

Safety precautions for full-sized passenger vans

Full-sized passenger vans (10-15 occupants) are a popular way to transport small groups of passengers. They are widely used by transportation companies, institutions, youth organizations, recreational outfitters, and churches.

Unfortunately, because they are considered by many to be relatively easy to drive and because special licensing is generally not required, they do not always receive the attention they deserve from safety management. Many companies and organization that utilize full-sized vans fail to implement controls that address the potential safety risks involving these vehicles.

Full-sized vans pose several potential hazards that warrant close safety management oversight. They include:

- Handling characteristics that can differ significantly from those of private passenger vehicles (e.g., greater stopping distance, extensive blind spots, a higher center of gravity, wider turning radius, slower acceleration, etc.)
- Limited side-impact protection for passengers
- A greater risk of passenger injury when vans are used to transport numerous passengers
- Increased risk of rollover accidents under certain conditions

The National Highway Transportation Safety Administration's (NHTSA) 2001 van safety study highlights one of the most pressing concerns involving full-sized vans—their propensity to overturn. The study was initiated following several well-publicized single-vehicle rollover crashes. NHTSA found that 15-passenger vans loaded to full capacity with passengers and baggage are three times more likely to roll over than similar vehicles that were not loaded to full capacity. This is because the vehicle's center of gravity shifts upward and rearward as it is loaded. Both factors adversely affect vehicle stability, making them susceptible to overturn accidents, especially during emergency maneuvers and run-off-road incidents. In numerous tests, vehicles loaded to capacity became unstable during sharp turns and sudden steering maneuvers. These results were produced at speeds as slow as 30 miles per hour. While the emphasis in this study was on 15-passenger vans, there are similar implications for all full-sized vans.

It is important that company owners and managers address the potential safety hazards associated with operating full-sized vans. Selecting qualified drivers, implementing driver training, and establishing and enforcing safe operating procedures for full-sized vans are three key strategies to consider. These controls may be even more important for organizations and businesses that use full-sized vans on an incidental or intermittent basis since it is here where drivers are more likely to lack experience.

Driver selection

One way to improve van safety is through quality driver selection. Commercial vehicle operations that utilize full-sized vans should have a formal driver selection process that includes, at a minimum, the driver selection measures listed below. All organizations that use vans should consider establishing a van driver certification process that requires drivers to possess a good driving record, meet minimum experience requirements, and complete training. Only those drivers who have successfully completed the certification process should be authorized van operators.

Even when driving is incidental to other activities, such as when the van operator is a teacher, an athletic team member, or a volunteer, certifying one or more experienced, safe drivers is important.

Appropriate driver selection measures include:

- **Establishing formal hiring/selection criteria.** Determining in advance what qualities a driver should

possess in order to become a qualified van operator, and then adhering to those standards, is one way to help ensure drivers are qualified. Standards should include minimum requirements for previous driving experience. NHTSA's 2001 van study showed that experience matters a great deal. A large percentage of 15-passenger van rollover accidents studied involved drivers who did not have experience operating large seating-capacity vans. This emphasizes the need to ensure van drivers are experienced. Drivers should have several years of driving experience which includes at least one year of recent experience operating full-sized vans. Certifying one or more experienced, safe van drivers is a good practice. This way, even when driving a van infrequently, designated drivers will obtain valuable experience that will help them become safer operators.

- **Background investigations.** At a minimum, driver selection should involve reviewing motor vehicle records (MVR) for moving violations and accidents. Drivers should have a good driving record with no serious moving violations, accidents, or license suspensions/revocations during the past three years. The number of minor moving violations during the past three years should be limited to no more than two. Where drivers are employees, contacting previous employers is another way to verify a driver's level of experience and safety record.
- **Road test.** Conducting a road test to evaluate a driver's level of skill and confidence operating large vans is also a good practice. A road test should be of sufficient length to evaluate the driver's skill at speed and space management, turning, backing, yielding the right-of-way, merging, passing, and other essential driving tasks.

Training

Drivers should receive training that addresses the unique handling characteristics of full-sized vans as well as general safety precautions for their use and operation. All drivers who operate vans should receive periodic refresher training at least annually. Knowledge and skills obtained through training should be evaluated through written and road tests. Training records should be maintained for future reference.

Defensive driving instruction should be required for all drivers. Topics should include:

- Speed and space management
- Maintaining a safe following distance
- Hazard awareness
- Yielding the right-of-way
- Driving during adverse road and weather conditions
- Safe backing procedures
- Seat belt use
- Affects of driving while impaired by drugs and alcohol
- Passenger safety and assistance
- Fatigue management
- Avoiding distractions

In addition to defensive driving instruction, in-service and annual refresher training, efforts should address the following topics relating specifically to full-sized vans:

- The need to drive at a conservative speed at all times to compensate for the vehicle's high center of gravity, increased stopping distance, and potential instability during emergency maneuvers or run-off-road incidents

- Proper mirror usage and backing procedures to compensate for blind spots
- The need to advise passengers on safety precautions (e.g., seat selection, baggage stowage, and seat belt use)
- Precautions to take when loading passengers, baggage, and other cargo in order to prevent overloading the vehicle and reducing, to the extent possible, the negative affect on the vehicle's center of gravity
- Vehicle inspection procedures
- Conducting emergency maneuvers safely

Training should be an integral part of the van driver certification process. It should be documented, and only those drivers who have successfully completed a training program designed for full-sized van drivers should be authorized van operators.

Your state Department of Transportation or Public Safety Commission may be able to provide safety training resources. Safety training materials are also available from a variety of vendors and safety groups, such as:

Safe operating procedures

- National Highway Traffic Safety Administration nhtsa.dot.gov
- AAA Foundation for Traffic Safety aaafoundation.org/home
- National Safety Council nsc.org
- Coaching Systems, LLC (formerly FLI Learning Systems, Inc.) coachingsystems.com
- Smith System smith-system.com

Safe operating procedures that address specific hazards associated with van operations can be separated into several categories. Written policies should be established to communicate these procedures. Training efforts should be focused on reinforcing these safety precautions. Drivers should be observed to ensure safe operating procedures are followed at all times. Corrective action procedures should be in place to remind drivers of their importance.

Driver behavior

How the vehicle is operated has a dramatic impact on safety. Management should make every effort to ensure vehicles are operated safely at all times. Some specific driver behaviors that can affect safety include:

- **Speed.** Vehicles should be driven at a conservative speed for improved vehicle control, especially during adverse road or weather conditions.
- **Erratic driving.** Drivers should avoid making abrupt turns and lane-change maneuvers.
- **Fatigue.** Drivers should be well rested and alert, especially during long trips.
- **Emergency maneuvers.** Drivers should understand how to conduct evasive maneuvers safely without jeopardizing vehicle stability.
- **Vehicle inspection.** Daily vehicle inspections should be conducted by the driver.

Vehicle loading

Full-sized vans are at a higher risk of rolling over compared to most personal passenger automobiles, primarily because of the vehicle's high center of gravity. How the vehicle is loaded influences its center of gravity. Therefore, it is essential that management make every effort to ensure that vans are loaded in a way that has a positive influence on the vehicle's balance and center of gravity. Safety professionals recommend that:

- The vehicle's maximum passenger-carrying capacity and gross vehicle weight limit should not be exceeded. Ideally, staying well under these thresholds is recommended. NHTSA's study indicates that 15-

passenger vans loaded with fewer than 10 passengers are less likely to be involved in roll-over accidents.

- Passengers should be encouraged to sit near the front of the vehicle to help keep the vehicle's center of gravity from shifting too far rearward.
- Cargo should be loaded as close to the floor as possible, not to exceed the height of the rear seat. This is to help maintain a lower center of gravity and also to avoid having baggage fly forward and injure passengers in the event of a sudden stop. **Baggage should never be loaded on top of the vehicle or in rear-mounted luggage racks.**
- Warning labels provided by the vehicle manufacturer detailing safe loading procedures should be maintained and kept visible. If warning labels have been removed or are damaged, they should be replaced.
- Vans should not be used to tow trailers or other vehicles.

Safety management

Safety experts suggest several additional precautions be considered when operating full-sized vans.

- **Driver seat belt usage should be required. Passenger seat belt usage should be required, if feasible, or at least strongly encouraged.** NHTSA's study suggests that 80 percent of the people killed in 15-passenger van rollover accidents were not wearing seat belts. Adjustable lap/shoulder belts should be available for all passengers and in good working condition. Where appropriate, a written seat belt use policy should be in place and enforced.
- Formal policies and procedures should be established regarding vehicle use, proper loading procedures, and prohibited practices. These policies should be posted in a conspicuous location and discussed during company/organization meetings.
- Only those drivers who meet the van driver qualification requirements and who have successfully completed defensive driving and van safety training should be authorized van operators.
- On long trips, a designated driver assistant or relief driver should be chosen to limit driver distractions and provide an opportunity for the driver to take a break from driving.
- In a number of 15-passenger van accidents, tire blowouts contributed to the driver losing control of the vehicle. To protect against tire blowouts, good quality, low mileage tires should be used. Tires should be inspected regularly for excessive wear, damage, and proper inflation.
- If feasible, the rear seat should be removed to encourage passengers to sit closer to the front of the vehicle and to discourage loading the van to full or excess capacity.
- Vans should be subject to routine inspection and maintenance by a certified mechanic. Drivers should conduct pre-trip and post-trip inspections. All maintenance and inspections should be documented.
- Consideration should be given to replacing full-sized vans with other vehicles, such as small buses, that can offer greater stability while on the road and a higher level of occupant protection in the event of an accident.
- Warning labels providing safety information about vehicle operation should be maintained and kept visible. If labels have been removed or damaged, they should be replaced.
- Routes should be selected with road quality in mind, particularly for long trips. Narrow roads and roads with soft shoulders present a greater hazard for all types of vehicles, especially full-sized passenger vans.

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