the highway
loss reduction

STATUS REPORT

INSURANCE INSTITUTE
for Highway Safety

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1973 Imported Cars Crash Tested

A group of imported 1973 model cars, tested by the Insurance Institute for Highway Safety as part of its low speed crash test program, performed "no better in general than American-made cars" in their designed-in vulnerability to needless damage.

"Overall, the imported cars – like their American counterparts – reflect a distressing insensitivity to the consumer, in their designs that allow needless damage at these extremely low speeds," Dr. William Haddon, Jr., Institute president, told a congressional committee.

Haddon was appearing before the House Committee on Interstate and Foreign Commerce to report the results of a new phase of IIHS's low speed crash test program – a phase examining, for the first time, "the designed-in fragility of foreign-made vehicles widely marketed in the United States, comparing them with the results from the 1973 model domestic cars that we have previously tested."

The results of IIHS's tests involving 1973 model domestic cars were reported on Jan. 31, 1973, to the Senate Committee on Commerce. (See *Status Report*, Vol. 8, No. 3, Jan. 31, 1973.)

Inside

Detailing the results of the more recent tests of six foreign-made cars (see charts on pages 3 and 4), Haddon told the House group, "As with domestic cars, we found that most of the tested imports were able to pass the Department of Transportation's current standard for protection of so-called 'safety related' components in very low-speed impacts – and still suffer needless designed-in damage. In each impact test under this federal standard (FMVSS 215), five of the six cars passed."

Yet, Haddon noted, "we found damage in these tests as follows:

- "Two of the six cars tested suffered no damage at all in the 2½ mile an hour

rear-into-barrier speed – a speed equivalent to a man landing after jumping off a step 2½ inches high. The two damage-free vehicles in this test demonstrate that zero-damage capability can be designed into cars for crashes at this speed. Even this slight amount of basic protection in rear-end impacts has been withheld from the other four. (Among the American-made cars, one out of seven suffered no damage.)

- "Not a single one of the six foreign-made cars was designed so that it could emerge damage-free from the five mile an hour front-into-barrier crash speed – a speed equivalent to that of a man landing after jumping off a step ten inches high. (Two of the six American-made cars suffered no damage in this test.)

- "As with the American cars, not one of the foreign-made vehicles tested was able to emerge without damage in a five mile an hour rear-into-barrier impact. This is the speed called for by next year's federal standard. Five of the six foreign-built cars can already meet that test, a year in advance. Nonetheless, all six sustained damage, exceeding two hundred dollars in three cases.

"In short, cars from abroad have shown that they are, on balance, about as fragile as those made in the United States – that they have designed-in fragility, comparable to the domestically made automobiles, that will inevitably lead to needless crumpling in low-speed collisions."

SLOW SPEEDS UNDERSCORED

Introducing filmed highlights of the imported-car crash tests to the committee, Haddon observed that in the films "the slowness of the speeds used in our tests is illustrated variously by a toddler, a man walking and jogging, and football players running. Also, in most tests, the very slow-speed nature of the crash is underscored by a technician accompanying the car on foot to its impact point.

"We use these parallels to show, in a meaningful way, how very low are the speeds at which contemporary vehicles are unable, as a matter of their designs and the management decisions they represent, to take the impacts of everyday use without damage.

"Distinct from the question of speed is the companion question of impact protection: Structure that routinely experiences impact can and should be protected routinely against avoidable damage. Shock-absorbing landing gears, for example, totally eliminate the possibility of sheet-metal and structural damage in the touchdowns of planes with weights ranging from those of automobiles up to those of the most massive jet transports.

"Yet basic, long-understood ways of managing impact energy without damaging structure – ways that routinely protect people and planes – still are not being applied, as they could and should be, to preclude all damage whatsoever to cars in their millions of low-speed impacts each year."

The vehicles in the test series of imported cars were the Volkswagen Superbeetle, Volvo 142, Toyota Corolla 1600, Opel 1900, Saab 99 and Datsun 510.

Copies of the complete testimony are available by writing to "1973-Model Imports," Watergate 600, Washington, D.C. 20037.

INSURANCE INSTITUTE FOR HIGHWAY SAFETY
1973 MODEL LOW SPEED BARRIER CRASH TEST RESULTS
IMPORTED SERIES

	2.5 MPH REAR INTO BARRIER	5 MPH FRONT INTO BARRIER	5 MPH REAR INTO BARRIER	10 MPH FRONT INTO BARRIER	15 MPH FRONT INTO BARRIER
VOLKSWAGEN SUPERBEETLE	$ 8.00	$ 52.70	$ 54.35	$430.90	$ 521.10
VOLVO 142	$ 0.00	$ 29.04	$152.40	$ 62.86	$ 620.35
TOYOTA COROLLA 1600	$ 0.00	$ 29.30	$231.68	$276.03	$ 623.37
OPEL 1900	$22.00	$205.75	$216.80	$590.05	$1,047.48
SAAB 99	$ 3.36	$ 26.30	$214.90	$228.29	$ 930.51
DATSUN 510	$15.60	$ 28.96	$ 63.04	$339.33	$ 652.20
AVERAGE	$ 8.16	$ 62.01	$155.53	$321.24	$ 732.50

INSURANCE INSTITUTE FOR HIGHWAY SAFETY
1973 MODEL LOW SPEED CAR-TO-CAR CRASH TEST RESULTS
IMPORTED SERIES

	10 MPH FRONT-TO-REAR			10 MPH FRONT-TO-SIDE			10 MPH FRONT-TO-CORNER		
	FRONT DAMAGE	REAR DAMAGE	TOTAL DAMAGE	FRONT DAMAGE	SIDE DAMAGE	TOTAL DAMAGE	FRONT DAMAGE	CORNER DAMAGE	TOTAL DAMAGE
VOLKSWAGEN SUPERBEETLE	$ 41.95	$138.35	$180.30	$ 78.35	$340.45	$418.80	$ 52.40	$177.30	$229.70
VOLVO 142	$ 26.00	$128.96	$154.96	$ 26.00	$437.06	$463.06	$ 77.46	$208.70	$286.16
TOYOTA COROLLA 1600	$250.31	$263.74	$514.05	$ 46.50	$359.58	$406.08	$220.80	$118.39	$339.19
OPEL 1900	$141.45	$341.20	$482.65	$158.40	$219.56	$377.96	$254.65	$227.55	$482.20
SAAB 99	$295.94	$41.80	$337.74	$ 8.10	$418.68	$426.78	$ 45.80	$114.50	$160.30
DATSUN 510	$ 88.02	$ 79.35	$167.37	$ 78.57	$361.17	$439.74	$151.13	$136.05	$287.18
AVERAGE	$140.61	$165.57	$306.18	$ 65.99	$356.08	$422.07	$133.71	$163.75	$297.46

INSURANCE INSTITUTE FOR HIGHWAY SAFETY
1970-72 MODEL LOW SPEED BARRIER CRASH TEST RESULTS
IMPORTED SERIES

		2.5 MPH REAR INTO BARRIER	5 MPH FRONT INTO BARRIER	5 MPH REAR INTO BARRIER	10 MPH FRONT INTO BARRIER	15 MPH FRONT INTO BARRIER
VW SUPERBEETLE	1971	---	$130.75	$ 59.05	$347.85	$615.20
VW BEETLE	1970	---	$120.25	$ 64.45	$322.35	$518.70
TOYOTA COROLLA	1972	$ 8.36	$251.46	$214.78	$657.00	$872.20
---	1971	---	---	---	---	---
TOYOTA CORONA	1970	---	$133.70	$ 69.30	$410.94	$486.86

INSURANCE INSTITUTE FOR HIGHWAY SAFETY
1970-1972 MODEL LOW SPEED CAR-TO-CAR CRASH TEST RESULTS*
IMPORTED SERIES

		10 MPH FRONT-TO-REAR			10 MPH FRONT-TO-SIDE		
		FRONT DAMAGE	REAR DAMAGE	TOTAL DAMAGE	FRONT DAMAGE	SIDE DAMAGE	TOTAL DAMAGE
VW SUPERBEETLE	1971	$ 81.10	$181.75	$262.85	$126.35	$227.45	$353.80
VW BEETLE	1970	$156.75	$ 71.45	$228.20	$194.75	$186.80	$381.55
TOYOTA COROLLA	1972	$206.62	$368.28	$574.90	$209.91	$328.34	$538.25
---	1971	---	---	---	---	---	---
TOYOTA CORONA	1970	$129.51	$176.06	$305.57	$150.26	$166.08	$316.34

*CORNER IMPACT TESTS NOT CONDUCTED FOR THESE MODEL YEARS

DOT Plans To Shuffle NHTSA Funds

Transportation Secretary Claude S. Brinegar has told the House Committee on Appropriations that DOT will ask the Congress for permission to divert money from current National Highway Traffic Safety Administration programs in order to fund programs mandated by the Motor Vehicle Information and Cost Savings Act.

A DOT official told *Status Report* that a decision has not been made on the amount of money DOT wants diverted for the Cost Savings Act or what projects will lose money as a result of the diversion.

Brinegar's announcement came less than two weeks after Rep. John E. Moss (D-Cal.) introduced a bill to provide $23 million to finance the Cost Savings Act during the current fiscal year whether DOT wants the money or not. Moss, who had sponsored the Cost Savings Act in the House, accused the Nixon Administration of "inexcusable delay" in seeking funds for the Act.

In passing the Cost Savings Act last year, the Congress authorized DOT to request $23 million to implement its provisions during the current fiscal year and $37 million for fiscal 1974. In his budget request, the President had asked for no funds for the current fiscal year and only $15 million for fiscal 1974.

The Act directs the Department of Transportation to establish property loss reduction bumper standards, provide information to consumers on vehicle loss characteristics, set up a series of automobile diagnostic inspection demonstration projects and report to the Congress on how odometers can be improved and made tamper proof. (See *Status Report*, Vol. 7, No. 19, Oct. 16, 1972.)

NTSB Sees People As Guinea Pigs In Bus Crash

Public highways and human beings are serving, in effect, as testing grounds and guinea pigs to determine whether buses are crashworthy, according to a recent report by the National Transportation Safety Board.

The Safety Board's report follows its investigation of a bus-car crash near Marshfield, Mo., in which all 37 bus passengers were injured, four fatally. The driver of the car was "severely injured." Her one passenger was killed.

"Since there are no requirements for bus rollover tests, this crash, in effect, becomes the initial rollover crashworthiness test of this type of bus. Test results included four dead fare-paying passengers and revealed outstanding points of critical localized failure resulting from design characteristics. It would have been far less costly in life, injury and property damage to conduct this test at a laboratory or proving ground . . . ," the Board said.

Although the Board points specifically at the lack of rollover test requirements, bus makers have no obligation under DOT'S current safety regulations to determine whether their vehicles are crashworthy – in rollovers or any other type of crash – before placing them on the highway.

The Board's report said that the crash occurred when a Los Angeles bound Greyhound bus hit a car that was "situated crosswise on the highway." The two occupants of the car were under the influence of alcohol.

The Board's crash investigators established that a "split second" before the crash the bus driver applied his service brake "which locked the wheels of the bus." Skidding 151 feet into a ditch, the bus came to rest on its left side after a one and one quarter rollover. "All occupants were tumbled about in general, striking each other as well as various bus components, including window frames," At some points the top of the bus was crushed level with the seat backs.

The Board said that for the most part, the downward deformation of the roof was "the most significant factor in the fatal injuries to bus occupants."

It said "the weak link in the body structure was in the region between the roof structure and the lower body." It singled out inadequate window posts and " 'picture window' styling that requires large openings in the structure" as contributing to the structural weakness. The Board asked that the Bureau of Motor Carrier Safety and bus manufacturers determine whether "picture window" styling has reduced the structural strength of buses manufactured in recent years.

The Board recommended that:

- BMCS "prepare a rollover performance test, or other performance tests" for buses and review current designs to determine if structural strength has been reduced "in recent years in buses having very large side windows."

- Bus makers "determine whether it is technically feasible" to strengthen bus structures by using smaller windows and more "continuous structural members."

- NHTSA "institute appropriate" action to require "all newly constructed interstate-type buses . . . be equipped with approved occupant restraints, active or passive, for all seating positions in such buses."

- NHTSA "expedite rulemaking" efforts "to improve the antilock braking capability of bus (and truck) braking systems."

Single copies of the Board's report, NTSB-HAR-73-1, are available without charge from the Publications Branch, National Transportation Safety Board, Washington, D.C. 20591.

Fifth Call Issued For Restraints In Buses

For the fifth time in as many years the National Transportation Safety Board has urged the National Highway Traffic Safety Administration to require "approved occupant restraints, active or passive, for all seating positions" on interstate-type buses.

The Board recommended essentially this same action in accident reports released Dec. 31, 1968; March 19, 1970; June 1, 1971 and Nov. 1, 1971. Recently NHTSA proposed a standard that would give bus makers the option of installing belts. However, a Safety Administration official told *Status Report* that the proposal was not written in a way that would encourage bus makers to install belts; the "primary" goal of the proposal is to improve bus seats, he said. (See *Status Report,* Vol. 8, No. 5, Feb. 26, 1973.)

The Safety Board's current recommendation followed its investigation of a bus-car crash near Marshfield, Mo.

NSC 'Defensive Driving' Evaluation Fails To Support Claims

A National Safety Council Staff "evaluation" that favors the organization's nationally-marketed "Defensive Driving Course" actually fails to support NSC's claim that "DDC causes improved driving behavior," the chief researcher for a leading auto insurance company has warned.

In an analysis of the "evaluation," Dr. Wayne W. Sorenson, director of research for State Farm Mutual Automobile Insurance Company, said that the NSC report suffers from "the crucial difficulty" that it is based on "a research methodology incapable of demonstrating cause and effect relationships."

Despite this, Sorenson said, "the tone of the report will lead others to interpret the data as though such causative relationships have been found."

NSC published its "Evaluation of the National Safety Council's Defensive Driving Course in Selected States" late last year and, in a press release, claimed it proved that "licensed drivers who completed the National Safety Council's eight-hour Defensive Driving Course had fewer traffic accidents and violations than other drivers."

But actually, Sorenson concluded, the NSC "evaluation" proved no such thing. It excluded large numbers of DDC course takers. Further, it depended on "self-report" information supplied by the course takers themselves rather than objectively gathered information.

Sorenson noted that of 8,182 course takers who initially supplied "usable" questionnaires about their crash and violation experiences, more than 2,000 failed to respond to NSC's follow-up inquiry concerning their crash and violation experiences a year later. "In general," he pointed out, "the responding group tended to: have more females, be older, have more driving experience, and to have had fewer accidents in the year previous to the course.

"In other words, the respondents were different significantly on every dimension tested statistically! In my opinion, the respondents were sufficiently different from the nonrespondents to make the assumption of similiarity totally untenable."

Further, Sorenson warns, NSC's evaluators "did not compare the respondent group to people in general. That is, we are not provided evidence that the individuals taking the DDC, whether they responded or did not respond to the questionnaire, are similar to or different from the general population of drivers in the United States."

(An Insurance Institute for Highway Safety analysis of the "evaluation" report has noted that it excluded "all drivers who had been directed into the course by traffic judges or driver license officials . . . . Thus, the evaluation completely avoids looking at the very drivers whose crashes or violations bring them to the attention of public authorities.")

OTHER FLAWS

Some of the "number of flaws" found by Sorenson in the evaluation were the following:

- "Questionnaires were administered to students at the time they took the course and, where possible, one year later. At each administration, the purpose of the questionnaire was clearly known to the respondents. It seems probable that there would be a considerable pressure to slant the information."

• NSC attempted to offset the bias by examining state accident records for the respondents. But, notes Sorenson, "In their own words, 'The reductions in state recorded accidents and violations after DDC for the study group were not significantly different from those of the comparison group . . .'."

• The report tends to be somewhat obfuscated as a result of the use of large amounts of text devoted to describing procedures and tests intended to compensate for the recognized difficulties occasioned by the failure to employ a rigorous experimental design."

Single copies of Dr. Sorenson's analysis may be obtained by writing to him at State Farm Mutual Automobile Insurance Company, One State Farm Plaza, Bloomington, Illinois 61701.

Single copies of the Insurance Institute for Highway Safety analysis may be obtained by writing to DDC Analysis, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037.

One Defective Headline Recalled This Year

We're recalling the headline in the last issue of *Status Report* that proclaimed "12 Million Defective Vehicles Recalled Last Year."

In common parlance "recalls" are held as massive callbacks of batches of defective vehicles or items of defective vehicle equipment – all of which are commonly thought to be defective. In some cases this is not an entirely accurate view. Often, recall campaigns involve vehicles with manufacturing or assembly defects that may exist only in some of the vehicles that are recalled. In such cases a large number of vehicles may have to be recalled in order to locate the few that are actually defective. The 12 million figure is also misleading in that some cars are recalled more than once, resulting in "double counting."

To clarify the issue, there were indeed more than 12 million recall notices sent to vehicle owners in 1972. Some of the vehicles in that total were recalled more than once. Not all of the vehicles or pieces of vehicle equipment were necessarily defective. *Editor, S.R.*

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Ralph W. Hoar, Jr., Editor

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