

MIFACE INVESTIGATION: #01MI025

SUBJECT: Delivery Man Struck by Vehicle While Stopped on Roadway to Change Delivery Van Flat Tire

Summary

On February 13, 2001, a 49 -year old male died from injuries sustained when he was struck by another vehicle after pulling off a roadway to a paved shoulder to change a blown passenger side front tire. (See Figure 1). It is unknown where the driver experienced the blown passenger tire.

The incident occurred on an asphalt two-lane road, speed limit 45 mph, near an interchange for a major expressway. The interchange ran east-west, and the asphalt road ran north-south. The incident occurred mid morning, the roadway was dry, and visibility was good. There were three

vehicles involved in this incident: the victim's cargo style delivery van (Vehicle 1), a light duty truck (Vehicle 2) and a passenger car (Vehicle 3). The victim, heading north on the asphalt road pulled his delivery van (Vehicle 1) off the road onto the paved shoulder. He exited the van and opened the two split rear doors. Vehicle 2 was traveling northbound at approximately 54 mph. Vehicle 3 was traveling southbound at approximately 14 mph. Just south of the where the delivery van was parked, Vehicle 3 appeared to make a u-turn to travel north. Vehicle 3, while making the u-turn, struck Vehicle 2 on the driver's side door. The collision caused Vehicle 2 to uncontrollably slide to the right toward the delivery van. Vehicle 2's passenger side truck bed struck both the victim who was standing at the rear of the delivery van and the left rear side of the delivery van. Vehicle 2 continued to slide northbound for approximately 80 feet, coming to rest facing north on the northbound shoulder. Vehicle 3 came to rest facing north on the southbound lane shoulder. One of the drivers involved in the collision called 911, and emergency personnel arrived shortly thereafter. The victim was pronounced dead at the scene due to injuries sustained at the crash site.



Figure 1
At corner of road/interchange, looking north

RECOMMENDATIONS

- Employers who have delivery vehicles should develop a written vehicle safety management procedure that includes a vehicle inspection checklist.
- When changing a tire, choose a safe location out of the flow of traffic and use hazard warnings, such as emergency flashers, flares or reflectorized triangles to alert other drivers.

INTRODUCTION

On February 13, 2001, a 49 -year old male died from injuries sustained when he was struck by another vehicle after pulling off a roadway to a paved shoulder to change a "blown" passenger side front tire. On April 25, 2001, the Michigan Occupational Safety and Health Administration (MIOSHA) informed MIFACE investigators that a work-related fatal injury occurred on February 13, 2001. On May 31, 2001, MIFACE contacted and spoke with the company owner and completed the questionnaires pertaining to the incident. On June 28, 2001, a MIFACE researcher visited the site of the incident and took pictures of the roadway where the incident occurred. The death certificate, autopsy results, and police report were obtained during the course of the investigation.

INVESTIGATION

The police report and accident investigation was used to construct the sequence of incidence events. The police report provided the accident drawing, MIFACE labeled the vehicles. The accident drawing is labeled below as Figure 2.

On the morning of February 13 2001, the victim picked up his load from the company to deliver to another location. En-route to the delivery location, the passenger right front tire experienced a blow-out. It is unknown where the blow-out occurred, or the distance the victim traveled prior to stopping to change the tire.

Midmorning, the victim stopped to change the tire on a dry, two-lane asphalt road, just north of a one-way, east/west ramp interchange to a major freeway. The asphalt road ran north/south. The victim was traveling northbound, and pulled the van over to the shoulder. The paved shoulder was wide, due to its location near the ramp intersection. The shoulder edge was a sand/gravel mixture, which sloped slightly downward. At the edge of the sand/gravel shoulder was a shallow ditch filled with water that had a light coating of ice. Continuing north on the road, there were two slight hills with woods on either side. The hills did not obstruct driver vision. Near the intersection, the southbound lane of the asphalt road had a turn lane expansion to allow vehicles to turn right (west) on to the ramp. At the location of the accident, there were double yellow lines. On the northwest corner of the intersection was a church, with a driveway leading into a parking lot.

The victim parked and exited the van. The police report did not specify if the van's hazard light were flashing. Pictures taken at the scene indicated that he had not placed any flares or reflectorized triangles to mark his location to other drivers. He was standing near the opened driver's side split rear van door when the incident occurred.

There were three vehicles involved in this incident: the victim's cargo style delivery van (Vehicle 1), a light duty truck (Vehicle 2) and a passenger car (Vehicle 3). The victim pulled off the 2-lane road onto the paved shoulder, parking his delivery van on the northbound lane shoulder (van facing north). He exited the van and opened the two split rear doors.

Vehicle 2 was traveling northbound at approximately 54 mph. Vehicle 3 was traveling southbound, and had slowed to approximately 14 mph. Just south of where the delivery van was parked, Vehicle 3 appeared to make a u-turn to travel north. When Vehicle 2 saw Vehicle 3 begin to make the u-turn, Vehicle 2's driver slowed Vehicle 2's speed to

approximately 35 mph. Vehicle 2 was unable to avoid being struck by Vehicle 3. Vehicle 3, while making the u-turn, struck Vehicle 2's driver's side door. The collision caused Vehicle 2 to uncontrollably slide to the right, toward the delivery van. Vehicle 2's passenger side truck bed struck both the victim who was standing at the rear of the delivery van on the driver's side. Vehicle 2 continued to slide northbound for approximately 80 feet, coming to rest facing north on the shoulder of northbound lane. Vehicle 3 spun and came to rest facing north on the southbound lane shoulder. One of the drivers involved in the collision called 911, and emergency personnel arrived shortly thereafter. The victim was pronounced dead at the scene due to injuries sustained at the crash site.

CAUSE OF DEATH

The cause of death as stated on the death certificate was multiple trauma. . . No alcohol or drugs of abuse were detected in the victim's blood and urine.

RECOMMENDATIONS/DISCUSSION

- Employers who have delivery vehicles should develop a written vehicle safety management procedure that includes a vehicle inspection checklist.

Employers that use delivery vehicles regularly and have employees drive these vehicles should develop a written vehicle safety management procedure to ensure that the vehicles are "road worthy" and safely driven.

The vehicle safety program could include such items as driver qualification, driver education, employer and employee responsibilities, establishment of safe practices and rules (such as what to do in an emergency situation), planned inspection and maintenance of vehicles, safety guidelines for hauling loads, reporting, investigation and review of accidents, etc.

Each vehicle should be inspected prior to that day's use. The program must ensure that any defect found during this inspection is corrected prior to using the vehicle, or the vehicle should be taken "out of service" until the defect is corrected. A vehicle inspection should include the following to confirm that they are in good operating condition:

- Headlights correctly adjusted and clean, brake and tail lights operational
- Turn signals, brakes, parking brake, horn, mirrors, windshield wipers, seat belts are working properly.
- Windows and windshield clean and windshield (front/rear) defroster operational
- Inspect vehicle tires, wheels and rims for condition of tires including tread depth, wheels that are cracked or damaged and for proper tire pressure
- Inspect spare tire for proper inflation. Ensure all tools necessary to change the tire are available, including a block for one of the vehicle's tires to prevent it from rolling while jacked up.
- Fluid levels (gas, oil, radiator, windshield washer, transmission)
- Owners manual present

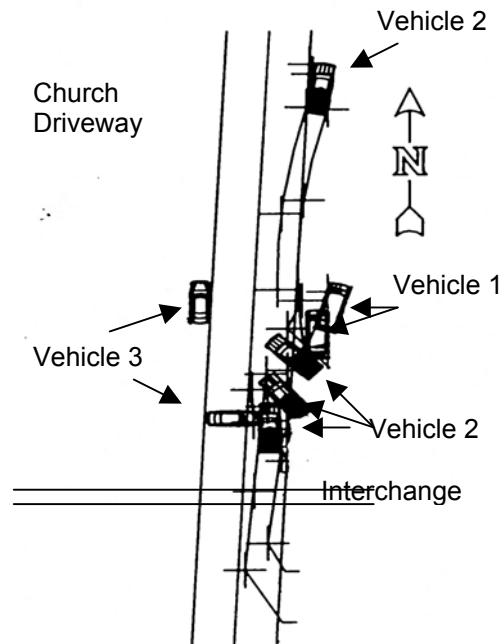


Figure 2

- Look for evidence of leaks under the vehicle.
- Properly serviced fire extinguisher

Employers may access many health and safety manuals on the Internet to modify an existing vehicle safety program for their company.

The company did not have a written vehicle safety program as part of their written health and safety program.

- When changing a tire, choose a safe location out of the flow of traffic. To alert other drivers, use hazard warnings, such as emergency flashers and flares or reflectorized triangles.

In this incident, the victim stopped on the wide, paved shoulder to change the tire just north of a busy intersection. Although the shoulder was a paved, even shoulder, there was a “safer” location to pull over to change the tire. Just north of his selected location, on the west side of the road, was a church. The driver should have turned into the church’s paved driveway and removed himself completely from the roadway. See Figure 3.

It is unknown if the driver had activated the emergency flashers while parked. Police photos of the scene revealed that the driver did not place additional hazard warning devices such as flares or reflectorized triangles in a conspicuous area to alert other drivers of his location.

When a vehicle has a flat tire, getting off the roadway out of the path of traffic should be a safety priority. Although driving slowly on a flat tire may damage the tire, rim or wheel taking the time to select a safe location is worth the cost to fix any damage incurred. If pulling off onto the roadway shoulder is necessary, avoid a “soft” shoulder. Look for a level area on a straight segment of road, away from intersections and curves. Do not attempt to change a flat if the vehicle is on a slope or if it is sitting on dirt. Prior to raising the vehicle on the jack, place the vehicle in park (automatic transmission) or reverse (manual transmission), apply the emergency break, and chock the wheels opposite the flat.

To alert other drivers of a parked vehicle undergoing emergency repair/maintenance, emergency flashers should be turned on once the vehicle is in safely parked. If the vehicle must be pulled off onto a shoulder, park the vehicle as far from the lane line as safely possible and exit from the side away from traffic flow. According to package directions, carefully place additional hazard warning devices such as flares or reflectorized triangles to alert other drivers. The police report did not specify if the victim had turned on the cargo van’s emergency flashers. Pictures taken at the scene by the police indicate that he did not place other hazard warnings, such as flares or triangles to the north or south of his vehicle. The police report also does not indicate if the driver of Vehicle 3 noticed Vehicle 1 parked on the east shoulder. It is also unknown whether the lack of use of these additional safety devices were factors in the fatality; i.e., would the



Figure 3
Looking south

driver of Vehicle 3 have made the u-turn just south of Vehicle 1's location if the Vehicle 1's flashers were on and flares/triangles were placed on the east shoulder of the road.

RESOURCES:

1. Some Handy Tips on Tire Maintenance.
www.co.tillamook.or.us/gov/pw/sw/recycle/tire-maint-flyer.htm
2. Tire Tips and Care Care. www.bridgestone-usa.com/carcare/t_maint.htm
3. Tire Industry Safety Council. <http://www.rma.org/tiresafety/tiresafety.html>
4. How to Properly Change a Tire This Summer.
<http://safety.Kirkland.af.mil/magazine/htdocs/sum97/pg22.htm>
5. What to Do if You Have a Blowout on a High-Speed Highway. National Safety Council Fact Sheet Library. www.nsc.org/library/facts/blowout.htm

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MIFACE

Investigation Report # 01 MI 025

Evaluation

To improve the quality of the MIFACE program and our investigation reports, we would like to ask you a few questions regarding this report.

Please rate the following on a scale of:

Excellent	Good	Fair	Poor
1	2	3	4

What was your general impression of this MIFACE investigation report?

1 2 3 4

Was the report...

Objective?	1	2	3	4
Clearly written?	1	2	3	4
Useful?	1	2	3	4

Were the recommendations ...

Clearly written?	1	2	3	4
Practical?	1	2	3	4
Useful?	1	2	3	4

How will you use this report? (Check all that apply)

- Distribute to employees/family members
- Post on bulletin board
- Use in employee training
- File for future reference
- Will not use it
- Other (specify) _____

Thank You!

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