

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 26, 1979

 Forwarded to:

Honorable Joan Claybrook
 Administrator
 National Highway Traffic Safety
 Administration
 Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

H-79-41 through 45

About 3:05 a.m., May 6, 1979, a 1976 Dodge van eastbound on State Route 2, near E. 305th Street, Willowick, Ohio, crossed the median and collided with a westbound 1971 Ford LTD. ^{1/} The van then proceeded a short distance and collided with a westbound 1976 Oldsmobile. In this collision, gasoline spilled from a ruptured fuel tank, and the van and the Oldsmobile were engulfed in flames. Five of the six occupants in the Ford were killed instantly; the sixth occupant died on May 13, 1979. The van driver was ejected from his vehicle and injured seriously; the two occupants of the Oldsmobile escaped with minor injuries.

The National Transportation Safety Board determined that the probable cause of the accident was the loss of control by the driver of the van for unknown reasons. Contributing to the fatal injuries to the occupants of the Ford was their failure to wear the available occupant restraints.

At impact, the van's front bumper, the bottom edge of which was 19 inches above the ground, overrode the top of the Ford's front bumper, the top edge of which was 22 inches above the ground. As a result, the Ford's bumper separated from its attachments.

The Safety Board believes that the bottom surface of the van's fuel tank was punctured by the distorted front bumper of the Ford. The shape of the hole in the fuel tank matched the distorted end of the Ford's bumper; the bumper was found under the rear axle differential housing; and the bumper had been discolored by the heat of the fire. Since the fuel tank was located in back of the rear axle, it was protected from other components that conceivably could have caused fuel tank rupture. The fact that the Ford did not ignite indicated that the van's fuel tank was not punctured until the final stages of the van and Oldsmobile movement.

1/ For more information read "Highway Accident Report - Cross Median Multiple Vehicle Collision and Fire, State Route 2, Near Cleveland, Ohio, May 6, 1979."
 (NTSB-HAR-79-7).

On January 20, 1971, as a result of its investigation of "Multiple-Vehicle Collisions Under Fog Conditions, Followed by Fires, New Jersey Turnpike, North of Gate 2, November 29, 1969" (HAR-71-3), the Safety Board recommended that the National Highway Traffic Safety Administration (NHTSA):

"Initiate programs leading to the development of automotive fuel-tank systems which will minimize the escape of fuel in collisions, including the prevention of escape of liquid or vaporous fuel into any compartment of the vehicle. These programs should incorporate revisions to existing test methods and standards to more nearly approximate conditions likely to be encountered in collisions, including rear-end impacts at substantial speed differentials, with the tested vehicle in a braking attitude, and subjecting pertinent components to varying angles of impact, from straight rear-end to 90° right and left. Test standards should consider exposure of the fuel-tank system to fire without loss of structural integrity or the release of vapors into the vehicle or any of its compartments." (H-71-20)

This recommendation was reiterated in the Board's Highway Accident Report, "Airport Police Cruiser - Automobile Collision on Dulles Airport Access Road, Exit No. 1, Near Chantilly, Virginia, April 22, 1971"(HAR-71-2.).

On August 29, 1972, the NTSB issued the following safety recommendation to NHTSA.

"Extend its proposed rulemaking on motor vehicle safety standards, relating to the integrity of automobile fuel tanks in vehicle crashes, to include standards for the fuel-retention integrity of all components of the fuel system which are subject to damage and subsequent spillage of fuel." (H-72-19)

NHTSA has responded to H-71-20 by stating that the recommended action represents a continuation of ongoing action, and to H-72-19 by stating that fuel tank impact resistance is built into current performance standards as amended (FMVSS 301). Neither of these recommendations have been closed by Board action.

The Board has noted from the NHTSA "Five Year Plan for Motor Vehicle Safety and Fuel Economy Rulemaking—Calendar Year 1980-1984," dated April 20, 1979, that FMVSS 301 rulemaking has been placed on a list of "Deferred Rulemaking Activities." However, as a result of some recent serious accidents that resulted in vehicle fires, NHTSA has been testing a number of vehicles in car-to-car, rear-end crashes. In addition, NHTSA is in the process of formally evaluating the current standard with preliminary results expected in the fall of 1979. When these actions are completed, an amendment to the present standard may be proposed.

On June 11, 1979, NHTSA issued an Advance Notice of Proposed Rulemaking seeking comments on the merits of amending Standard No. 301-75, Fuel System Integrity. The ANPRM discusses possible requirements needed to insure the integrity of nonmetallic fuel tanks, such as plastic tanks, particularly when exposed to

fire. The advantages of plastic fuel tanks are listed as: (1) Weight saving; (2) elimination of rust problems; (3) flexibility; and (4) impact and puncture resistance capability.

One of the Board's concerns with the current standard (FMVSS 301 - Fuel System Integrity) is that the individual components of the fuel system, such as fuel tanks, are not included in the Standard. The Board urges NHTSA to expedite this ANPRM with particular emphasis on resistance to puncture capabilities.

Therefore, the National Transportation Safety Board recommends that the National Highway Traffic Safety Administration:

Expedite the development of a Federal Motor Vehicle Safety Standard on motor vehicle fuel systems to include a performance standard for nonmetallic fuel tanks. (Class II, Priority Action) (H-79-41)

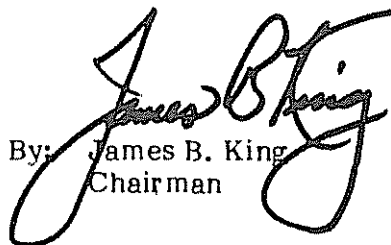
Include a definition of a fuel system in the contemplated revision of Federal Motor Vehicle Safety Standard 301-75, Fuel System Integrity. (Class II, Priority Action) (H-79-42)

Include performance requirements for each of the components of the fuel system in the contemplated revision of Federal Motor Vehicle Safety Standard 301-75. (Class II, Priority Action) (H-79-43)

Include requirements for rearend impact tests with both vehicles in a braking attitude in the contemplated revision of Federal Motor Vehicle Safety Standard 301-75, Fuel System Integrity. (Class II, Priority Action) (H-79-44)

Include the requirement for rearend collision tests at angles from straight rearend to 90° in the contemplated revision of Federal Motor Vehicle Safety Standard 301-75, Fuel System Integrity. (Class II, Priority Action) (H-79-45)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.


By: James B. King
Chairman

