

mobility and more

Vehicle Modification Guide (Part 2)

Part 1 of this article (August)

discussed the advantages and disadvantages of modifying cars, trucks, vans, and SUVs for passengers and drivers with disabilities. The following tips expand on possible changes.

Adaptive Seating

Special passenger seats have been designed to assist elderly people or persons with disabilities enter and exit a vehicle. They rotate and move outside the vehicle and then tilt or extend to bring the passenger closer to the ground. Some adapted seats also double as wheelchairs! This eliminates the need to transfer.

Products in this category are Braun Companion Seat™; Bruno Turnout™, Turny™, and Carony™; Accufast GOVAN+®; and Access Unlimited Multi-Lift, Easy-Reach, Stand-Ease, and Easy Transfer.

Cost: \$2,500–\$12,000.

Pros: Installation is simple. The seats can be used in a wide range of vehicles, and required modifications can easily be reversed for resale.

Cons: Proper use of these seats usually requires assistance from a strong individual.

Transfer seats are available to help people get into a driver or passenger seat from a wheelchair inside a van's mid-section. The seats swivel and move up, down, forward, and back. **Cost:** About \$2,000.

Floors, Doorways

One way to have more headroom in vans is to lower the floors. This also increases clearance from the top of the doorway to the bottom (doorway height). This modification is typically necessary for someone driving from a wheelchair. **Cost:** \$5,000–\$10,000.

Van interiors are about 52" (full-size) from floor to ceiling and 48" (minivans). The average adult sitting in a wheelchair is 50" to 55" high—from the top of his or her head to the floor. A person usually

can't sit in a van in a wheelchair without hitting the ceiling. For comfort and safety, there should be at least 2" between head and ceiling. Raised tops provide additional headroom when necessary. **Cost:** 2,500–\$3,500.

Doorway heights are usually less than 48" (full-size) and less than 44" (minivans). Some people can duck their heads for the moment it takes to get through the doorway. A raised doorway allows a person in a wheelchair to pass through without ducking. **Cost:** \$2,500– \$5,000.

Driving Aids, Hand Controls

Driving controls, called driving aids in the modified vehicle industry, must be appropriate for individual needs and abilities. You must get an evaluation from a Certified Driver Rehabilitation Specialist (CDRS) to buy driving aids, unless you already have similar adaptations in another vehicle. In addition, you are required to have a valid restricted license. A few driving aids include:



The Braun Companion Seat™ moves out of the vehicle, allowing easier access for passengers with limited mobility.



The Bruno Turny™ seat comes outside the vehicle's door and moves up and down.

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Many wheelchair users drive using hand controls. A guard below keeps the driver's feet from accidentally hitting the pedals.

■ Hand controls allow drivers to operate gas and braking by hand instead of foot. Original pedals are not affected, so the vehicle can be driven normally by other drivers. The vehicle should also have power brakes and power steering. **Cost:** About \$800.

■ The "Left Foot Gas Pedal" is designed for people who cannot use their right foot to operate gas and brake controls but have a fully functional left foot. This aid can be installed in any vehicle with an automatic transmission and sufficient space to the left of the original brake pedal. It is moved out of the way for drivers who don't need it. **Cost:** About \$400.

■ Pedal extensions help drivers who cannot reach these controls without sitting close to the driver's air bag. Gas and brake extensions ranging from about an inch to 12" are possible. **Cost:** \$100 per pedal up to 3" or about \$800 for a 12" pair.

■ Steering devices are available to allow better control when it is necessary to steer with one hand. **Cost:** \$100-\$200.

■ Pedal guards are recommended when drivers using hand controls have prostheses, leg spasms, or no leg control. This blocks drivers from inadvertently resting their feet on or under the brake or gas pedals. A quick-release mount allows ambulatory drivers to easily remove the device without tools

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■ Reduced-effort brakes and steering provide additional assist for drivers who do not have sufficient strength or who tire rapidly. In most vehicles, power brakes and power steering can be modified to require less pressure. **Cost** \$1,500–\$3,000.

Lifts

There are different types of commonly available wheelchair lifts, which come in several variations to suit different vehicles. All are capable of lifting 400 lb or more.

To choose the appropriate lift, you need to know the wheelchair's dimension (overall length and width), the distance from the top of the wheelchair occupant's head or headrest (whichever is higher) to the floor, and the total weight of the wheelchair and occupant.

The most common lift is the platform. The wheelchair is driven onto a platform, and it is then raised to the van's floor level. The wheelchair is driven off the platform into the van, and the platform moves into a vertical position to stow inside the van door.

About seven feet of clearance is needed beside the van to get a wheelchair in and out. This can be reduced to about five feet if the lift has a "side entry" platform that allows the wheelchair to move on or off the side as well as the end. **Cost:** About \$6,000.

While other lifts are mounted inside the van, those that mount underneath save space inside and keep entry and exit through the side door clear. The cost is about double that of other lifts. Installation is available with Ford E-250 and E-350 vans. One significant disadvantage is these lifts cannot be used at a curb.



The doorway on this full-size van has been raised and equipped with a platform lift.

Tie-downs

A driver or passenger may ride in a wheelchair if it is properly secured with a crash-tested belt system. The seat belt that comes attached to a wheelchair is *not* tested or approved for this use. The chair and the person must be properly secured facing forward to prevent injury. Most three-wheel scooters and some wheelchairs cannot be secured properly for safe use as a seat in a vehicle but can be restrained for unoccupied transport. In addition to securing the wheelchair, the person riding in it must be restrained in the chair.

The most common wheelchair tie-down is the four-point system, consisting of four straps that attach to the wheelchair and the van floor. A ratchet mechanism is included to tighten the straps. This system, when properly used, will safely secure almost any wheelchair. Because it is practically



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impossible for the wheelchair occupant to operate this tie-down independently, it is used only for transporting someone who is not driving and has an attendant who can attach the straps. **Cost:** About \$500.

People without a capable assistant or adequate space, or who drive from their wheelchair, can use an automatic tie-down. This consists of two parts, one attached to the floor of the van and one to the wheelchair. The chair is simply guided into the lock-in position, and the two parts lock together. **Cost:** About \$1,700.

Funding Sources

You may be eligible for assistance to purchase adaptive equipment. Financial help for eligible veterans is available from the Department of Veterans Affairs (VA). Your state Division of Developmental Disabilities agency and fraternal organizations such as Lions Club also offer some assistance. Health insurance, including Medicare and Medicaid, usually does not cover this type of equipment. Most automobile manufacturers have rebate programs on new vehicles for adaptive equipment and can add the cost to vehicle financing.


Shop around before deciding who will do your vehicle conversion. Compare prices but also check dealer facilities and resources. Some may do this work as a sideline. Experience, reputation, selection of equipment, a convenient location, and knowledgeable, certified people on staff are important considerations and can make a big difference in long-term satisfaction.

Contact: Performance Vans, Inc., (856) 848-3470 / 1549 Gateway Blvd., Woodbury, N.J. 08096 ■

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