

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 1, 1978

Forwarded to:

Mr. Richard A. Ward
Director
Oklahoma Department of Transportation
200 N. E. 21st Street
Oklahoma City, Oklahoma 73105

SAFETY RECOMMENDATION(S)

H-78-17

About 4:20 p.m., on July 14, 1977, a 1972 Ford sedan southbound on U.S. Route 69 about 19.4 miles south of McAlester, Oklahoma, went out of control on wet pavement, crossed the centerline sideways, and collided with a northbound Midas Mini Motor Home. All six persons in the sedan were killed; the driver and right-front passenger in the motor home were also killed and the six other passengers of the motor home were injured. 1/

The National Transportation Safety Board determines that the probable cause of this accident was a combination of the low skid resistance of the wet road surface and the lax operating maintenance by the owner of the Ford sedan which permitted the use of an unsafe tire and the imbalanced capability of the brake system. A factor contributing to the accident was the driver's unfamiliarity with the mechanical condition of the Ford sedan. Contributing to the severity of the injuries were the failure of the front seat occupants of the motor home to wear the available seatbelts and the failure of the door latch assembly.

On January 10, 1978, the Safety Board made three recommendations to the State of Oklahoma based on preliminary findings during the accident investigation; these were:

Post warning signs conforming to the requirements of the Manual on Uniform Traffic Control Devices on the resurfaced 5.3-mile section of U.S. Route 69 to advise motorists that the surface is slippery when wet. These signs should be maintained until the skid resistance on the overlay surface is increased. (Class I, Urgent Action) (H-77-35)

1/ For more detailed information read "Highway Accident Report: Midas Mini Motor Home/Automobile Collision, U.S. Route 69, Near McAlester, Oklahoma, July 14, 1977" (NTSB-HAR-78-2).

Evaluate the pavement design and construction practices used on this project in order to eliminate any possibility for this condition to reoccur. (Class II, Priority Action) (H-77-36)

Expedite the application of necessary materials to remedy the low skid resistance condition on the 5.3-mile resurfaced section of U.S. Route 69. (Class II, Priority Action) (H-77-37)

At the request of the Safety Board, the Oklahoma Department of Transportation conducted locked-wheel skid tests on the 5.18-mile resurfaced section of U.S. Route 69 with emphasis on the vicinity of the accident. The tests were conducted on July 18 and 28, 1977. All tests were made at 40 mph for the inside wheel paths of the accident vehicles. The Oklahoma skid trailer conformed to the requirements of the American Society of Testing and Material Methods' "Methods of Skid Resistance Measurements," (ASTM) E-274-77. However, the trailer had not been calibrated recently at a Federal Highway Administration (FHWA) test center.

In order to assure the comparability of the Oklahoma test skid numbers to FHWA guidelines for coefficient of friction, the FHWA, at the request of the Safety Board, retested the road surface for the area of the 5.18 miles of overlay and a half-mile stretch of old pavement surface immediately south of the overlay on August 31, 1977. The FHWA skid trailer also conformed to the requirements of the ASTM E-274-77 and had been calibrated in July 1976.

The uncalibrated Oklahoma testing device gave the following values for the accident site:

	July 18	July 28
Northbound	28	25
Southbound	27	24

The tests conducted with the calibrated FHWA device yielded the following mean values for the accident site:

	August 31
Northbound	18.2
Southbound	11.6

The difference of 9.8 in the northbound lane and 15.4 in the southbound lane, 35 percent and 57 percent respectively, between the two tests is significant. The values obtained through testing are valid only if they

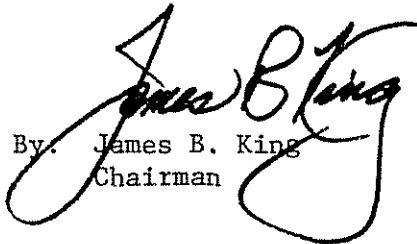
can be compared to a recommended guideline for analysis. To obtain valid values, testing devices that produce them must be calibrated against that common standard.

The FHWA test results (see attachment) also revealed that skid numbers for the entire length of the overlay were lower than skid numbers on the old road surface immediately south of the overlay. The mean skid number of the overlay area was 23.4 northbound and 18.4 southbound; the old surface mean number was 45.9.

Therefore, the National Transportation Safety Board recommends that the State of Oklahoma Department of Transportation:

Have its skid trailer calibrated at a Federal Highway Administration test center as soon as possible and inform the Safety Board when the calibration is completed. (Class II, Priority Action) (H-78-17)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendation.


By: James B. King
Chairman

Attachment

ATTACHMENT

<u>Location</u>	<u>Number of tests*</u>	<u>Starting point</u>	<u>Mean test speed</u>	<u>Mean skid number</u>
Inner travel path of northbound lane	17	.01 to 5.18	39.5	23.4
	4(old surface)	5.18 to 5.72	39.3	45.9
Inner travel path of southbound lane	15	.26 to 4.90	39.8	18.4
Inner travel path of northbound lane at accident site	5	1.82	39.6	18.2
Inner travel path of southbound lane at accident site	5	1.74 to 1.76	40.8	11.6
	5**	1.76 to 1.77	39.8	26.5
	2***	1.74 to 1.76	41.0	11.6
	2(dry)	1.76	40.5	66.7
	2(dry)**	1.78	38.7	64.2
2(dry)***	1.78	40.2	66.1	
Center of northbound lane at accident site	3	1.68 to 1.95	39.7	28.2
Center of southbound lane at accident site	3	1.58 to 1.81	40.6	29.9

* All tests were made on wet pavement with ASTM test tire, except where noted.

** Tests made with the left-front tire (inflated to 24 psi) from the automobile involved in the accident.

*** Tests made with the left-rear tire (inflated to 24 psi) from the automobile involved in the accident.

