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RESOURCE MEMO #OT1

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RE: Vehicle Modification Tips

Mobility is probably the most important privilege any human being has in today's world. Today, finally, we have the necessary technology to assist in converting vehicles for the physically challenged so they may exercise that privilege.

Nonetheless, adaptive-equipment dealers and driver-evaluators are rightly concerned that consumers are not aware of the products available to them. Consumers need to know where to turn, and what steps to follow, when purchasing their vehicles and equipment.

If you have any questions about your vehicle and/or equipment, find an adaptive-equipment dealer and/or a driver evaluator/trainer. They can answer your questions, or will assist in finding a solution to your problem.

PURCHASING AND ADAPTING VANS

FULL-SIZE VANS

When choosing a van to transport a person with a disability, there are many details to keep in mind.

- One of the most important things to consider is the engine cover. (In full-size vans, the engine usually extends into the vehicle.)

1. How far does it extend into the vehicle?
2. Does the engine cover become an obstacle to easy transfer or swiveling?

Occasionally people have suffered injury to their feet, ankles, and legs (in some cases even breaking a bone) because their feet got caught between the engine cover and the seat.

- Another part of the van to consider is the height of head space. Measure from the floor to the roof, and then determine your seated height, obtained by measuring from the floor to the top of the head when you are seated in the wheelchair. If you plan to drive, or even just ride, from your wheelchair, you need enough room for movement.

- The necessary head space can come from a couple of options. One is raising the roof, i.e. cutting out the factory roof and adding a higher fiberglass top. There are several roof brands and models available, along with the cosmetics needed for an attractive van after the conversion.

- Your evaluator may prescribe a lowered floor for your van. That requires cutting out the floor's metal, lowering the floor itself, then welding back the metal. Remember to have the new flooring undercoated if your dealer does not include it in his service. And, if you require a lowered floor, be certain your dealer has certified welder on staff.

The number one consideration in purchasing a van when the floor must be lowered is the frame. It is highly recommended that the van have a frame and not a unitized body (where the body is the frame.) Some dealers do build a frame for lowering the floor in a unitized body, but the expense is very high. Some dealers will not perform this procedure. This is another example of the need to consult with your dealer before purchasing a van.

- If you are purchasing a full-size van to use with wheelchair lift, you need a long wheelbase, or extended body. This will give you ample room to maneuver your wheelchair when entering or exiting the van.

- Do not forget to measure the doors as well. If, for any reason, you cannot bend your head forward, you should ask your dealer about raised doors. These are doors in which a life is installed. Raised doors have an extra panel of metal welded to the top of each door. The top needed for raised doors is different. Thus, if you have your van converted but do not include the raised doors, all of the interior may need to be removed to install the proper top for raised doors - an unnecessary expense.

MINI-VANS

When choosing between purchasing or converting a mini-van, there are two alternatives:

- Have the dealer convert the vehicle locally. There are currently a number of products (i.e., lifts, raised tops, etc.) that will work when converting the mini-van.

- Order your vehicle from a manufacturer of mini-vans for the physically challenged. If you decide to go this route, there are currently several models of mini-vans on the market for people with disabilities. These mini-vans have been attained from one of the automobile manufacturers, then literally taken apart for modification. Thus, you need to be certain the mini-van modifier is recognized by the automobile manufacturer so as to avoid factory warranty problems.

Getting in and out

The following are the two most important considerations when a wheelchair user is entering and exiting a mini-van:

- Head room inside the vehicle...see if you need a raised roof with a lowered floor; and
- Height of the doors...to enter and leave the van.

Most of the mini-vans on the market have a lowering device - an air bag below about the size of an old-fashioned oatmeal box - with an air compressor. They are also equipped with ramps, whether in the side or rear. These vans are small, as the name implies, which provides the

convenience of a small vehicle, but limits the number of passengers you can transport. And, if you choose the rear entry ramp, keep in mind you will lose the rear sofa and center seats. You need to discuss this with your dealer and/or evaluator.

A dual battery system is available from the adaptive-equipment dealer. The purpose of a dual battery is to provide power, should there be a power failure in the main system. The reserve power will let you exit the van safely.

Have wheelchair, will travel

Taking a wheelchair along in a van or car can be accomplished by using a carrier to lift it. Carriers store manual wheelchairs for the journey while the wheelchair user rides in the vehicle. Wheelchair carriers come in four basic styles:

1. The automatic car-top carrier which is an electric motor-driven hoist. A steel pin lowers and picks up the manual wheelchair, and the chair folds as it rises to the carrier. The carrier then closes. All the functions are operated by switches. If you needs include a car-top carrier, it will be of utmost importance that an adaptive equipment dealer examine the car before the purchase. Among the things he/she will be checking are:

- a) the actual size of the roof - will the roof be able to accommodate the carrier?
- b) the make of the carrier in which you are interested (i.e., is it too heavy for the car model you have chosen?)

2. The bumper-mounted carrier for a manual wheelchair could get complicated if combined with a molded auto bumper. Occasionally the bumper-mounted installation requires the adaptive-equipment dealer to drill a couple of holes into the bumper. These can be plugged should you remove the carrier later. One more thing to consider is the accessibility of the trunk. Most of the bumper-mounted carriers can easily be removed to give access to the trunk.

3. The hit-mounted carrier tilts down to lead the wheelchair and easily tilts up and locks into place.

4. The pick up carrier is for use on pick-up trucks. The wheelchair will have to be folded, then the lift picks up the chair with an electric-driven motor and stores it in the bed of the truck.

TYPES OF WHEELCHAIR LIFTS AVAILABLE

Platform Lifts

The platform lift stores either in the side, rear or under the floor of the van. The lift requires two doors, or the sliding door on the side of a van. The platforms have expanded metal in the upper half of the platform for better visibility when the lift is folded and the van is being driven. The fold-in-half platform folds to give better accessibility to the doors. The under-the-floor lift requires modifications under the van to the exhaust system, gas tank, etc., depending on the make of the van. There are both solid and fold-in-half platforms. Some of the fold-in-half platform lifts are mounted on a single post.

Be aware of the difference between automatic and semi-automatic lifts. A fully automatic lift will fold, unfold, lower and raise by operating a switch, usually located on the dash, but in some

cases on the side of the lift. A semi-automatic lift requires manual folding and unfolding of the platform. A hand-held pendant switch mechanically lowers and raises the platform.

Rotary Lifts

Another lift is the rotary, sometimes called a “swing” lift. The platform never folds, it swings inside, outside, and up-and-down. The rotary lift swings into the van and the lift platform sits on the floor in the middle of the van.

Some individuals like a rotary lift because of the parking convenience. Less room is need to enter or exit the van. Also, this lift is mounted on one post inside the van. The post controls the swinging action of the lift. One of the drawbacks to the rotary lift, though, is the cross-over bar. On some rotary lifts, this bar connects the platform to the swing bar, and limits space for loading and unloading on the platform.

Back-up Systems

Switches operate the lifts as well as the power openers. In the event of a power failure, however, a backup system is necessary. Many government agencies require a lift to have a backup system for use in emergencies. The lift then can be manually maneuvered and users can exit the van with assistance from an outsider. Most of the backup systems are too hard to operate alone, so expect to need someone’s help.

Safety Flaps

All lifts have an extension or “curb” at the edge of the platform which is approximately three to four inches high. This safety flap is designed specifically to prevent the wheelchair or scooter from rolling past the edge of the platform.