

## Child Restraint Law Adopted in Virginia

Virginia legislators have passed a bill making parents responsible for having children under 4 years of age properly restrained when riding in a motor vehicle. It will require the children to be secured in an approved child restraint or, in the case of 3-year-olds, to wear a seat belt.

The legislation, expected to be signed soon by Gov. Charles S. Robb, is to become effective Jan. 1, 1983. It applies to parents and guardians of children riding in vehicles registered in Virginia. Schoolbuses, other buses, and farm vehicles are exempted. Physicians may also certify exemptions when health or other reasons make child restraint use impractical.

Persons who can demonstrate they are unable to purchase child restraints will be able to obtain seats on loan from the state for as long as they need them.

State Sen. Fred Gray, the bill's chief sponsor, told *Status Report* he had attempted to get a similar bill through during the 1980 session, but it had failed in committee because of concern for parents who could not afford to buy restraints for their children.

The penalty under the new bill for not restraining children will be a civil fine of \$25. Fines will be used to help buy child seats for the loan program, as will grant funds from the National Highway Traffic Safety Administration's 402 program.

If a parent stopped for violating the law can demonstrate inability to purchase a child restraint, Gray said, the fine will be waived and a loan seat will be made available.

### ***Maryland Raises Legal Drinking Age***

Maryland legislators have voted to raise the minimum drinking age for beer and wine from 18 to 21 for those not reaching their 18th birthday by July 1. The bill now goes to Gov. Harry Hughes for his signature, considered certain because of the governor's advocacy of the change.

Current law allows 18-year-olds to purchase beer and wine but restricts sales of hard liquor to those 21 and over. The newly-adopted legislation contains a "grandfather clause" permitting those who are 18 prior to July 1, 1982, to legally purchase beer and wine. Persons born after July 1, 1964, will have to wait until they reach 21. The legislature dropped a provision that would have exempted persons serving in the armed forces.

*(Cont'd on page 7)*

## Energy-Absorbing Steering Columns Failing In Crashes

European researchers have reviewed energy-absorbing steering assembly performance in actual crashes and suggested possible improvements to current safety standard compliance test requirements.

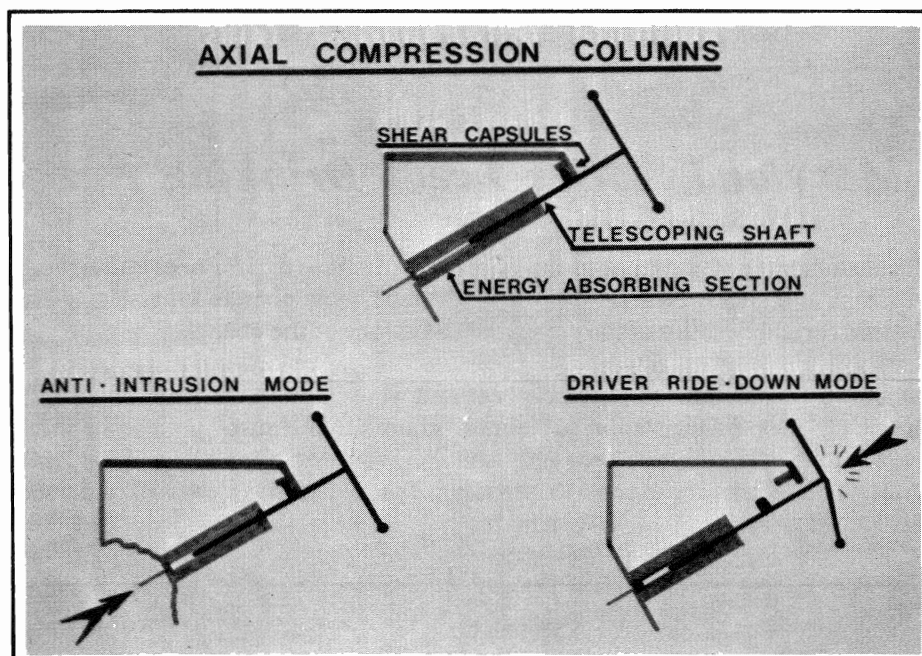
In a paper presented in Detroit before the Society of Automotive Engineers recently, British researchers, P.F. Gloyns, S.J. Rattenbury, and H.R.M. Hayes of Salisbury, England, studied two groups of drivers who sustained serious or fatal injuries in frontal crashes; one group was wearing lap and shoulder belts, the other drivers were unrestrained.

For unbelted drivers, the most common energy-absorbing steering column designs often failed to perform as intended, even though compliance tests indicate they work well. For example, in one case involving a Datsun 120Y (European model), the researchers found the unrestrained driver sustained fatal chest injuries as a result of contact with the steering wheel during a frontal impact. Examination of the steering column revealed the energy-absorbing components of the assembly did not function during the impact; yet, when they examined the assembly under the appropriate regulatory test conditions, the steering assembly performed in the required manner.

### Defunct Designs Do Better

Self-aligning steering assemblies did much better in real-world crashes, but not as well in compliance tests. Under FMVSS 203 and 204, steering assemblies are required to absorb frontal impacts to prevent the massive crushing injuries and chest impalements so common in earlier models. Two basic designs of energy-absorbing systems have been developed: the telescopic (axial collapse) system and the self-aligning deformable can. (See *Status Report*, Vol. 15, No. 14, Sept. 17, 1980.) For some years, a few European and some domestic manufacturers produced cars equipped with self-aligning systems, but recently, these designs were dropped and virtually all cars are now produced with telescoping designs.

The researchers, whose work was sponsored by the Insurance Institute for Highway Safety, found several reasons for the more common system's failure. Frequently, they found the shaft of the column was deformed during the crash sequence, just prior to the driver striking the wheel, or the wheel was rotating so rapidly the torsion in the shaft caused binding in the column, preventing energy absorption. In addition, they found in many cases that during the crash sequence, the steering wheel was struck by drivers with upwards force, causing the wheel to move vertically, binding the column and preventing energy absorption. In addition, instead of hitting the steering wheel squarely and spreading the crash load evenly across the chest as happens in the compliance tests, drivers frequently



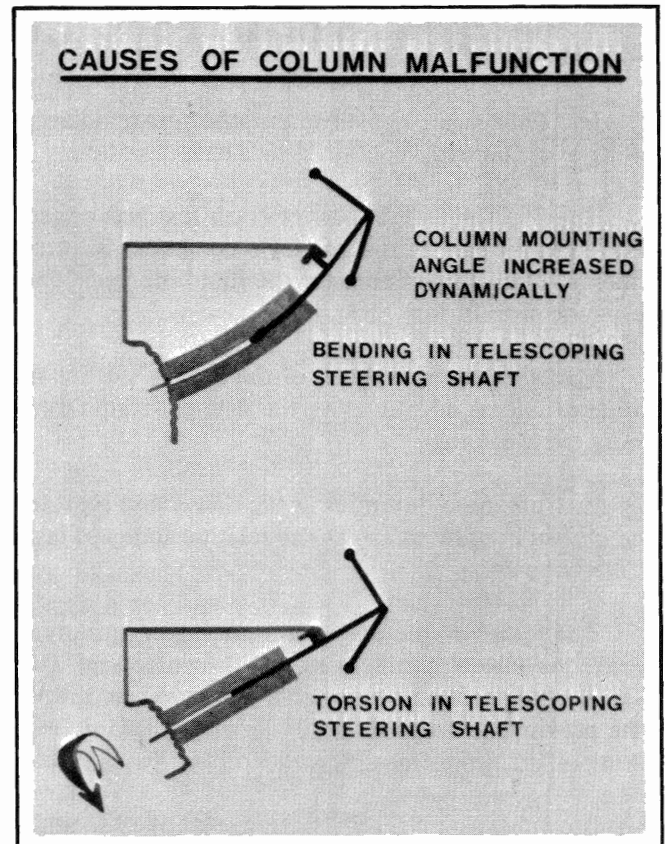
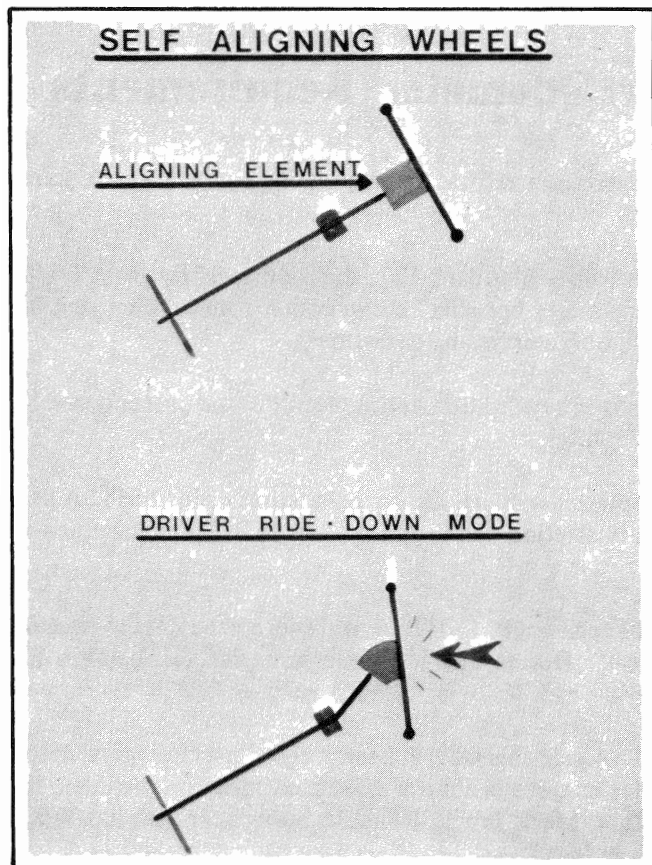
strike the edges of steering wheels, causing much more severe injuries than would have been expected with square impacts.

Looking at all frontal crashes, the researchers found over half the belted drivers with serious or fatal injuries had struck the steering wheel with either their head or face. Poor restraint systems were identified as a cause for the phenomenon in only 8 percent of the cases, they reported, adding: "It must be stressed that head contacts on the wheel are a predictable occurrence even for seriously-injured drivers whose lap-shoulder belt restraint system functions correctly."

In a presentation, one of the authors of the paper, Peter F. Gloyns, remarked that while these head and facial injuries are not, in general, life-threatening, "they tend on the whole to be disfiguring injuries."

The researchers suggested a range of modifications to the three federal motor vehicle safety standards to provide greater protection for belted and unbelted drivers:

- *FMVSS 201* (Occupant Protection in Interior Impact) - This rule does not currently cover the steering wheel or face. The researchers recommend that drivers be protected in these predictable impacts by including the steering wheel in this standard, stipulat-



ing a range of possible head-to-wheel trajectories and setting injury criteria which would take into account the "relative vulnerability of the facial bones." They also recommended studies be undertaken to determine the most appropriate impact speed for tests.

- *FMVSS 203* (Energy-Absorbing Steering Assemblies) - Energy-absorbing steering assemblies should be dynamically tested both at normal mounting angles and vertical angles above the normal mounting angle. During such tests, it should be required that the area of the wheel in contact with the chest block never fall below a specified minimum whenever the force exceeds a given level. In addition, the current peak load requirements should be satisfied in all tests.

- *FMVSS 204* (Steering Control Rearward Displacement) - This rule should be modified to limit the vertical movement of the steering wheel, as well as horizontal movement, in crashes, the scientists said. This would benefit lap/shoulder-belted drivers by limiting the wheel-to-head contact speed, and would help ensure that the wheel stays in an appropriate position for chest contact with unbelted drivers, they said.

Single copies of the paper, "Accident & Laboratory Studies of Driver Interaction With the Steering System in European Cars," by P.F. Gloyns, S.J. Rattenbury, and H.R.M Hayes, can be obtained from IIHS, Watergate 600, Washington, D.C. 20037.

## Volvo Tops Crash Rating Scores

In a February 10 government crash test, Volvo's DL—its lowest-priced model—got the best crashworthiness rating ever attained, federal officials have reported.

The 35 mph frontal barrier crash test was conducted by the National Highway Traffic Safety Administration (NHTSA) as part of the agency's consumer information program. The test was conducted at the agency's East Liberty, Ohio, facility and, for the first time since the agency began the crash test series, reporters were able to observe the procedure.

Michael Brownlee, head of the agency's office of automotive ratings, told *Status Report* there had been some initial problems in evaluating the data generated during the crash test, but the results were finally made available about two weeks ago.

Instrumented dummies in the driver and right front passenger positions measured the forces generated during the impact in order to assess the relative ability of tested vehicles to protect belted front-seat occupants in a 35 mph frontal impact.

The forces on the driver and passenger dummy heads, measured in terms of the Head Injury Criterion (HIC), were "the lowest numbers ever," Brownlee said. On this scale, where a value exceeding 1,000 has been used by NHTSA to indicate unacceptable performance, the Volvo driver dummy rated 550 and the passenger dummy 381. The previous low was for a 1981 Honda Civic with the driver dummy receiving forces of 607 and the passenger a rating of 492. (See *Status Report*, Vol. 16, No. 17, Oct. 20, 1981.)

Brownlee said NHTSA's crash tests of 1982 models will be going "full tilt" shortly, and he expects testing will be completed by midsummer.

## NHTSA Revokes Speedometer/Odometer Requirements

The federal safety standard requiring a speedometer in a passenger vehicle and stipulating some design features of the instrument was eliminated March 25.

In announcing the revocation of Federal Motor Vehicle Safety Standard 127, the National Highway Traffic Safety Administration (NHTSA) predicted that no "significant safety benefits" could come from maintaining the standard, and that revocation would provide savings for both manufacturers and consumers.

The standard, adopted in its original form in 1978 and revised several times, has required that passenger vehicles have a speedometer/odometer with these features:

- Speed graduations in both miles per hour and kilometers per hour. (In its revocation order NHTSA said this is no longer necessary because the Federal Highway Administration had dropped plans to use metric values on roadside signs.)
- A highlighted "55" to remind drivers of the national speed limit. (NHTSA said there is no data to support the belief that this has any safety benefits, and, anyway, only Honda had indicated any plan to abandon the highlighting.)
- A top speed indication of 85 mph or 140 km/h. (NHTSA said this was, at best, only a "psychological deterrent" to speeding and that the shift to smaller cars with smaller engines is a more effective limitation. Besides, the agency said, American Motors, Chrysler, Ford, General Motors, Mack Truck, Renault, Subaru, and Volvo-White Truck Corp. have said they would continue the limit of 85 mph or less.)

- A tamper-resistant odometer. (NHTSA said this requirement, to become effective Sept. 1, 1982, to alert drivers of potential safety problems “is apparently not crucial.”)

### **Cost Savings Reported Minimal**

Although in the revocation order NHTSA predicted savings from eliminating the speedometer/odometer requirements, the agency’s “Final Regulatory Evaluation” had identified the costs as minimal. While NHTSA had estimated costs of about \$1.50 a vehicle at the wholesale level, the agency cited data from Ford Motor Co. figuring the cost at about 75 cents a vehicle to the maker, \$1.06 at wholesale, and about \$1.30 at retail.

When FMVSS 127 was proposed in 1976, NHTSA had estimated that limiting the speedometer readings to a maximum of 85 mph would bring a 5 percent reduction of high-speed crashes involving young drivers, or 175 fewer fatal and 1,900 fewer injury crashes. “Since the benefits cited in the previous analysis have not been substantiated,” NHTSA said in the regulatory evaluation, “the Agency can no longer support them.”

“The maximum speed reading requirement of 85 mph-140 km/h has been somewhat artificial in that it has never signified the vehicle’s true speed capability,” NHTSA said. “Any driver willing to travel at speeds exceeding the maximum reading could have done so, if the vehicle was capable of cruising at higher speeds. Until the mid-1970’s, the maximum speedometer reading was 120 mph on most cars, many of which were capable of cruising at or near such speeds.”

## **Pavement Skid Resistance Rulemaking Dropped**

The Federal Highway Administration (FHWA) has dropped proposed rulemaking covering skid-resistant pavement design, saying a change in the current rule is unnecessary.

Lack of agreement on the merits of the proposed rule demonstrated “that the existing policy on the use of skid-resistant surfaces is adequate and should continue,” the FHWA said in a March 4 *Federal Register* notice.

The agency was referring to responses to its April 1980 proposal suggesting only “adequate” skid-resistant road surfaces be used rather than those meeting specific and objective standards.

While the FHWA’s 1980 proposal would have established policy and procedures for state highway agencies to consider when designing skid-resistant pavement surfaces, it made no attempt to define what it meant by “adequate.” That point generated criticism from both the Insurance Institute for Highway Safety and the National Transportation Safety Board. (See *Status Report*, Vol. 15, No. 10, June 25, 1980.)

The safety board urged the FHWA to not only set minimum skid-resistance criteria, but to develop a program to identify hazardous locations based on wet pavement crash histories, as a way of setting priorities.

In its March 4 notice, the FHWA noted two “responders” had made such suggestions but did not identify the respondents and made no attempt to provide a technical response to the fundamental issues raised.

The FHWA also noted criticism from construction firms who opposed any tightening of the current guidelines, for fear they would drive up construction costs. Nine out of 15 states responding to the proposed rule change said it was unnecessary because the states already had adequate skid-resistance programs in place.

The FHWA notice did not deal with specific suggestions in its docket notice withdrawing the proposed rulemaking, but it did say the agency “believes that state and local officials have the expertise and information to best determine what type of skid-resistant surfaces should be used.”

## Higher NHTSA Appropriations Sought

The administration has requested \$81.6 million for NHTSA's Operations and Research budget, an increase of \$6.7 million over the agency's final 1982 appropriation of \$74.9 million. The largest portion of the increase would be \$4.1 million for research and analysis, Raymond Peck, NHTSA administrator, has told Congressional committees.

The agency also is seeking to raise its compliance test budget by \$1.5 million under its enforcement program, Peck said, along with an additional \$1.4 million to combat drunk driving and encourage seat belt use under its highway safety programs. (In actuality, these programs will cost much more. The House Appropriations Committee on Feb. 23 "reluctantly" approved Peck's reprogramming request of \$6.98 million in FY 1981 and FY 1982 funds for the safety belt campaign.)

The rest of the increase was \$1.5 million for "mandatory" increases attributable to staff promotions, Peck's testimony said, with an offsetting drop of \$1.8 million resulting from personnel reductions.

Peck is seeking a total of \$78.5 million for state and community highway safety in FY 1983, with \$77 million set aside for Section 402 grants and \$1.5 million for school bus driver training. This funding level would be \$19 million less than the FY 1982 funding level of \$97.5 million. Most of the program funds would be directed toward alcohol countermeasures, emergency medical services, collection and analysis of traffic safety data, and seat belt use programs, Peck said. About 20 percent of the funds would be allocated toward enforcement of the 55 mph national speed limit, an amount set by Congress.

The agency is dropping its bicycle and pedestrian safety emphasis, according to budget documents. The Research Safety Vehicle (RSV) program is also being phased out, along with a wind down of heavy duty vehicle research. Fuel economy programs have also been dropped.

### — *Quoted Without Comment*

Mr. Raymond A. Peck  
Administrator  
National Highway Traffic Safety Administration  
U.S. Department of Transportation  
Washington, D.C. 20590

Dear Mr. Peck:

The Committee is approving with some reluctance your request to reprogram \$6.98 million of FY 1981 and FY 1982 funds for your newly developed Safety Belt Usage Program.

Although we strongly endorse the worthy goals of your program, we cannot ignore the results of similar public education programs of past years which have shared the ambitions of your new program, but have done little to persuade the public to "buckle up." I am not certain that your "network" approach will prove to be the critical difference in selling seat belts to the public, but I am impressed with your personal belief in and commitment to this program and think you should be given the opportunity to try and make it work.

In this day, when the only zeal I perceive in Administration officials is to slash the budget, I am willing to give an official who exhibits some initiative in pursuing the mission of his agency through a new program the benefit of the doubt.

By the same token, I trust that you will prove those critics wrong who say that this new program is a ruse to hide the Administration's real intent of dismantling the federal machinery to improve highway

safety. We expect NHTSA to actively continue efforts to breakdown the technological, economic, and social barriers to passive restraints, to get drunk drivers off the road, and to pursue other worthy programs aimed at improving highway safety.

We all realize that there can be a big payoff in highway safety if more Americans would use their safety belts. I hope you prove the skeptics wrong and that your program is a major success.

Sincerely,

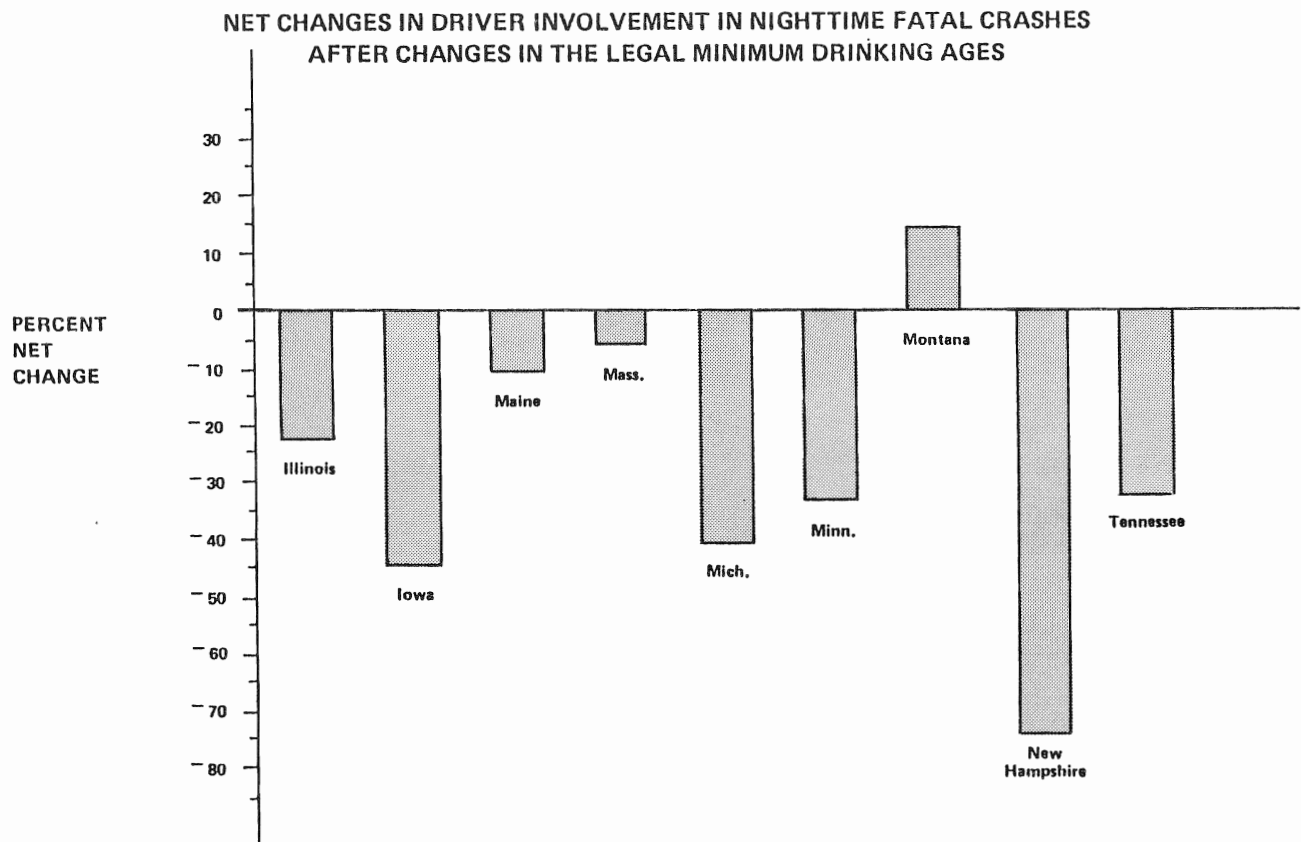
Adam Benjamin, Jr.  
Chairman  
Subcommittee on Transportation  
Appropriations

(A letter from the House Appropriations Subcommittee chairman to the NHTSA administrator, Feb. 23, 1982.)

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### **Maryland Raises Legal Drinking Age (Cont'd from page 1)**

Governor Hughes had pushed for adoption of the higher drinking age following the recommendation of a state task force on drunk driving. (See *Status Report*, Vol. 16, No. 20, Dec. 21, 1981.) William T. S. Bricker, head of the state motor vehicle administration and chairman of the state task force, has said that the recommendation was based on results of studies by the Insurance Institute for Highway Safety which found that states raising the legal drinking age could expect a 28 percent reduction in nighttime fatal crashes among the affected age groups. (See *Status Report*, Vol. 16, No. 10, July 15, 1981.)



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## Status Report

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