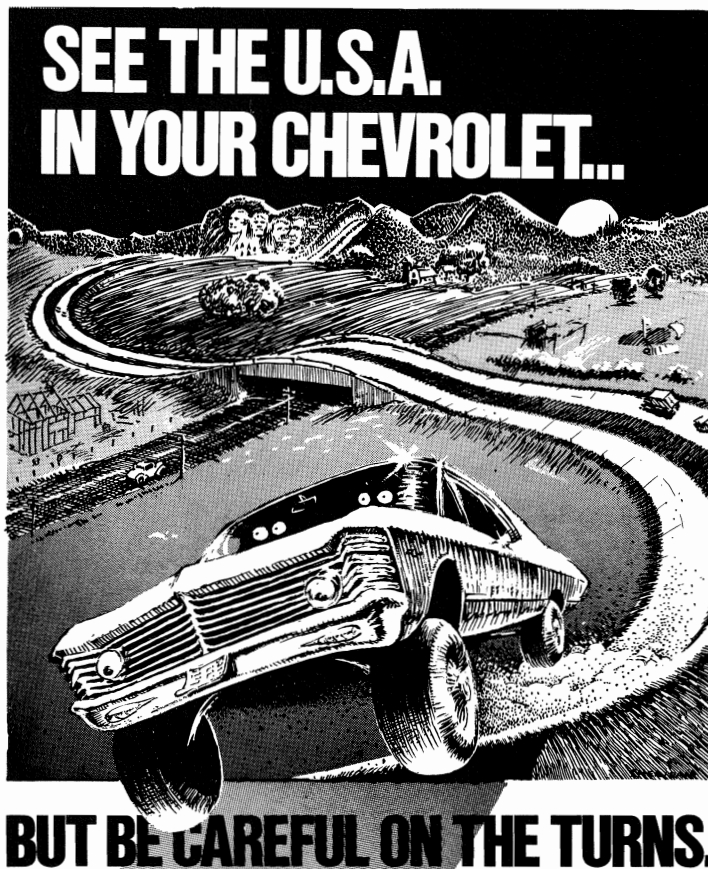
The Stern Community Law Firm, which is representing the center, has filed a formal complaint with the Federal Communications Commission claiming that the networks' refusal to broadcast the announcements shows a "callous disregard for the public interest." The firm is asking that the FCC direct the networks to "devote a reasonable amount of air time over the next six months to the Chevrolet recall problem by broadcasting (the announcements)."

The center has also prepared a similar "public service advertisement" which it plans to distribute to newspapers throughout the country.

The announcements, prepared for both television and newspapers, say among other things that "several thousand" accidents have been reported as a result of Chevrolet engine mount failures. An official at the National Highway Traffic Safety Administration told *Status Report* that "several thousand failures have been reported to the agency but that "we've only had several hundred accidents" reported that can be attributed to engine mount failures. He verified the accuracy of all other statements in the announcements.

The television "spots," featuring actor Burt Lancaster, urge Chevrolet owners to take their cars to a Chevrolet dealer for installation of a safety cable which General Motors is having installed to restrain the engine should the engine mounts break. The safety administration warned in a "Consumer Protection Bulletin" last October that "failure of the left front engine mount may result in partial rotation of the engine within the engine compartment during acceleration. This lifting of the left side of the engine may, in some cases, jam the accelerator and gear shift linkages and may also cause loss of power braking and power steering assist. The result is partial or total loss of vehicle control." General Motors announced in December that the cars were being recalled.

In their refusals to broadcast the announcements, ABC and CBS cited network news coverage that had been given to the motor mount problem when the Chevrolet recall was announced. CBS said that, "although we agree with the importance of



If you drive a 1965 to 69 full-size Chevrolet or Nova V-8, or a 67 to 69 Camaro V-8, you're in serious danger. Those cars were built with faulty engine mounts. If one breaks and the engine shifts, it can jam your accelerator wide open and knock out your power brakes at the same time. The greatest dangers are fast starts and turns. Several thousand accidents and injuries have been reported,

and some deaths have been alleged. General Motors has announced they won't give you new engine mounts. But they have agreed to install a free safety cable that'll hold the engine in place. That way if a mount goes, you won't. If you're driving one of these cars, get it to a Chevrolet service department...slowly.

Center for Auto Safety
Washington, D.C. 20044

Prepared by the Stern Concern

"Counter-ad" to be submitted nationwide to "major daily newspapers" in bid for "public interest" free space.

effectively notifying the owners of defective automobiles, we do not believe that the proposed announcements are a necessary or appropriate means toward that end." NBC also refused, telling the Stern group that, "in our view, the 'scare' technique used in the announcements is inappropriate for the message you wish to convey, and in any event, our standards prohibit the use of 'scare' texts of any kind."

A spokesman for the Stern law firm said that its announcements only "reiterate" warnings already issued by GM and NHTSA. He added that, "because of the widespread danger to public health and safety involved in the 7 million potentially defective Chevrolets, the networks have an affirmative public service obligation to broadcast these announcements."

According to the firm, "ABC and CBS state that just two mentions of a recall (during news broadcasts) are sufficient to counteract five steady years of network advertising (of the cars)—advertising messages broadcast with all the drumbeat frequency that Chevrolet's massive television advertising budget could command. This is tantamount to saying that the question of health hazards from cigarettes would have been adequately covered solely by news broadcasts of the Surgeon General's findings, and that one or two such news reports would have adequately balanced out the millions of dollars of pro-cigarette advertising with which the networks have bombarded the American public."

The Center for Auto Safety claims that, even though GM has sent recall letters to Chevrolet owners, in the past "some 30 per cent of cars subject to recalls were not brought in for necessary repairs." According to the center, if "history were repeated in the Chevy campaign, over 2 million dangerous automobiles would remain on the road."

House Panel To Investigate Highway Hazards

Congressional testimony on roadside "boobytraps" and signs that mislead drivers has prompted a House subcommittee to take an "in depth look" at the problem. The House Committee on Public Works' Subcommittee on Investigations and Oversight has randomly selected Tate County, Miss., as the site for its investigation.

During three days of recent hearings the subcommittee heard testimony from a panel of highway safety researchers and traffic engineers who corroborated testimony on deficiencies in the highway environment that the committee has heard over the last five years.

In opening the hearings Subcommittee Chairman Jim Wright (D-Tex.) said that earlier hearings had shown that:

- "We installed guardrails incorrectly and cluttered roadsides with dangerous poles, signs and other hazards.
- "We engineered into our road system, including some of the most modern Interstate highways, such boobytraps as left-hand freeway entrance and exit ramps, inadequate shoulders, the requirement to make almost impossible lane changes, and curlicues and loop-the-loops that tax even the most skillful driver.
- "We resorted to signs, markings, signals and other methods of conveying information to the motorist that sometimes left him more befuddled than informed."

The witnesses testified that those conditions still exist. One witness, William L. Sacks, executive director of the Ohio-based Highway Safety Foundation, showed the subcommittee pictures depicting, among other hazards, poorly designed freeway entrances, street signs that are "too small to be read by a driver going the posted speed limit," spear-like guardrails, faded or hidden railroad crossing markers and highway signs that "confuse the driver and lead to encounters with roadside hazards."

Wright said that his subcommittee plans to look for such hazards on federal, state and rural roads in the Mississippi county.

Michigan Replacing Roadside 'Boobytraps'

The Michigan Highway Department is defusing many of its highway boobytraps by replacing metal supports with breakaway wood supports on the majority of roadside signs in the state.

The replacement campaign—already under way—is expected to be complete by June 1976. The wood posts, which are being used to support roadside signs of under 160 square feet, have been weakened at strategic points to yield easily when hit by a car. The state is using metal sleeves set in concrete into which the wood posts may be easily slipped for installation or replacement.

According to Traffic Safety For Michigan's *Government Bulletin*, "The success of the breakaway post program is evidenced by the fact that the Department (of Highways) seldom is able to collect for damages from a motorist: he was able to drive away from the scene."

The state is also reported to have installed energy absorbing safety cushions at a number of high frequency crash locations. The devices range from plastic tubes filled with salt water to empty steel drums.

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the highway
loss reduction

STATUS REPORT

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