



National Transportation Safety Board

Washington, D.C. 20594

Highway Accident Brief

Accident Number: HWY14FH007
Accident Type: 15-passenger van roadway departure and overturn
Location: Interstate 75, just north of US Route 90, Lake City, Florida
Date and Time: Friday, February 21, 2014, 8:15 a.m.
Vehicle: 2002 Ford E-350 XLT Super Duty 15-passenger van
Owner/Operator: First Baptist Church of New Port Richey
Fatalities: 2
Injuries: 1 serious, 7 minor

Crash Description

About 8:15 a.m. eastern standard time on February 21, 2014, a 2002 Ford E-350 XLT Super Duty 15-passenger van was traveling northbound on Interstate 75 (I-75) near Lake City, Columbia County, Florida. The van—operated by the First Baptist Church of New Port Richey, Florida—was transporting three adults and seven children, ranging in age from 11 to 16 years old, to a church camp in Covington, Georgia. During the trip, the driver of the van became concerned by a vibration he perceived to be coming from one of the vehicle's tires, and he pulled off the highway into a rest area to investigate. Finding nothing visibly wrong, he continued on the trip.

After traveling an additional 13 miles on I-75, the driver lost control of the vehicle when the left rear tire experienced a complete tire tread separation near US Route 90. (See figure 1 for the approximate location of the crash.) The tire carcass remained inflated following the tread separation. The van moved to the right as it rotated counter-clockwise; departed the roadway onto a grassy, sloped embankment; and rolled 270 degrees about its longitudinal axis. During the rollover, the driver, one adult passenger, and two children were ejected from the vehicle. The two ejected adults died as a result of the crash. The remaining van occupants received various injuries and were transported to area hospitals for treatment. Following the crash, it was determined that the left rear tire had been subject to a manufacturer-initiated recall.



Figure 1. Map of Lake City, Florida, crash location, showing I-75 overpass at US Route 90.

Roadway Information

The crash occurred on I-75, about 350 feet north of US Route 90. In this vicinity, I-75 is a six-lane controlled-access highway that provides three lanes of travel in either direction. The general direction of the highway is north-south. An earthen median separates the lanes of opposing travel. The posted speed limit for traffic in both directions is 75 mph.

The three northbound lanes have a total measured width of about 36 feet. The paved right shoulder is about 10 feet wide, and the paved left shoulder is about 12 feet wide. The horizontal and vertical alignment of I-75 in the vicinity of the crash is straight and level. The crash occurred during daylight, and the roadway was clear and dry.

Operational Information

The First Baptist Church of New Port Richey owned and operated the 15-passenger van. The church had purchased the van new to transport parishioners to and from weekly church services and special events. In addition to the van, the church operated a 1994 Chevrolet pickup truck, a 1995 Startrans 22-passenger bus, and a 2001 Chevrolet cargo van. The church did not operate any of its vehicles for compensation, and the operation of the 15-passenger van was not subject to the *Federal Motor Carrier Safety Regulations*.

Trip Information

The crash occurred during a 445-mile trip from New Port Richey to a youth camp in Covington, Georgia. Organizers of the event had chartered a motorcoach to transport camp attendees, but the 15-passenger van was needed to accommodate additional passengers.

After traveling about 161 miles, the van driver felt a vibration that seemed to be coming from one of the tires. He pulled into a rest area along I-75 to investigate the source of the vibration and telephoned a chaperone on the motorcoach to inform him of the situation.¹ Finding no visible indication of problems with the tires, the driver resumed driving northbound on I-75, and the crash occurred 13 miles later.

Driver Information

The 52-year-old driver held a valid Florida class B commercial driver's license (CDL) with a passenger endorsement.² The license was issued in December 2008 and was valid through December 2016. The driver had 5 years of experience driving 15-passenger vans before driving

¹ The van driver called the chaperone to inform him of a possible delay in the trip. One of the youth passengers answered the phone. The driver told her that he had stopped to investigate a possible mechanical issue and asked her to relay that information to the chaperone. She did so, and the chaperone later attempted to return the call; however, he was unable to reach the van driver because the crash had already occurred.

² Under Florida law, a class B CDL is required to operate a single vehicle with a gross vehicle weight rating of 26,001 pounds or more. A passenger endorsement is required to operate any vehicle designed to transport 16 or more people. However, neither a CDL nor a passenger endorsement was required to operate the accident vehicle.

for the church. He had one previous reported crash and one traffic conviction, both of which occurred in July 2013.

Postmortem examination of the driver identified no evidence of an acute medical condition that would have affected his performance. The results of toxicological tests for the presence of alcohol and illicit drugs were negative.³

The church did not have a formal training program or written directives governing the operation of its vehicles.⁴ Church vehicle drivers, who were all volunteers, were screened by a church administrator who evaluated their driving experience and level of responsibility. The church maintained a list of approved drivers for the 15-passenger van. The accident driver had been an approved van driver for about 5 years at the time of the crash. His driving experience with commercial passenger vehicles and church vans was considered when he was granted approval to operate the 15-passenger van.

Vehicle Information

Vehicle Maintenance

A local mechanic, who was a member of the church, performed routine maintenance on all of the church-owned vehicles. He had more than 30 years of experience. At the time of the crash, he had been responsible for simple or routine repairs on the vehicles for about 7 years. The mechanic did not have access to a vehicle lift or other specialty tools and performed all vehicle maintenance on church grounds. In addition to conducting scheduled preventive maintenance, he typically inspected the vehicles before extended trips. However, he did not check the 15-passenger van before the accident trip because it had been inspected for a trip taken 2 weeks earlier. The operator of the van on that trip stated that he did not encounter any problems with the vehicle.

Damage

The van's roof and all of the vertical window pillars were damaged. At the front of the roof, the center portion was bowed upward. The left edge of the roof was pushed downward by as much as 8 inches, and the right edge was crushed inward by as much as 8 inches. The driver's door was displaced from the vehicle, and the windows along the left side were broken out during the crash sequence. The left and right sides of the body panels displayed minor deformation along the length of the vehicle. Figure 2 shows two views of the damage to the van.

³ The Office of the Medical Examiner, District IV, Jacksonville, Florida, performed the postmortem examination and toxicology tests.

⁴ The church did, however, have a written policy requiring drivers and passengers to use seat belts.



Figure 2. Postcrash view of 15-passenger van at final rest on its left side (left) and left front corner and side view of van (right). (Source: Florida Highway Patrol)

Tires

Each tire on the accident vehicle had been purchased at separate times and at different locations. Purchase records for the tires indicated the following:

Left Front Tire. The left front tire was a Firestone Transforce HT all-season radial tire, size LT245/75R16. Church records show that the tire was purchased on March 21, 2012, from Tires Plus in Kissimmee, Florida. This tire was installed on the vehicle after the previous left front tire experienced a failure while on an extended trip.

Right Front Tire. The right front tire was also a Firestone Transforce HT all-season radial tire, size LT245/75R16. Church records show that the tire was purchased on April 11, 2012, from Hudson Tire Center in Hudson, Florida. This tire was installed so that both front tires would match following the failure of the left front tire in Kissimmee.

Left Rear Tire. The left rear tire, which experienced a complete tread separation during the accident trip, was a BFGoodrich Commercial T/A all-season radial tire, size LT245/75R16. At the time of the crash, the tire was subject to a manufacturer recall. Church records show that the tire was purchased on February 10, 2012, from Sam's Club in New Port Richey.

Right Rear Tire. The right rear tire was also a BFGoodrich Commercial T/A all-season radial tire, size LT245/75R16. Church records show that the tire was purchased on November 6, 2013, from Sam's Club in New Port Richey, when the van was brought into the service center because of a vibration in the right rear tire.

Of note, the right rear tire that was the source of the vibration had been replaced on March 23, 2012, under the terms of the 50,000-mile Sam's Club warranty. It had been driven about 14,000 miles. This date was 46 days following installation of the recalled left rear tire that failed in this crash (see above). The replaced right rear tire was the same make and model as the

left rear tire. No record of the US Department of Transportation tire identification number was available, making it impossible to determine if this tire was manufactured during the production periods specified on the safety recall notice affecting the failed left rear tire.

Tire Failure Information

The Florida Highway Patrol removed both rear tires and wheels from the van during a postcrash inspection and shipped them to the NTSB Materials Laboratory. A detailed examination of the left rear tire carcass, separated tread, and wheel (see figure 3) indicated that the tread separation initiated at a spot along the outer shoulder of the tire and developed into a thumbnail-shaped pocket between the inner and outer steel belts of the tire.⁵ As the initial separation grew in size, a second separation formed along the inner shoulder of the tire and expanded until it joined the initial separation. The tread separated from the tire shortly thereafter. The tire was examined for features consistent with overdeflection/underinflation, impact damage, or abuse before the separation, but none were found. There was no indication that the tread contacted the inner wheel well or outer fender as it separated from the tire. The tread depth in the three major tread grooves ranged from 10/32 to 12/32 inch.⁶



Figure 3. Tire crown from accident vehicle's left rear tire (left) and separated tire tread from left rear tire (right).

⁵ See the Materials Laboratory tire examination factual report in the NTSB public docket for this crash (HWY14FH007), at dms.nts.gov/pubdms/search/hitlist.cfm?docketID=56298&CFID=539662&CFTOKEN=-40661998.

⁶ The average new tire tread depth varies from 10/32 to 11/32 inch. See www.safercar.gov/Tire, accessed October 26, 2015.

The right rear tire, which was not subject to the recall, was also examined. Differences were observed in the construction of the cap ply between the left and right tires (see figure 4).⁷ The cap ply on the left rear tire was composed of a single layer of cords, except for the region between the two belt edges, where a second layer of cords was observed, about 0.3 inch wide, at each shoulder. By contrast, a wider second layer of cords was observed on the right rear tire.⁸

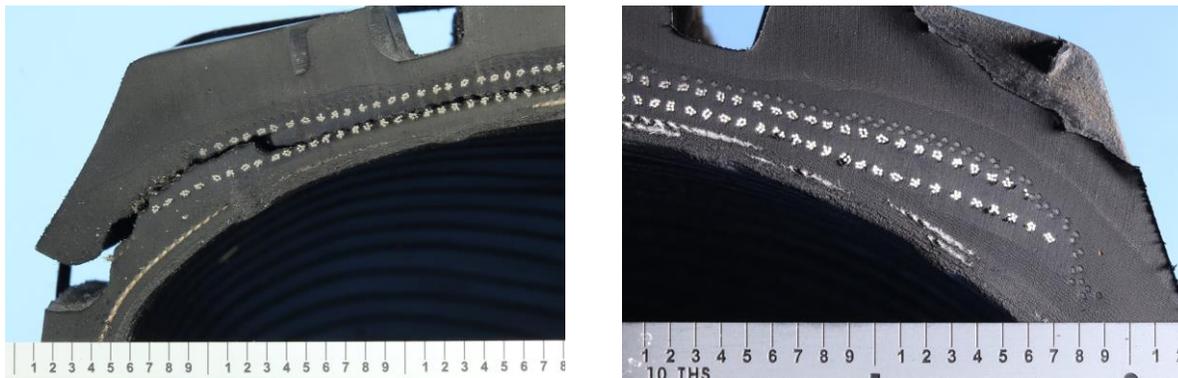


Figure 4. Cross-sectional images of outboard shoulders of left rear tire (left) and right rear tire (right).

The driver's perception of a vibration coming from one of the vehicle's tires was consistent with the formation of the thumbnail-shaped pocket. The vibration was most likely caused by the tread above the pocket being pulled away from the tire and then being compressed between the tire and the road with each revolution of the wheel. Because the pocket resided within the tire, the driver would not have seen any indication of it when he pulled over to inspect the tire. Additionally, a postcrash inspection of the van revealed no damage within the left rear wheel well or to the surrounding fender panel consistent with repeated impacts by the separating tire tread.

Tire Recall

On July 25, 2012, the National Highway Traffic Safety Administration announced a safety recall for select BFGoodrich Commercial T/A all-season radial tires, which included the left rear tire on the accident vehicle. The recall was initiated based on observations of tread/belt endurance issues by the tire manufacturer, Michelin North America, during quality reviews.

As part of the recall process, Michelin issued notification letters to its consumers. The letters were mailed from July 26 to 31, 2012. A voluntary second notification mailing was initiated in November 2012. The notifications were sent via first-class mail with no return receipt required. Michelin mailed the recall notices to a church staff member at the address provided by Sam's Club.

⁷ Cap plies consist of fibers—typically nylon or Kevlar—that are woven to form large braided sheets that hold the tire's shape for stability at high speeds.

⁸ See the NTSB Materials Laboratory report referenced on the previous page.

According to church staff, the church moved to its current address in 2008. Both before and after the move, the church had purchased tires for its vehicles from Sam's Club. NTSB investigators reviewed transaction records from Sam's Club and the church. A billing statement from Sam's Club listed the church's current address, whereas a repair order in the same time frame listed its previous address. Sam's Club had provided the outdated address to Michelin, and it was subsequently used for the tire recall notification. In an interview with NTSB investigators, the church staff member who purchased the tire stated that he was not asked to provide, nor did he provide, information for tire registration. According to church administrators, the church did not receive a notification letter informing it of the tire recall.

As discussed earlier in this brief, the accident vehicle was taken to Sam's Club in New Port Richey on November 6, 2013, because of a problem with the right rear tire. In the work order from Sam's Club documenting the service, the technician recorded the tire pressure from all four tires. However, he did not indicate that the left rear tire had been recalled. As a result, the left rear tire remained in service until the crash occurred on February 21, 2014. The work order for this service listed the church's previous address. An examination of the document revealed that the message, "*See cashier for Michelin registration card or visit www.michelin.com to register your tires,*" was included along the top of the customer/vehicle information section of the work order. This same message appeared on previous work orders dated March 23, 2012, and February 17, 2009. However, on a set of three work orders—each dated February 10, 2012—the message was shown on only one of those documents.

The NTSB also investigated a February 15, 2014, crash in Centerville, Louisiana, involving the failure of tires purchased through Sam's Club.⁹ In this case, the passenger vehicle tires had been purchased at a store in Houma, Louisiana, on July 28, 2009. An examination of the work order from this transaction showed that it did not include any messages directing the consumer to ask for tire registration materials or to go to a website to complete the registration process, as was provided on the work orders at the Sam's Club in Florida.

To understand why one store's work order contained language directing the consumer to ask for registration cards and another store's work order did not—and due to a concern that the message on the work order from the Sam's Club in New Port Richey did not comply with tire registration regulations—investigators asked Walmart about its policies and procedures regarding tire registration.¹⁰ Walmart stated that Sam's Club has computer-based training material that provides new sales associates with information on the use and importance of tire registration cards. Additionally, through web-based bulletins on the company intranet, Sam's Club posts training material for sales associates and managers in its Tire and Battery Centers. The tire registration procedures, as described in sample training bulletins, are compliant with federal regulations governing tire registration.¹¹ Although the training material directs sales associates to complete sections of the tire registration cards and provide the cards to the consumer, as directed by federal regulations, Walmart did not indicate whether the training was

⁹ For additional details about this accident, visit www.nts.gov/investigations/SitePages/dms.aspx and search for NTSB accident ID HWY14MH006.

¹⁰ Sam's Club is a subsidiary retail warehouse owned and operated by Wal-Mart Stores, Inc.

¹¹ See 49 *Code of Federal Regulations (CFR)* 574.8, "Information requirements for tire registration – distributors and dealers."

required other than during initial employment training or whether it was evaluated for effectiveness or compliance. Additionally, Walmart did not comment on its practice of including information on a store’s work order to direct the consumer to ask for registration material, as opposed to having sales associates provide consumers with tire registration cards.

The NTSB is concerned that having the message, “*See cashier for Michelin registration card or visit www.michelin.com to register your tires,*” printed on work orders—as was done on the New Port Richey Sam’s Club work orders—is less likely to result in consumers registering newly purchased tires than having tire merchants provide consumers with the tire registration cards. Consequently, consumers would be less likely to be notified of any future tire recalls. Additionally, this practice contradicts training material directing sales associates to complete the required information on the tire registration card(s) and provide the card(s) to the consumer, as required by federal regulations.

Injuries and Occupant Protection

Ten occupants were aboard the accident vehicle when the crash occurred. The driver and one passenger in the rear seating area sustained fatal injuries. Although each of the occupied seating positions had occupant restraints, only the front seat passenger was restrained.¹² Table 1 shows the seat position, age, belt use, and injury level of the van occupants; and figure 5 shows a seating chart for the 15-passenger van.

Table 1. Occupant age, seat belt use, and injury information.

Seat	Age	Belt Use	Injury
1	52	None	Fatal
2	12	Shoulder/lap	Minor
3	14	None	Serious
4	11	None	Minor
5	44	None	Fatal
6	45	None	Minor
7	14	None	Minor
8	16	None	Minor
9	13	None	Minor
10	12	None	Minor

¹² Information concerning seat belt usage was obtained from the traffic crash report prepared by the Florida Highway Patrol.

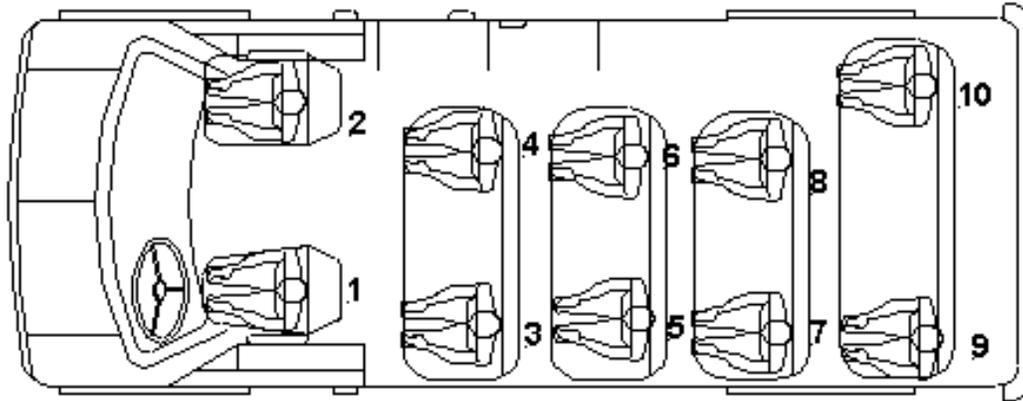


Figure 5. Seating chart, Lake City passenger van.

Florida law requires the operator and the front seat passenger to be restrained by a properly adjusted seat belt while the vehicle is in motion. Additionally, all passengers under the age of 18 are required to be restrained by a seat belt or child restraint device while the vehicle is in motion, regardless of their seating position.¹³

Probable Cause

The National Transportation Safety Board determines that the probable cause of the Lake City, Florida, crash was the failure of the left rear tire due to a tread separation, which led to the loss of vehicle control. Contributing to the crash were the failure of the tire merchant to adhere to its training material and provide the purchaser with a tire registration form as required, and record-keeping discrepancies that inadvertently allowed an outdated address to be used in the recall notification process. Contributing to the severity of the injuries was the nonuse of available seat belts.

For additional details about this crash, visit www.nts.gov/investigations/-SitePages/dms.aspx and search for NTSB accident ID HWY14FH007.

¹³ Florida Statute 316.614, Safety belt usage (see www.leg.state.fl.us/statutes/index.cfm?App_mode=-Display_Statute&URL=0300-0399/0316/Sections/0316.614.html, accessed September 22, 2015).

Safety Recommendations

As a result of this investigation, the National Transportation Safety Board makes the following safety recommendations:

To Wal-Mart Stores, Inc.:

Evaluate your current tire registration training material to determine its effectiveness and your employees' compliance with it. (H-15-25)

Verify that all of your stores comply with Title 49 *Code of Federal Regulations* 574.8, or take necessary actions to ensure their compliance. (H-15-26)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

CHRISTOPHER A. HART
Chairman

ROBERT L. SUMWALT
Member

T. BELLA DINH-ZARR
Vice Chairman

EARL F. WEENER
Member

Adopted: October 27, 2015