



Log H-585C

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: December 13, 1995

In Reply Refer To: H-95-47

To the Governors of the 50 States,
the Commonwealth of Puerto Rico,
the Virgin Islands, and the Territories;
and the Mayor of the District of Columbia

About 1:50 a.m. on Monday, January 9, 1995, a multiple-vehicle rear-end collision occurred during localized fog at milepost 118 on Interstate 40 near Menifee, Arkansas. The collision sequence initiated when an uninvolved vehicle and the accident lead vehicle entered dense fog. As the lead vehicle reportedly slowed from 65 miles per hour (mph) to between 35 and 40 mph, it was struck in the rear. Subsequent collisions occurred as vehicles drove into the wreckage area at speeds varying from 15 to 60 mph. The accident eventually involved eight loaded truck tractor semitrailer combinations and one light-duty delivery van. Eight vehicles were occupied by a driver only, and one vehicle had a driver and a codriver. Three truckdrivers, the codriver, and the van driver were killed. One truckdriver received a minor injury, and four truckdrivers were not injured.¹

The surviving drivers described the fog as "white out" and "very, very thick, the thickest fog ever." Other drivers, who were not involved in the accident, reported being unable to see the end of the hood (perhaps 8 feet) and to observe the lane markings from the truck cab looking straight down (perhaps 10 feet). Their descriptions indicate severely limited visibility. According to both driver 4 and driver 5, the emergency flashers were activated on the vehicle 4 semitrailer. Driver 5 stated that he saw the emergency flashers on the preceding vehicle, reduced his speed to between 15 and 20 mph, and managed to stop just short of striking vehicle 4. It is likely his ability to see vehicle 4 and react was enhanced by its hazard flashers.

¹For more detailed information, read Highway Accident Report--*Multiple-Vehicle Collision with Fire during Fog near Milepost 118 on Interstate 40, Menifee, Arkansas, on January 9, 1995/Special Investigation of Collision Warning Technology* (NTSB/HAR-95/03).

The April 1995 National Transportation Safety Board investigative conference Mobile Collision Warning Technology for Low Visibility/Low Awareness Collisions observed that the tail lamp low luminance of 2-18 candela does not increase the visibility of a vehicle in typical daylight fog conditions. Flasher lamps have a luminance of 80-300 candela. Researchers indicated that in daylight when the nominal visibility range of a vehicle is 300 feet, the use of flasher lamps with a luminance of 80 candela can increase the visibility range to 450 feet. The Safety Board concluded that the use of four-way hazard flashers can increase the visibility of stopped or slow-moving vehicles in fog conditions. The increased visibility allowed driver 5 to see and avoid a collision with the rear of vehicle 4. The Safety Board also concluded that the use of emergency flashers by vehicles 1, 2, or 3 may have allowed the following drivers enough time to have avoided striking preceding vehicles.

The measure of the tendency for an object to be easily seen is conspicuity. However, conspicuity does not refer simply to the physical state of an object or hazard but has another component. For the hazard to be perceived, it must be filtered through the senses and past experiences of the driver. A driver can begin the process that leads to addressing a hazard only when that individual attends to sensory input. The increased luminance of hazard flashers increases visibility about 50 percent over taillight use alone. The low beams of an oncoming vehicle can be seen at more than twice the distance of mere taillights. As the fog bank density increases, nominal visibility decreases and the visibility of various vehicle lights decreases proportionately.

The use of hazard flashers on vehicles in fog could have as beneficial an effect for hazard perception as separate fog lamps on the rear of vehicles, which might mask brake lights. However, a 50-State Safety Board telephone survey found that although 4 States require hazard flasher use in low visibility conditions, at least 6 States prohibit their use on moving vehicles. Many States restrict hazard light use to situations such as heavy trucks ascending hills, traveling below minimum speeds on interstate or secondary highways, or being stopped or disabled along the shoulder of the highway. Most States do not address the use of hazard flashers in low visibility conditions. The 1992 edition of the Uniform Vehicle Code (UVC) section 12-215 suggests the following:

(f) The driver of any vehicle equipped with vehicular hazard warning lights may activate such lights whenever necessary to warn the operators of following vehicles of the presence of a traffic hazard ahead of the signaling vehicle, or to warn the operators of other vehicles that the signaling vehicle may itself constitute a traffic hazard. (NEW, 1986)

(g) The driver of a truck, bus, or truck tractor pulling a trailer or trailers, equipped with vehicular hazard warning lights may activate such lights when that vehicle is proceeding up a grade, or under other conditions requiring it to be operated at a speed less than the prevailing speed of traffic. (NEW, 1986)

The Safety Board determined in this investigation that currently a patchwork of States' laws cover the use of emergency flashers. While 6 States specifically prohibit the use of flashers on moving vehicles, 16 others place various restrictions on their use. Some States require the use of flashers below certain speeds, on certain roads, or under certain driving conditions. Consequently, a cross-country driver can not immediately determine whether the use of flashers is legal. The Safety Board concludes that action needs to be taken to ensure the uniformity of laws allowing the use of four-way hazard flashers. The Safety Board believes that all States as well as the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, and the Territories should review and revise, if necessary, existing State law regarding emergency hazard-flasher operation to ensure that guidelines provided by the UVC section 12-215 (f) and (g) are followed.

Therefore, the National Transportation Safety Board recommends that the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, and the Territories:

Review and revise, if necessary, existing State law regarding emergency hazard-flasher operation to ensure that the guidelines provided by the Uniform Vehicle Code section 12-215 (f) and (g) are followed. (Class II, Priority Action) (H-95-47)

Also, the Safety Board issued Safety Recommendations H-95-44 to the U.S. Department of Transportation, H-95-45 to the National Highway Traffic Safety Association, H-95-46 to the Federal Communications Commission, H-95-48 to the Telecommunications Industry Association, H-95-49 to the Intelligent Transportation Society of America, and H-95-50 to the American Association of Motor Vehicle Administrators. If you need additional information, you may call (202) 382-6850.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT and GOGLIA concurred in this recommendation.


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