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Memorandum

U.S. Department
of Transportation

**National Highway
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Subject: NHTSA Action Plan for 15-Passenger Van Safety

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Reply to
Attn. of:

To: U.S. Department of Transportation
Docket Management System
Docket No. NHTSA-2003-11505

Thru: Jackie Glassman
Chief Counsel

Attached for inclusion in Docket No. NHTSA-2003-11505 is a National Highway Traffic Safety Administration (NHTSA) plan, entitled "NHTSA Action Plan for 15-Passenger Van Safety."

Attachment

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NHTSA Action Plan for 15-Passenger Van Safety

September 2003

Introduction

There is growing concern regarding the crash involvement and safety of 15-passenger vans and the resulting injuries and fatalities. There were approximately 500,000 registered 15-passenger vans in 2001, an increase of over 280 percent since 1990. Between 1990 and 2001, 1,441 15-passenger vans were involved in fatal crashes that resulted in 1,003 fatalities. Six hundred and one (601) of the crashes were single vehicle crashes, of which 316 rolled over. Heavily loaded 15-passenger vans are particularly susceptible to rollover. Confounding this problem, the rate of safety belt use among occupants of large vans involved in fatal crashes is very low compared to other types of vehicles. While this plan focuses on 15-passenger vans, the actions identified also relate to 12-passenger vans which are similar to vans configured for 15 passengers in terms of design, handling characteristics, and safety problems. NHTSA defines vehicles designed to carry more than 10 persons as buses for purposes of the Federal Motor Vehicle Safety Standards (FMVSS).

Background

Crashes involving large vans, especially rollover crashes and the resulting fatalities and injuries, have raised the level of public and NHTSA attention to this issue. In 2001, 130 occupants of 15-passenger vans died in crashes involving these vehicles. Single vehicle crashes represented 42 percent of fatal crashes. Eighty-seven percent of people who died in single vehicle rollovers of these vehicles were not wearing safety belts. Between 1990 and 2001, 15-passenger vans represented .25 percent of the passenger vehicle fleet, .26 percent of passenger vehicles involved in fatal crashes, and .25 percent of all passenger vehicle occupant deaths. During this time, 8 percent of belted occupants in these vehicles in fatal single vehicle crashes were killed, compared to 22 percent of unbelted occupants.

In October 2002, NHTSA management briefed staff from the Senate Commerce, Science and Transportation Committee and staff from the office of Senator Olympia Snowe (R-Maine) on NHTSA actions pertinent to the safety of these vehicles in the areas of research and consumer information. A rollover crash in Maine killed 14 occupants of a van in 2002. In March 2003, Senator Snowe introduced S.717 to address 15-passenger van safety. A similar bill was introduced in the House, H.R. 1641, by Representative Mark Udall. Senator Snowe's bill called on NHTSA to develop a dynamic test to assess

rollover risk for 15-passenger vans and to issue the results as consumer information; to test these vehicles at different loading levels as part of the New Car Assessment Program (NCAP); to test stability control and other technologies to assess effectiveness in reducing rollovers; and called on the Federal Motor Carrier Safety Administration (FMCSA) to apply Federal motor carrier safety regulations (FMCSR) to the commercial operation of 15-passenger vans.

Since November 2002, the National Transportation Safety Board (NTSB) has issued nine recommendations that relate to these vehicles. These recommendations encompass vehicle countermeasures, consumer information, driver programs, working with FMCSA, and cooperating with outside groups to promote the safety of these vehicles. This Plan references these recommendations under specific action areas.

The Senate Commerce, Science and Transportation Committee is considering provisions addressing these vehicles for the reauthorization of the highway programs, namely: issue a final regulation no later than September 30, 2004 to include 15-passenger vans up to 10,000 pounds gross vehicle weight rating (GVWR) in the dynamic rollover testing program mandated by the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act; require 15-passenger vans up to 10,000 pounds GVWR to comply with all existing and prospective FMVSS for occupant protection and vehicle crash avoidance; by September 30, 2004 include vehicles up to 10,000 GVWR in the NCAP rollover resistance test program, at various load conditions; require the FMCSA to implement a final rule requiring the application of the FMCSR to 15-passenger vans used for commercial purposes; and require NHTSA to evaluate and test, in conjunction with van manufacturers, the potential of technological systems (particularly electronic stability control (ESC) systems and rear-view mirror-based rollover warning systems) to assist drivers in maintaining control of the vans.

NHTSA has initiated actions in the past and is implementing new strategies to address the safety of these vehicles. This Plan describes past, current, and planned activities in the areas of Problem Identification, Consumer Information and Education, Countermeasure Research, and Vehicle Countermeasures.

NHTSA Actions and Plans

I. Problem Identification

Prior Research:

A 2001 NHTSA study included three different analyses addressing whether 15-passenger vans, especially loaded 15-passenger vans, are unusually susceptible to rollover. The results from State Data System analyses indicated that the rollover propensity for 15- passenger vans was slightly less than for the overall light truck and van (LTV) group, that rollover propensity increases with the occupancy level of the 15-passenger van, and that higher occupancy levels caused crash severity to increase from property damage only (PDO) to injury and fatal crashes. Analysis of state data also found that rollover rates for 15-passenger vans did not show any significant correlation to driver age and that fatalities occurred disproportionately to rear seat occupants, while injuries were proportional between front and rear seat occupants. An assessment also was

conducted comparing the static stability factor (SSF) of a 15- passenger van to a 7-passenger full size van and a minivan when lightly loaded (driver only) and fully loaded to

GVWR. This analysis found that the SSF for all three vehicles decreased (higher likelihood of rollover) when fully loaded. Based on a limited number of crashes, heavily loaded 15- passenger vans appear to have a higher rollover rate compared to when these vehicles are lightly loaded (with fewer occupants).

The agency also performed computer modeling to assess the handling of these vehicles. The modeling predicted understeer for 15-passenger vans when lightly loaded, similar to minivan behavior. However, when heavily loaded, it predicted understeer at low lateral acceleration, but oversteer at higher lateral accelerations. This transition to oversteer may pose safety problems for drivers who are unfamiliar with this characteristic. Loading 15- passenger vans to gross vehicle weight (GVW) also moved center of gravity rearward, increasing vertical load on rear tires.

Current and Planned NHTSA analyses for problem identification:

Assessment of Crashes, Fatalities, and Injuries in 15-Passenger Vans: The National Center for Statistics and Analysis (NCSA) is updating the crash data analysis portion of the 2001 work. The study is taking a comprehensive approach to analyzing the safety of 15-passenger vans in recent crash data. The analysis is evaluating the experience of 15-passenger vans in fatal crashes as compared to other vehicle types and the experience of 15-passenger vans in the State Data System. A report on these results will be released in conjunction with a Consumer Advisory (See Consumer Information section).

Complete analysis and agency review	September 2003
Release report	October 2003

Survey Tire Pressure and Condition in the 12- and 15-Passenger Van Fleet and Analyze the Role of Tires in Rollover Causation: As part of NHTSA's development of long-term performance requirements for tire pressure-monitoring systems, NTSB recommends (August 2003) NHTSA adopt more stringent detection standards than 25 or 30 percent below manufacturer-recommended levels. This recommendation is based on the NTSB's view that pressures at those levels may have an adverse effect on the handling of vehicles, such as 12- and 15-passenger vans. Work is currently being conducted at the NHTSA Vehicle Research and Test Center (VRTC) on the relationship of tire pressure in front and rear tires, loading conditions, and handling for a 15-passenger van (see Countermeasure Research section for detail). The agency believes that more information is needed on the level of tire pressure under-inflation and tire wear conditions for 15-passenger vans in use for potential utilization in consumer information, vehicle solutions, or other actions. To this end, NCSA will conduct a study, based on methods used in a recent light vehicle TPMS survey, to collect tire pressure and condition information on this class of vehicle. In-house analysis also will be done to examine the involvement of tires in rollover crash data.

In-house analysis of rollover crash data and tires	October 2003-January 2004
Complete tire pressure and condition survey	June 2004
Publish results of in-house analysis and survey	July 2004

Crash Mechanisms in 12- and 15-Passenger Vans: More information is needed on what happens in crashes involving these vehicles to help formulate potential vehicle solutions. NHTSA crash data will be analyzed for information on crash dynamics and injury mechanisms to inform decisions on future actions.

Complete analysis	May 2004
Issue final report	June 2004

Assess the Definition and Classification of this Vehicle Type: NTSB recommendation H-03-12 calls for NHTSA, in cooperation with the FMCSA, to revise it's definitions of buses and commercial motor vehicles to apply consistently to 12- and 15-passenger vans, taking into account the unique operating characteristics and multiple functions of these vans. NHTSA will cooperate with the FMCSA to revise its definitions of buses that are used in interstate commerce. Both agencies have assigned staff to work jointly in assessing the definitions and how best to revise them. As an adjunct to this effort, an analysis is planned to identify how this type of vehicle is classified at the state and other jurisdictional levels. In some cases, legal loopholes exist at the state level as a result of classifying this type of vehicle as a bus (for example, exemption from laws requiring use of child restraints). The output of this analysis will be a list of the laws in the 50 states and the District of Columbia that apply to this class of vehicle and an assessment of the implications of these classifications and laws on safety and a recommendation on how to proceed regarding the development of uniform classification.

Complete study of state laws	April 2004
Issue final report	July 2004

Develop Information on the Ownership and Usage of These Vehicles: Little is known about the approximately 500,000 vehicles of this type on the road, namely: who owns them, who drives them, who uses them, for what purposes, their frequency of use and whether safety belt use is higher or lower with certain populations using this type of vehicle. NHTSA will work with the American Association of Motor Vehicle Administrators to determine if this information is available and not cost-prohibitive to collect, as well as not in violation of privacy regulations. In addition, information is needed on whether certain groups (e.g., church, school, college, military, government, migrant workers) are over or under-represented in crashes, injuries and fatalities, especially in rollover crashes. This information is needed in order to develop effective, targeted programs for the relevant groups.

Complete study	May 2004
Issue final report	July 2004

II. Consumer Information and Education

Prior NHTSA Actions:

In April 2001, NHTSA issued a Research Note and Consumer Advisory on 15-passenger van safety. The Research Note covered the findings from the three part study conducted by NHTSA (described in the Problem Identification section above). The April 2001 Consumer Advisory informed the public that 15-passenger vans should be operated by

"experienced drivers" and noted that a commercial driver's license (CDL) is required to transport 16 or more people for commercial purposes. The Consumer Advisory urged drivers to be familiar with the handling of fully loaded 15-passenger vans and urged institutions using 15-passenger vans to require safety belt use at all times. In April 2002, Dr. Runge reissued the 2001 Consumer Advisory at a news conference, together with a flyer on 15-passenger van safety and a hang tag to leave in 15-passenger vans that provided information on the risk of rollover, tips for preventing rollover, buckling up for safety and other tips for safe driving.

NHTSA's policy is that pre-school and school aged children should not be transported in these vehicles due to safety concerns. In February 2002, just prior to NHTSA reissuing the 2001 Consumer Advisory on 15-passenger van safety, NHTSA sent a letter to each state president of the National Automobile Dealers Association (NADA) reminding them of the Federal requirements that apply to the sale or lease of vehicles used to transport students to and from school and school-related activities. Letters were also sent to state directors of pupil transportation as well as to independent education groups outlining these Federal requirements and NHTSA's school bus safety standards. Similar letters were sent to these groups in 1995 and 1997. Enclosed with each of these letters was a fact sheet, "School Buses: The Safest Choice for Student Transportation," explaining why school buses are safer than 15-passenger vans for transporting children. In August 2003, NHTSA issued new regulations amending the school bus safety rules to encourage churches and other groups to use buses instead of vans.

In November 2002, NHTSA, in partnership with the Health Resources and Services Administration (HRSA) and the American Academy of Pediatrics (AAP), announced a training program for child care providers called *Moving Kids Safely in Child Care.* The two-day training program educates child care providers about how to safely transport children using the appropriate child restraints for their ages as well as the benefits of transporting children in school buses versus 15-passenger vans. This training program is available through the state highway safety offices. To date, over 2,900 child care providers across the country have completed this training program.

Current and Planned Actions:

Consumer Information Advisory: Develop Consumer/Media Advisory to inform the public that only "experienced" drivers should operate 15-passenger vans and the importance of safety belt use in all vehicles, especially 15-passenger vans.

Issue Consumer/Media Advisory October 2003

Revise Consumer Information Hangtag: The *Reducing the Risk of Rollover Crashes in 15-Passenger Vans* hangtag will be modified to summarize messages that will be simple and straightforward (checklist format). This revised hangtag will be distributed to our partners, including AAA, Automotive Service of Excellence (ASE), Jiffy Lube, National Association of Independent Insurers (NAII), and National Credit Unions, among others. This can be done quickly, prior to development of a vehicle label. (See Vehicle Countermeasures)

Issue revised hangtag

October 2003 (in conjunction with the Consumer Advisory and Research Report)

Disseminate Warning Messages: Include cautionary warning messages to users of 15-passenger vans on the safety issues regarding these vehicles and the importance of wearing safety belts, in existing and future communications resources. Methods of distribution include a CART partnership distribution of our materials at its races and existing NHTSA mechanisms, namely, the NHTSA Hotline and the new NHTSA web site on Rollover at http://www.nhtsa.dot.gov/hot/rollover/Index.html.

Add information to new Rollover section of the NHTSA website
October 2003

Outreach Actions: Actions include two initiative areas.

Technical Assistance: Include 15-passenger van safety information in relevant Departmental efforts and regional outreach activities. NHTSA attends trade shows, conventions, etc., throughout the year, and these events offer opportunities to reach a varied audience and promote vehicle safety messages. Utilize existing partnerships with National Collegiate Athletic

Association (NCAA) and umbrella church and youth organizations.

- NHTSA has existing partnerships with many organizations to implement traffic safety and injury control programs. Throughout FY 2004, NHTSA will work with the following organizations to provide technical assistance for their efforts to develop programs and policies to address 15-passenger van safety and provide them with NHTSA materials to disseminate throughout their organization:

- National Automobile Dealers Association (NADA)
- Auto manufacturers
- Governors Highway Safety Association
- Education and school transportation organizations
- Branches of the military (they have expressed interest in developing a training program for their drivers)
- Religious groups
- Colleges and universities
- Rental van fleets
- YMCA and summer camp organizations
- Organizations that focus on migrant workers
- Head Start and day care provider organizations

Training and Education: The focus of NHTSA's driver training program is on novice teenage drivers. NHTSA has a cooperative agreement with the highway safety center at Indiana University of Pennsylvania to develop novice driver training programs and driver education curriculums. Commercial uses of 15-passenger vans typically involve experienced drivers, and, because of liability issues within this industry, many commercial operators require their drivers to take training. A majority of the highly publicized crashes involving 15-passenger vans have involved inexperienced drivers for

private organizations such as churches and YMCAs. Because of the infrequent use of these vehicles for these purposes, drivers are less likely to have taken formal training. In addition, many of these organizations operate programs with volunteers and with limited budgets.

Several program efforts are being planned including development of educational materials focused on the safe use of 15-passenger vans; a 15 minute video showing the risks of and tips for reducing the risks associated with driving a 15-passenger van including, but not limited to, operating in a heavily loaded condition, emergency braking, tire-blowouts, tire pressure and maintenance and the importance of buckling up; and, as part of the Interagency Agreement with OSHA, NHTSA will include a section on 15-passenger van safety in a traffic safety handbook for employers.

Develop 15-passenger van section for handbook	December 2003
Develop video	April 2004
Develop educational materials	October 2004

III. Countermeasure Research

Prior Research

NHTSA's April 2001 Research Note & paper is described under Problem Identification.

Current and Planned Research

In response to the NTSB recommendation on tire pressure monitoring systems with regard to the potentially adverse effect marginally low tire pressures can have on 15-passenger van handling (H-03-17), NHTSA is adding tests for these vehicles to a tire testing program at VRTC to see the effect on vehicle handling from different front and rear tire pressures.

Complete testing	October 2003
Final Report	January 2004

Dynamic Rollover Resistance and Handling Evaluation of 15-Passenger Vans: Testing is underway at VRTC to see whether it is appropriate to use the rollover resistance maneuvers developed for the NCAP rollover ratings program to assess the dynamic rollover resistance of two 15-passenger vans. Specifically, the Slowly Increasing Steer, NHTSA J-Turn, and NHTSA fishhook maneuvers will be used. The minimum maneuver entrance speed capable of producing two-wheel lift, the maximum lateral acceleration, and understeer gradient of each vehicle, under 3 load configurations (5, 10, and 15 occupants) will be documented in a report. While NHTSA is not including these tests as part of NCAP, their results will be posted on the NHTSA website.

Complete testing	November 2003
Final Report	February 2004

Evaluate Electronic Stability Control (ESC) in 15-Passenger Vans: In November 2002 the NTSB recommended that NHTSA "evaluate, in conjunction with the manufacturers of 15-passenger vans, and test as appropriate, the potential of technological systems, particularly electronic stability control systems, to assist drivers in maintaining control of 15-passenger vans." NHTSA will evaluate the dynamic rollover resistance of one 15-passenger van with enabled and disabled stability control using J-Turn and fishhook rollover resistance maneuvers. Only GM and Ford produce 15-passenger vans. At this time, only GM intends to implement ESC on these vehicles. It is anticipated ESC will be available on GM 15-passenger vans in mid-to-late October 2003.

Complete testing	December 2003
Final Report	February 2004

IV. Vehicle Countermeasures

Current and Planned Actions:

Vehicle Labeling: Prior NHTSA consumer research and information developed for the 2002 hangtag will be used to develop a warning label that might be required for new 15-passenger vans. Candidate information includes warnings about loading, handling and proper tire pressure.

Evaluate previous work on rollover labels/investigate feasibility of labels June 2004

FMVSS 208, Occupant Crash Protection: Anton's Law, signed into law in December 2002, requires lap and shoulder belts (3-point belts) at all seating positions (notably the center rear seat) for vehicles with a GVWR of 10,000 pound or less. 15-passenger vans have bench seats with seating for three or four passengers, but usually only the outboard seats have lap and shoulder belts. NHTSA published an NPRM on August 6, 2003 that would require lap and shoulder belts in rear center seats in all vehicles up to 10,000 pounds GVWR. One practical way to install lap and shoulder belts in all 15-passenger van seating positions (and to stiffen seat backs) might be to use integrated seats. This activity relates to NTSB H-03-15.

Final rule December 2004

FMVSS 214, Side Impact Protection: The agency is planning to upgrade FMVSS No. 214. The proposed upgrade will apply to all passenger cars, and trucks, buses and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. Some of NTSB's concerns about additional head impact protection may be addressed by this upgrade.

NPRM to upgrade FMVSS 214 May 2004

Part 571.3, Definitions: NHTSA is in the process of revising the definition of "designated seating position" to include a formula based on the width of a row of seats. The agency is concerned that if occupants are too squeezed together, they would not be able to access or use the shoulder part of the 3-point belt. So as not to adversely impact big van safety,

NHTSA is considering whether to apply a different formula to 12-15 passenger vans that would require more space per position on seats designed to hold more than three passengers. This would make it more likely that each passenger would be able to use – and not just have – a safety belt.

NPRM December 2003

FMVSS 216, Roof Crush Resistance: The planned upgrade of this standard will expand its coverage to vehicles up to 10,000 pounds GVWR (with certain exceptions). This action relates to NTSB recommendation NTSB H-03-16. The agency's proposed upgrade will provide more uniform protection for 15-passenger van occupants. Agency testing of 15-passenger vans will test roof crush for the front seat occupant positions. Testing at VRTC has shown that these vehicles barely pass the current FMVSS 216 requirements and would require stronger roofs to pass the upgraded requirements. In the upgrade currently under development there are no plans to modify the test procedure by moving the test plate toward the rear of the roof. It is currently not clear whether there is a need to develop a test for the rear positions from a safety problem perspective. Current data analysis suggests that the problem of roof crush is largely a front seating position problem in terms of roof contact and that safety for occupants in rear seating positions is more dependent on belt use/ejection. However, this problem will be studied to determine if a modified test from FMVSS 220, *School Bus Rollover Protection* is needed, which would test roof strength for rear positions by applying horizontal forces.

Study of rear seating positions as part of *Crash Mechanisms in 12- and 15-Passenger Vans* (see Countermeasure Research) February 2004

NPRM for FMVSS 216 upgrade March 2004

Conclusions

NHTSA will pursue the actions included in this plan within the parameters of available staff, resources, and safety priorities. The recently published *NHTSA Vehicle Safety Rulemaking Priorities and Supporting Research, 2003-2006* (July 2003) describes our top vehicle safety priorities aimed at reducing the greatest number of crashes, injuries, and fatalities in the coming years.