Passive Restraint Meeting Held

The National Highway Traffic Safety Administration's five-day public meeting on passive restraints signals the beginning of another rulemaking round that will likely drag on for some time. Passive restraint rulemaking began almost six years ago.

The task now facing NHTSA is to weigh arguments and data presented by more than 40 witnesses who appeared at the meeting. Additionally, it must analyze auto maker and parts supplier responses to 25 pages of detailed questions that the agency wants answered by June 16. (See Status Report, Vol. 10, No. 10, May 12, 1975.)

Although NHTSA Administrator Dr. James Gregory views the matter with "urgency," agency officials estimate it will be autumn before the data can be analyzed and a proposal issued. That proposal will probably be the subject of yet another agency hearing (see box, page 3). The proposal also must be submitted to the Congress, which, by law, reserved two months for itself to review the proposal, if it chooses, before any new occupant restraint proposal may become final. Although NHTSA officials will not speculate on the matter, it will likely be well into 1976 before the agency issues a final passive restraint rule. (See Status Report, Vol. 9, No. 18, Oct. 11, 1974.)

This 16-page issue of Status Report explores in detail the issues and arguments raised at NHTSA's recent five-day public meeting (May 19-23) on passive restraints. Photos below are from footage of IIHS crash tests. Details, page 7.

With Air Bag . . . Without Air Bag . . .
NHTSA's public meeting produced considerable evidence that the primary stumbling block to mandatory passive protection is not the technical feasibility of air bags or other devices, but rather the auto industry's current economic condition. "We're beyond the state that technology is a problem . . . . Passive restraints are here, feasible, practicable and do the job," an agency official said after the meeting. As for the auto industry's economic plight, "We have to assume that the present situation is temporary," he said.

While presiding at the meeting, Dr. Gregory put himself on record as saying that "the economic impact of all regulation is a vital factor which must be considered, but I also wish to point out that while the cost and economic impact of a safety standard is an important factor in considering the reasonableness of that standard, the legislative history of the (National Traffic and Motor Vehicle Safety) Act and NHTSA responsibilities put safety consideration first."

The issues discussed at the meeting, which NHTSA must now weigh, are these:

**LEAD TIME**

Lead time for installation has been a constant issue in passive restraint rulemaking since the advanced notice of proposed rulemaking was issued in July, 1969. The Insurance Institute for Highway Safety, a lead-off witness at the meeting, pointed out that NHTSA's previous decisions to delay the effective date of the standard, originally proposed for Jan. 1, 1972, "were based on a record that included promises of voluntary action" by various auto makers to install passive restraints. General Motors told the agency in 1970 that passive restraints "would be made standard equipment on all 1975 General Motors passenger cars, most light trucks . . . and certain multipurpose passenger vehicles." Ford, in 1970, said that "air bags for the front right and center occupants could be installed in all its 1975 model cars and light conventional trucks as optional equipment." Chrysler, in 1970, stated "we hope to be in a position to provide passive restraint systems in volume production by Jan. 1, 1975." Before a U.S. Senate committee hearing in 1973, Chrysler reaffirmed its willingness to install passive restraint systems, when it testified, "Our objective is to be in a position to offer front seat air bags as an option on our entire 1976 product line." These voluntary commitments never materialized, IIHS reminded the meeting.

During the current meeting, American Motors Corp., Chrysler, Daimler-Benz and Volvo claimed they would need at least three years' additional lead time to install passive restraints on all cars. Ford, which equipped some of its 1972 models with air bags, told the agency it would "probably be about January 1 of 1978 before we would really be able to have any large scale production" of air bag equipped vehicles. General Motors, which had previously indicated that it will withdraw air bags as an option after its 1976 model year, repeated its call for a "five year pause in further regulations." (See Status Report, Vol. 10, No. 9, April 28, 1975.)

The various air bag equipment suppliers, such as Allied Chemical Corp., Thiokol Corp., Rocket Research Corp., Talley Industries, Inc. and Olin Corp. also told the meeting that they would need approximately three years to reach full production capacity.

The advantage of mandating passive restraints now, at a time when auto makers are beginning a major redesign of their vehicles, was stressed in several presentations. Donald Segraves of the American Mutual Insurance Alliance, speaking on behalf of insurance trade associations and companies representing more than 90 per cent of the U.S. auto insurance industry, reminded the meeting that General Motors has "announced a $3 billion redesign effort, Ford $2 billion and Chrysler of a half billion. Obviously this is the optimum time to also make sure these designs accommodate front seat air cushion systems."

The John Z. DeLorean Corp. pointed out that "since nearly all cars are being redesigned at this time anyway, they can be made to accommodate air bags at practically no additional cost except that of the air bag system." GM took exception to this statement, claiming that air bags would need modifications costing $30 that would not otherwise be required.

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COST

Estimates by witnesses of the cost air bags would add to a car varied considerably. The lowest estimate was from the DeLorean Corp., which included in its Allstate-sponsored study, manufacturer and dealer profit in its retail price estimate of $139 for front seat positions in a six-passenger car. With lap belts, the system would cost $197. "In the future," DeLorean said, the company was convinced "that air cushion systems ... will cost substantially less than $100 in volume production." Last December, in its cost-benefit study, NHTSA estimated the cost was $225. (See Status Report, Vol. 9, No. 23, Dec. 26, 1974.)

The highest estimates came from Chrysler, at $300, and Volkswagen, which included air bags, two lap belts and a warning system in its estimate of $358. Most estimates were around the $200 mark, which led opponents such as Rep. James Collins (R-Tex.) and Dr. Lawrence Goldmuntz of Economics and Science Planning to warn of a $2 billion national cost in a 10 million car year.

The only manufacturer to offer air bags as an option on some models this year, GM, claimed that its cost in limited production was not covered by the $300 charged, and it was absorbing an additional $250 of cost.

Replacement costs were cited frequently by opponents. Chrysler said replacement could cost anywhere between $500 and $900. Ford cited the NHTSA estimate of $350.

Air bag supporters claimed that increased costs would be offset or absorbed by other factors. Sen. Vance Hartke (D-Ind.), chairman of the Senate Surface Transportation Subcommittee, said, "Any increase in the price of new motor vehicles attributable to the promulgation of a passive restraint standard would be more than offset by the savings in materials cost due to the shift toward smaller and lighter cars."

Another Public Meeting?

Senator, NHTSA Disagree Over Requirement

Does the National Highway Traffic Safety Administration’s recent public meeting satisfy the requirement, set down by the Congress, that such a meeting be held before a new passive restraint requirement is promulgated?

One member of the Congress thinks it does. NHTSA disagrees.

Sen. Vance Hartke (D-Ind.), in a statement given at the meeting in his behalf, said that the meeting represented "the broad-based input which Congress sought under section 109 of the Motor Vehicle and School Bus Safety Amendments of 1974." (See Status Report Vol. 9, No. 18, Oct. 11, 1974.) Hartke, one of the sponsors of the legislation, is chairman of the Senate Commerce Committee’s subcommittee on surface transportation, which oversees NHTSA’s motor vehicle safety effort.

However, on the closing day of the week-long hearing, NHTSA Administrator Dr. James Gregory said that any new passive restraint proposal his agency issues "will require an additional hearing." An agency attorney confirmed for Status Report that the agency interprets the law as requiring that NHTSA hold a public meeting based on any new proposal and that the recent meeting does not satisfy that requirement since the agency has issued no such proposal.
Several presentations commented on the NHTSA cost-benefit analysis of air bags prepared last year. (See Status Report, Vol. 9, No. 16, Sept. 9, 1974.) Goldmuntz referred to his analysis showing air bag benefits much lower than those found by NHTSA, while Dr. Charles Warner presenting a study prepared by the DeLorean Corp., claimed air bag benefits greater than those shown in NHTSA's analysis. DeLorean said it believed that benefits from air bags would result in nearly a 350 per cent return on the investment — "a compelling business opportunity that our society cannot afford to miss."

A reduction in insurance costs was promised by Allstate and Nationwide Insurance Companies, which offer a 30 per cent discount on appropriate medical and bodily injury coverage for owners of air bag equipped cars.

WEIGHT

Estimates of the increase in weight that would result from air bag installation varied as much as price estimates. While AMC claimed that air bags would add almost 100 pounds, Ford reckoned the weight increase at only 31 pounds, and 50 additional pounds if side impact improvements were included.

Volvo said that its system weighs in total less than 30 pounds.

Segraves, speaking for the auto insurance business, said that new pyrotechnic systems would be much lighter than the present 20 to 60 pound air bag systems. Rocket Research Corp. said its all-pyrotechnic inflator for the passenger side is expected to weigh 12 pounds, compared with its current 20 pound inflator, with a corresponding decrease from four to three pounds on the driver's side.

FIELD TESTING AND RELIABILITY

Considerable discussion at the meeting centered on the reliability of air bags as reflected by an estimated 100 million miles or more of real world experience, and the desirability of even more field testing before passive restraints are required for all cars.

In response to questions from NHTSA Administrator Gregory concerning air bag reliability, a GM spokesman said, "Certainly we believe they are reliable or we would not be selling them." He cautioned that in GM's opinion, "There are still questions concerning what level of reliability that we have and those questions need to be answered before we say that yes, we think these cars are suitable for all people and all cars at this time."

Ford, the only other auto maker to conduct a large-scale field test of air bags, said there have been "no known system malfunctions in accident situations, nor any occurrences of inadvertent deployment" in the estimated 30 million vehicle miles that its fleet of 831 air bag equipped 1972 Mercurys has traveled.

During its presentation, GM traced the "extensive and costly" development and testing of air bag systems that it conducted before introducing air bag equipped cars for public sale. GM said its work "included human volunteer testing under highly controlled conditions, out-of-position animal experiments, tests to evaluate the system under environmental extremes, the ability of a driver to maintain control of the vehicle in the event of an inadvertent deployment, the effects of deployment noise, and inflator gas toxicity. Also, an extensive full scale crash testing program was conducted to qualify ACRS [air cushion restraint system] potential performance in a variety of accident configurations," which included a successful multiple impact crash test.

GM reported that field evidence to date "has not indicated a significant deployment induced injury or loss of control hazard" and that "there have been no established cases where the air cushion failed to deploy" when it should have. There have been two inadvertent deployments, neither of which produced a Status Report.

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loss of vehicle control or serious injury. An occupant in one car experienced a dislocation and hairline fracture of a thumb when her purse apparently struck her hand. In the other deployment, the occupant “received a puffed lip and an abrasion to the right side of his face.” (GM recently recalled some 2,000 1974 and 1975 Cadillacs to check for a design defect leading to possible abrasion of the wiring of one of the air bag crash sensors. GM said that such an abrasion led to the second of the two inadvertent deployments that have occurred.)

Deployment noise of air bags has not been a problem, GM said. “Of the 47 deployments, only three occupants have complained of any ringing or ear discomfort. In all three cases, the ringing or discomfort was temporary. Cases where no problems were reported included children as young as two years old, and a 58-year-old man with otosclerosis, a hearing disorder,” GM reported.

However, GM stated that “at present, there is insufficient real world experience to determine the actual merits of any air cushion restraint” in part because the “potential of the ACRS to prevent or mitigate serious injuries cannot be proven until ACRS equipped cars are involved in a reasonable number of very severe collisions.”

A comparison by IIHS of severe crashes involving air bag equipped cars with crashes of cars without air bags found that only “3 per cent of the air cushion protected occupants sustained life-threatening or fatal injuries . . . compared to 5 per cent in . . . investigated crashes where the occupants claimed to be belted and 11 per cent where there was no claim of belt use.”

ADDITIONAL FIELD TESTING

The Council on Wage and Price Stability, which had previously called for a government funded test of 500,000 air bag equipped cars of various sizes, told NHTSA it should delay a decision on the passive restraint standard until 100,000 air bag equipped small cars are field tested. The council said that such a fleet would “probably be on the road in 1978” at a cost of $100 million for equipping the cars — a cost of $1,000 per car — “plus costs of administering the experiment and accident follow-up.” The council had earlier estimated the cost of the 500,000 car fleet at $250 million, a cost of $250 per car, and later stated that the cost would be even lower. NHTSA Administrator Gregory said implementation of the council’s plan would be “an administrative nightmare.”

When asked whether the council’s proposal represented the formal position of the Ford Administration, George Eads, a council spokesman, said that the field test idea is only “a proposal that we are making to the Office of Management and Budget.”

Auto makers expressed doubts about their ability to participate in a 100,000 car field test. GM said there was a “very, very severe question” whether it could achieve a 100,000 car air bag capability by the 1977 model year. Chrysler said it would not be able to participate in such a test in any less than 30 to 40 months and Ford said it “would probably be about January 1 of 1978 before we would really be able to have any large-scale production” of air bag equipped cars.

Only three other auto makers currently are conducting or have announced plans to conduct any field tests of passive restraint equipped cars. Volkswagen is currently offering an optional passive belt system on its Rabbit models, Volvo has just begun testing a fleet of 75 air bag equipped 1975 model cars, and Daimler-Benz announced at the meeting that it will begin field testing an undisclosed number of air bag equipped cars in the fall of this year.

SMALL CARS

The increasing sales of small cars, whose occupants are more vulnerable to death and injury in crashes than occupants of larger cars, were repeatedly emphasized during the hearing as one compelling

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reason to mandate passive restraints as soon as possible. At the same time, several auto makers, including Nissan and AMC, claimed the size limitations of small cars make it difficult to develop an acceptable passive restraint for such vehicles. GM observed that there is "virtually no small car air cushion field experience ...."

However, Volvo presented the result of a crash test of one of its cars equipped with an air bag system designed for 30 mile per hour protection that has been able "to meet the 30 mph injury criteria at 40 mph . . . ."

Several air bag equipment suppliers also said they have developed air bag systems that they claim can meet passive restraint injury criteria in small cars.

Olin Corp. reported that it has developed and supplied air bag "protection (driver and passenger) in subcompacts for crash speeds of 30 to 50 mph." Allied Chemical Corp. claimed that it "has developed air cushion passenger systems and components for compacts, intermediates, full size and safety vehicles, for crash speeds up to 50 mph."

Rocket Research Corp. stated it has developed air bag inflators for use in the Chevrolet Vega and Ford Pinto as well as an unidentified foreign subcompact. Talley Industries, in a written submission to the passive restraint docket, said it has previously worked with GM on air bag systems for smaller vehicles, and is currently developing "a complete front passenger air cushion" system for an unidentified foreign car manufacturer.

The DeLorean Corp. presented the results of its market study showing that sales of the "two lowest weight classes" of cars "will almost double in volume" during the next ten years, while the "two higher weight classes will by contrast decline substantially." The trend toward smaller cars will mean a "frightening increase in highway injury and death unless passive occupant restraint standards are promptly imposed." Failure to require passive restraints could "result in injuries and fatalities increasing almost a drastic 40 per cent by 1985," DeLorean told the meeting.

Concern about the safety implications of having more small cars on the roads was also repeatedly expressed by NHTSA Administrator Gregory, who stated during the meeting that "as we move, as everyone has more or less agreed we are likely to, to smaller and lighter cars, the potential risk, as far as fatality and severity of injury, is likely, also, to increase unless increased safety accompanies the development of these smaller cars."

To illustrate the effectiveness of passive restraints in protecting the occupants of small cars, Allstate Insurance Co. presented the results of crash tests comparing the protection offered by air bags with that provided by a lap and shoulder belt. Using a test sled simulating a compact size car, Allstate conducted a 30 mile per hour and an approximately 43 mile per hour crash simulation. In each crash, the lap and shoulder belted passenger dummy experienced forces exceeding the injury protection limits of NHTSA's occupant crash protection standard 208, while the forces experienced by the air bag protected driver dummy did not exceed limits prescribed for the standard. Allstate emphasized that its test results do not mean that occupants should not wear current belts, but rather that standard belts "do have serious limits to their protection capabilities," and that this is "especially true in high speed crashes when passive protection systems such as the air bag have their highest performance potential and in small cars where belts are not as effective as in larger cars."

While expressing concern about the problems of applying air bags to small cars, several auto makers mentioned systems they have developed for subcompacts. GM said it has tested a system for subcompacts which meets the head and chest protection limits of standard 208 in frontal impacts, but needs more development to meet the leg protection requirements. GM said its testing has been "very preliminary" and

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Haddon Urges Passive Restraint Requirement

William Haddon, Jr., M.D., who headed the federal highway safety effort from 1966 to 1969, told the National Highway Traffic Safety Administration that a federal standard requiring passive restraints, such as air bags, in all new cars “will go farther toward achieving crashworthiness for motor vehicle occupants in crashes than any single standard yet introduced.”

Haddon said, “From 1966, when this federal agency was established, until 1969, I administered its programs. Important as those early years were, no single standard before us for decision then was as critical to the health of Americans as the one being considered at this hearing. [NHTSA Administrator] Dr. Gregory and his staff are to be envied; they are in a position to take a step that would prevent more death, more maiming and more agony than ever before has been eliminated by a Federal Motor Vehicle Safety Standard.” Haddon now is president of the Insurance Institute for Highway Safety.

The federal government should “reaffirm its requirement that future new cars be able to automatically – ‘passively’ – protect their occupants from death or serious injury in specified crashes up to 30 miles per hour,” Haddon said. The requirement is now proposed to be set for 1977 model cars.

Haddon and IIHS Senior Vice President Albert Benjamin Kelley, showed the agency results of newly-completed IIHS crash tests comparing unbelted occupant protection in crashes of air bag equipped cars with the violence that confronts such occupants in cars not equipped with air bags. The crash tests were run with production model 1975 Oldsmobile 98 sedans that the Institute purchased from auto dealers.

Two cars were equipped with air bags; one was not. With anthropomorphic test dummies in their front seats, two cars were crashed into barriers at more than 35 miles per hour; one at 19 miles per hour.

The tests “clearly indicate the advantages of air bags for occupants who do not use belt restraints – at least 70 per cent of the occupants of recent model year automobiles,” Haddon said.

AIR BAGS . . .

“Air bag equipped automobiles have, to date, traveled more than 100 million miles – the equivalent of 4,000 trips around the earth – and have been involved in more than 1,000 real world crashes. The large majority of these were low severity crashes in which the air bag was designed not to deploy, and in which it did not deploy. There have been sufficient numbers of deployments, in the severe crashes in which the air bag was designed to deploy and did deploy, to indicate the real world performance of air bag systems. The results from the 47 tow-away crashes involving air bag deployments that had occurred as of May 8, 1975, indicate that air bags are at least as effective as belts (when the belts are used) and clearly far more effective than no restraints.

“In addition . . . there has been an extraordinary amount of controlled laboratory testing of air bags using human volunteers, cadavers, animals and dummies. Much of the recent laboratory testing has indicated that it is possible for air bags to provide protection in barrier-equivalent frontal crashes at least up to 50 miles per hour – a higher maximum speed than for conventional belt systems. It is clear from the bulk of the laboratory testing performed so far that, in frontal impacts, at least, the air bag offers protection superior to conventional three-point belt systems. The advantages of air bags over all belt systems become pronounced at the higher impact speeds.

“Thus, there is no justification for claims that for belt users, the air bag is only a more costly replacement of the upper torso belt; this is simply not so,” Haddon said.

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These two sequences of photographs and the photographs on page one were excerpted from closely corresponding moments in footage of two crash tests conducted by the Institute. The tests allow comparison of the automatic crash protection provided by an air bag equipped 1975 Oldsmobile 98, crashed into a barrier at 37.5 miles per hour, with the lack of protection in an identical car not equipped with air bags, crashed at 35.3 miles per hour.

**With Air Bags . . .**

![Image 1]

![Image 2]

The photo sequences begin just after impact and continue as the unbelted anthropomorphic dummies "ride down" the crash, one into an air bag; the other into a dashboard.

**Without Air Bags . . .**

![Image 3]

![Image 4]
The sequences end with the air bag restrained dummy erect and in position. The unrestrained dummy is out of position and has been impacted by the glove compartment and other components torn loose in the crash.
... AND BELTS

Although safety belts – an active restraint system – “do what they do well,” Kelley said, “safety belts do not provide protection of any kind for at least 70 per cent of the occupants in the very newest cars – the 1974 and 1975 models equipped with the comfortable, easy-to-use three-point inertia reel systems – and in addition, the belts are providing no protection whatsoever to more than 80 per cent of occupants in the 1972-1973 model cars. For still older cars, the level of protection is even lower. Further, active safety belts and active child restraint systems are providing protection to only 7 per cent of children 10 years or younger in cars. The remaining 93 per cent travel without restraint-system protection, or are improperly restrained.

“That is tragic, but it is a fact, which all the wishing in the world won’t change. For whatever reason, a large majority of drivers and passengers are not electing to use the active restraint systems now available, nor have they done so since the advent of the safety belt,” Kelley said.

Safety groups, auto manufacturers, insurers, belt makers, government agencies and other interests have spent “vast sums of time and money” to advertise and publicize the benefits of safety belts use only to achieve “at best a belt use level for occupants of 10 to 25 per cent” as a result of that investment, Kelley noted. “Like it or not, the idea that belt use levels can be substantially increased by persuasion is unsupported by the record and contrary to the scientific evidence. ‘Persuasion’ is a dead issue,” he said.

Citing the now-abandoned safety belt ignition interlock and ill-fated attempts to legislate mandatory belt use, he added that “considerable” evidence indicates that belt use cannot be increased by coercion.


OUT-OF-POSITION OCCUPANTS

The effectiveness of air bags in protecting the out-of-position occupant, particularly the standing child, was demonstrated by several test results presented at the meeting.

Filmed crash tests of air bag equipped cars, released by IIHS, included one in which the unbelted adult size occupant dummies experienced a panic-type braking deceleration from 36 miles per hour, followed by a 19.3 mile per hour frontal crash into a barrier. In the test, the dummies moved forward under panic braking, but during the crash were positioned by the air bags back into their seats, preventing injurious contact with the car's interior.

Olin Corp. presented the results of successful tests involving a 50 mile per hour crash with a child leaning against the dash and a static air bag test, designed to simulate an inadvertent deployment, with an out-of-position child.

Three other air bag component suppliers, Allied Chemical Corp., Rocket Research Corp. and Talley Industries, Inc. also stated that they have developed air bags that effectively protect out-of-position children.

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During the meeting, Chrysler Corp. claimed that belts already “solve the problems of standing children and out-of-position passengers . . . .” IIHS pointed out that Chrysler failed to explain how belts solved the problem since, as a recent IIHS survey of restraint use by children found, 93 per cent of children less than 10 years old were unprotected by any restraint. (See Status Report, Vol. 10, No. 10, May 12, 1975.)

PUBLIC ACCEPTANCE

Public reaction to the air bag was not emphasized as a major source of concern at the hearing. Speaking for insurance associations and companies, Donald Segraves said that an air bag was “no more a source of irritation than the energy-absorbing steering column or the safety glass in the windshield.”

There was some debate over GM’s experience with the air bags it offered as options on certain full-size Oldsmobile, Buick and Cadillac 1974 and 1975 models. GM alleged that the low sales volume indicated a lack of public acceptance. Allstate, however, argued that “the public never had a real chance to become informed and the greatest marketing organization in the world, General Motors, never really put a marketing push behind the air cushion.”

At the hearing, IIHS showed a film, highly favorable to air bags, that was produced by General Motors for showing to Buick dealers. In presenting the film, IIHS Senior Vice President Albert Benjamin Kelley said, “Unfortunately, General Motors does not make a general distribution of this film, even though the company states it is actively marketing air bags as an option.”

Segraves, speaking for auto insurers, felt that implementation of FMVSS 208 was reasonable within the statutory meaning in the 1966 Motor Vehicle Safety Act but GM thought the standard should meet “a broader test of reason, including public acceptance.” GM cited a poll conducted among owners of 1975 Oldsmobile full size cars. GM said the results showed that the majority were not willing to pay the price of the system, while others either did not have confidence in the “experimental” system or believed their cars were already safe enough.

However, the GM survey also revealed that only “68 per cent of the purchasers were aware at the time of purchase of the availability” of the air bag option. The remaining 32 per cent did not know the air bag was an option on the car they were buying. Moreover, statements at the hearing indicated that obtaining air bag equipped cars sometimes required special order with consequent delayed delivery. Additionally, air bag equipped cars were not available in some models without air conditioning and digital clocks.

The American Automobile Association, citing several polls of its members, claimed that air bags did not have the necessary public support.

In testimony on the last day of the meeting, IIHS challenged public acceptance studies that had been cited by GM and AAA. The Institute pointed out that “the studies cited by General Motors fail to support its conclusions” and that the “advance information given by the pollsters to the respondents was biased in important ways.” For example, respondents in one study were told that “a lap belt — or a combined lap and shoulder belt — protects occupants at all speeds. With the dice thus loaded, it is surprising that any respondent favored air bags, optional or mandatory,” IIHS added.

IIHS also pointed out that the respondents in the AAA surveys were “self-selected, and therefore violated one of the most thoroughly documented requirements of scientific surveys. The results, therefore, are without value, and undoubtedly biased,” IIHS said.

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MANDATORY BELT USE LAWS

The debate on mandating belt use centered on the likelihood of getting belt use laws passed by the states. Some witnesses argued that early passage of such laws was likely and that they therefore are a realistic alternative to passive restraints. Others, citing repeated past failure to get belt use laws through any state legislature, argued that the passive restraint approach is the only feasible way to provide effective occupant protection.

The most passionate advocate of belt use laws was Charles Pulley of the American Safety Belt Council, an association of safety belt manufacturers. He told NHTSA Administrator Gregory, “The states are looking to you for the leadership in the seat belt use law” and alleged NHTSA was prejudiced in favor of air bags and against belts.

Goldmuntz, who also supported belt use laws, argued that the Congress did not prohibit the use by NHTSA of existing funds as incentive grants to states passing such laws but merely refused to authorize new funds. NHTSA feels that the Congress, at least implicitly, has prohibited federal incentive grants to promote mandatory belt use laws. (See *Status Report*, Vol. 9, No. 13, July 8, 1974)

Most of the auto makers supported belt use laws. AMC urged “NHTSA and all 50 of the United States to vigorously pursue this avenue of higher safety . . . .” Ford Motor Co. said it believed that “equity demands that the burden of protecting the careless should be placed on the careless – by requiring them to buckle up.” When asked by Dr. Gregory, however, whether wearing seat belts was a company policy, the four major American manufacturers each replied that they did not have any such requirement.

Among other supporters of mandatory belt laws were Volkswagen, British Leyland, Citizens for Highway Safety (a newly formed group supported by companies marketing highway safety equipment) and Takata Kojyo Co., a belt manufacturer.

Sen. Hartke, who is on record in the Senate as supporting belt use laws, said that the issue was their “political viability” and that their passage by states was unlikely. IIHS pointed out that, “Proponents of mandatory belt use laws – auto makers, safety belt manufacturers, insurers and others – have managed to get legislative proposals introduced, at one time or another, in more than half of the state legislatures during the past few years. Despite this, other than by Puerto Rico, not one mandatory belt use law has been passed.”

Professor Lawrence Patrick of Wayne State University said he thought it could take at least 10 years for all the states to pass mandatory usage laws. He proposed mandatory belt use for those who did not buy air bag equipped cars but, when questioned by Dr. Gregory, could not say how such a law would be passed or enforced.

Daimler-Benz suggested a return to a continuous buzzer warning. The American Safety Belt Council claimed that “lights and buzzers had some effect on belt use, although not what anyone expected.” (An IIHS study found that there was no difference in belt usage rates between drivers of 1972 and 1973 cars with and without the buzzer-light warning system. See *Status Report*, Vol. 9, No. 13, July 8, 1974.)

BELTS vs. BAGS

Another aspect of the debate on safety belts was disagreement on the relative effectiveness of protection provided by belts and by air bags. Several auto makers and others argued that belts were an effective and proven restraint system and, as Chrysler said, “It is time to start working together to convince people to use the simple and reliable belt system.” Volkswagen argued that air bags were a convenience measure, “only necessary for the occupant who for any reason declines to use the restraint system.”

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available.” GM said that lap belts must still be worn in air bag equipped cars “in order to derive fatality protection comparable” to that now obtained from lap-shoulder belts. Chrysler said that, “for belt users, the air bag becomes a $300 shoulder belt in frontal collisions only.”

Allstate, reviewing real world crashes of air bag equipped cars, claimed that in several instances the air bag had saved occupants from death or serious injury. Allstate emphasized that several of these occupants were not wearing belts, which “can only aid in fatality reduction or injury prevention if they are worn or used by the occupant.”

Following is an excerpt from remarks by Insurance Institute for Highway Safety Senior Vice President Albert Benjamin Kelley, delivered on the closing day of NHTSA’s public meeting on passive restraints.

It has been suggested that under proposed Standard No. 208 (March 19, 1974), air bags or another passive restraint system would be nothing more than “passive” replacements for the present “active” upper torso restraints. No characterization could be less accurate or more misleading.

What proposed Standard No. 208 actually would require, starting in the 1977 model year, is:

- Provision of basic, universal, automatic protection — passive restraint protection — for unbelted front seat occupants in barrier-equivalent frontal collisions at speeds up to 30 miles per hour. No active restraints of any kind, including belts, would be permitted in satisfying this requirement.

This protection would be afforded to all front seat occupants — both to the more than 70 per cent who are now not protected and to the less than 30 per cent who presently use active belt systems.

- As a supplement to the required passive protection, provision of active front-seat lap belts, even though fewer than 30 per cent of occupants would predictably use them.

This requirement of auxiliary front seat belt systems would apply only in cars whose manufacturers were unable or unwilling to provide passive protection against injury to front seat occupants in roll-overs.

To say that “passive” protection is therefore not required under this option because it is not “passive” for all crash modes is equivalent to saying that the energy-absorbing steering assembly is also not “passive” because it doesn’t provide protection in side collisions. Both statements are wrong.

ADVANCED SYSTEMS

Presentations by several air bag equipment suppliers demonstrated that NHTSA’s 30 mile per hour passive restraint protection level already is being outpaced by the protection performance levels offered by existing passive restraint systems. Olin Corp. showed test results for an air bag system for the right front seat of a standard sized car that met standard 208’s injury criteria in a 50 mile per hour impact.
Rocket Research Corp. reported it has an air bag inflation system that "has proven itself... as an excellent candidate to both accommodate high speed (45-50 mph) crash conditions and to provide out-of-position occupant protection." Allied Chemical also reported that it has developed air bag components for crash speeds up to 50 miles per hour.

RETROFIT

Most of the testimony on retrofit came from Control Laser Corp., a manufacturer of air bag systems that says its product can be retrofitted for the driver's position on many automobiles presently on the road. Control Laser said that its "Crash Cushion," which currently sells for $75, can, in conjunction with lap belts, meet the present FMVSS 208 requirements. Mass production could reduce the price to $40, it claimed. About 2,000 such cushions have been sold and no failures or inadvertent deployments have been reported, it said.

In a recent letter to NHTSA, IIHS President William Haddon, Jr., M.D., wrote the agency that failure to solicit data on passive restraint retrofit among subjects for discussion at the meeting was a "serious" omission in its rulemaking exercise. (See Status Report, Vol. 10, No. 9, April 28, 1975.)

In written testimony submitted in connection with the meeting, Rocket Research Corp. said that ensuring "required dynamic performance" with retrofit units presents a "special technical problem." Rocket Research added that the development of retrofit systems was "required to create a market" for the inflators it makes.

NHTSA Reopens School Bus Dockets

At the request of Reps. John E. Moss (D-Cal.) and Les Aspin (D-Wis.) and others, the National Highway Traffic Safety Administration has reopened the comment period for proposed school bus safety standards on body joint strength, rollover protection, emergency exits and fuel system integrity.

NHTSA said that Moss and Aspin had requested more time so that members of the Congress could adequately review the school bus proposals. The Motor Vehicle Manufacturers Association and the Truck Body and Equipment Association also requested additional time to comment on the fuel system proposal. Last year, the Congress directed NHTSA to issue school bus standards to improve the safety of those vehicles. (See Status Report, Vol. 9, No. 19, Oct. 29, 1974.)

Shortcomings in the body joint strength, rollover protection and emergency exit proposals have previously been pointed out by Status Report. (See Vol. 10, No. 7, March 31, 1975.)

The new deadline for comments is June 26, 1975. Comments on proposals for joint strength (Docket 73-34, Notice 2), emergency exits (Docket 75-3, Notice 1), rollover protection (Docket 75-2, Notice 1), and fuel system integrity (Docket 73-20, Notice 4) should be sent to: Docket Section, National Highway Traffic Safety Administration, 400 Seventh St., S.W., Washington, D.C. 20590.
TEST DUMMY

In December, 1972, the U.S. Court of Appeals for the Sixth Circuit, found that the NHTSA’s original specifications for test dummies were invalid. (See Status Report, Vol. 7, No. 23, Dec. 18, 1972.) In August, 1973, NHTSA adopted new specifications for the test dummy, based primarily on specifications developed by GM.

At the recent public meeting, several auto makers, including AMC, Chrysler and Ford, again raised objection to the test dummy, claiming, as Chrysler stated, that “the existing test dummy, despite some recent improvements, still is not an objective test device nor is it representative of human response.” (The court in its 1972 decision did not rule on auto makers’ claims that “the dummy is a poor predictor of human response.”)

GM told the meeting that despite “inadequacies” in the test dummy, it endorses “the continued use of the . . . dummy for the qualification of air cushions in the limited test modes for which dummy specifications have been established.” However, GM claimed that a “standard is unreasonable that requires the use of demonstrably inadequate test technology that could preclude the development of a good restraint system or inhibit the development of new restraint systems.”

Humanoid Systems, a manufacturer of the new test dummy, referred to the sensitivity of present dummies to “the many external factors which today promote different results on dummy testing, depending upon who does the test, with what equipment and under what environmental conditions.”

Responding to the many criticisms regarding the inability to reproduce test results, IIHS President William Haddon, Jr., M.D. observed that the fact that test results differ “is not an argument to say that the test method or the measurement method is itself invalid.” Because test results can be expected to differ, manufacturers should “plan not to cut things as close as possible . . . but, rather, provide for some leeway . . . to make things safer in the proper direction.”

Alderson Research Laboratories, Inc., another dummy manufacturer, said the new test dummy specifications adopted by NHTSA meet “the court’s requirements for improved and specific definition of the dummy” and give “the automotive users a repeatable test instrument which should prove to be a useful tool.”

Volvo Warns Belt Data Misunderstood

Volvo has warned the National Highway Traffic Safety Administration that research data from two studies concerning the effectiveness of safety belts in Volvo cars have been misunderstood.

Some witnesses at NHTSA’s recent air bag meeting cited the data to support claims of comprehensive belt effectiveness, but Volvo now has stressed that its data in one study allow “no conclusion” that “belted occupants would have survived more complex accident situations such as side or multiple impacts, rollovers, etc.,” than those covered by the study.

Volvo said of the other study, “No conclusion can or should be drawn, . . . that belted occupants survived collisions of 60 miles per hour barrier equivalent velocity” in Volvo crashes in the real world.

In a letter to NHTSA’s docket, Volvo said it was setting the record straight because, during testimony at the meeting it “became apparent that some misunderstandings exist in regard to accident research data published by Volvo.”

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The Volvo data were cited at the meeting by, among others, Economics and Science Planning and Professor Lawrence Patrick, of Wayne State University, who both argued that belts were at least as effective as air bags in affording occupant protection.

ESP said at the meeting that NHTSA, in its revised cost-benefit study of air bags, used “an effectiveness figure of 40 per cent whereas AB Volvo, in its analysis of 28,780 involvements (1965-1966) experienced a fatality incidence reduction of 90 per cent . . . .” But Volvo’s letter said the information on velocity was “obtained from accident records review and consisted of subjective estimates made by drivers, passengers, reporting police officers, etc. Its relation to today’s commonly used ‘barrier equivalent velocity’ is obviously unknown.”

Patrick suggested at the meeting that a 1974 Volvo study of belt systems, of which he was a co-author, “might be a way for NHTSA to evaluate the effectiveness of systems.” Volvo’s letter said, however, that “some misunderstanding may be associated” with the study “on a series of frontal impacts in Swedish traffic, selected because of their similitude to frontal barrier collisions performed in the laboratory.”

The letter stressed that the “research objective was to find possible correlation between real life injury patterns and physical data as recorded by a test dummy located on the front seat during barrier impacts . . . . Accidents involving complex types of impacts (e.g. rollovers) were not considered in this investigation. Furthermore, frontal impact accidents with complicated occupant crash loading caused by other passengers, luggage, etc., were also excluded.”

Because of this “specific goal,” Volvo added, the conditions were favorable for “an efficient mitigation of severe injuries by wearing 3-point belts” and “the injury levels actually observed were lower than would be expected in usual highway collisions.”

Last October, Volvo made a similar docket submission designed to clarify its technical paper on the possible effects of air bag inflation on a standing child. At the meeting, Volvo said of that paper, “Unfortunately we did not fully realize beforehand that good scientific work can be misused as well as used!”

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