

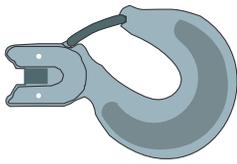


Kansas RTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Rural Transit Providers

In the Spotlight: Wheelchair Securement

by James C. Holland



Transit system drivers are required by ADA to secure wheelchairs inside vehicles to protect the passenger and the wheelchair. Some passengers of a Denver bus system have recently complained about experiences of inadequate securement. These passengers reported that their wheelchairs were secured at only one point, sometimes with only a seat belt. They also claimed that drivers had little expertise or interest in proper securement techniques.

This article discusses two initiatives to help drivers and wheelchair occupants communicate about securement points on mobility devices. The first is a securement aid called Stokes Straps that help wheelchair occupants designate securement points on their own mobility devices. The second is a new national standard that will require all new wheelchairs and scooters to have four clearly-designated securement points.

Stokes Straps to the Remedy

It is essential to properly secure wheelchairs and scooters inside transit vehicles, but it isn't always easy or straightforward. Sometimes the securement points are not clearly identified on a mobility device and the driver has to guess where to attach securement devices. "Stokes Straps,"

*Phoenix's Community Forum is a nonprofit organization with many community projects, including working to increase mobility and community participation for older adults and people with disabilities.

**ANSI is the American National Standards Institute. RESNA (Rehabilitative Engineering and Assistive Technology Society of North America) is accredited by ANSI to develop standards for assistive technology. RESNA is an interdisciplinary association of people with a common interest in technology and disability.

developed by Phoenix's Community Forum,* can help.

Stokes Straps were developed by Bill Stokes, a technical analyst for Community Forum, after he attended a conference session that discussed customized securement straps. He decided he wanted to try to improve on the concept. Community Forum then introduced his new product, Stokes Straps, to wheelchair users in the Phoenix area.

Stokes Straps are nylon straps that attach to securement points on wheelchairs. Once attached, they stay on the wheelchair. The straps form strong, short loops that help designate (and provide better access to) places where bus drivers should attach securement devices.

Stokes Straps are distributed by Community Forum free-of-charge. In the last six years, 650 sets have been requested. They can be used on a wide range of wheelchair types, including manual wheelchairs, powered wheelchairs, power-base wheelchairs,

scooters, and specialized seating bases. Community Forum maintains a database that holds information about every scooter or wheelchair on the market. They use the database to identify the appropriate number and lengths of straps to send to each customer. There are just a few models that cannot accommodate Stokes Straps for 4-point securement, including some power wheelchairs and scooters that do not meet ANSI/RESNA WC-19 design specifications (see box next page).

Stokes Straps come in 11-inch, 13-inch, or 15-inch lengths. The tensile strength of the strap is 4500 lbs. The straps are made with one-inch wide Type 25 Nylon. Unless yellow straps are specifically requested, blue straps are sent. According to Donna Powers, some individuals prefer yellow straps because they are easier to see.

Stokes Straps should be inspected periodically for any cuts or fraying and replaced as necessary.

Locating attachment points for Stokes Straps

Always attempt to loop the Stokes Straps around the four strongest support structures on the mobility device. Never attach straps to wheels.

Inspect potential attachment locations to be sure they are free from sharp edges that could damage the strap.

The three general types of mobility devices require different methods of securing the straps.

For manual chairs, 11-inch straps are used and attachment points are usually readily accessible. Four straps will be needed—right and left front, and right and left back.

For standard power chairs, 11-inch or 13-inch straps are used and the attachment points should be readily accessible. Like manual chairs, the four straps for the standard power chairs will be needed—right and left front, and right and left back.

For scooters, because there are so many different styles available, the size of the strap (11, 13, or 15 inch) will depend on the brand and model number.

A rule of thumb in selecting an attachment point at the rear of a mobility device is to have it be no higher than 12 inches above floor level. Avoid attaching straps to the seat post; it is not designed to handle the directional pull from bus securement devices. The seat post may be the only option for rear attachment on some scooters; however, most scooters have seats with arm rests, and the tubing connecting the armrest to the seat is usually a good place to install a strap. But make sure the seat has a lock to keep it from turning. When riding the bus, the seat lock should always be engaged.

Some scooters have front bumpers that can easily accept straps. Although a Stokes Strap is not needed here because a bus hook can be attached directly to a bumper, Community Forum suggests using a strap anyway, to indicate to the bus driver exactly where on the bumper you want the bus hook to be placed.

For scooters that don't have front bumpers, the best (but not ideal)

solution is to install a strap on the steering tiller as low as possible. Some steering tillers have a joint or elbow that allows the user to adjust its position. Be sure to install straps below these joints or elbows.

New WC-19 standard enhances wheelchair occupant protection

The new ANSI/RESNA** WC-19 standard has been developed to improve crash protection for wheelchair occupants in various types of motor vehicles. This standard is called Wheelchairs Used as Seats in Motor Vehicles. Under the new standard a newly-manufactured wheelchair must have four clearly-identified securement points that meet detailed requirements for strength, geometry, and location. This standard is expected to go into effect completely for all new wheelchairs by April 2002.

Under the WC-19 standard all securement points must be compatible with both hook-strap and strap-type tie-downs. The securement points must meet specific geometry and be located on the vehicle in places that provide maximum protection for the occupant when attached to securement devices.

Under the new standard, a wheelchair can be used safely as a regular seat in the vehicle with an optional pelvic belt and a vehicle-anchored shoulder belt. The term "wheelchair" includes standard manual wheelchairs, powered wheelchairs, power-base chairs, scooter-type wheelchairs, and specialized seating bases.

Dr. Lawrence W. Schneider, the University of Michigan scientist who led the effort to create the new standard, reports that WC-19 represents the first time the standards process recognizes the use of a wheelchair not just as a mobility aid but as a motor vehicle seat as well.

According to WC-19, a vehicle seat must be effectively secured so that it does not move significantly and/or "load" the occupant during an impact. It should provide effective seat support for the occupant in order to reduce the likelihood of the occupant "submerging" under the pelvic belt, and to optimize the performance of the

seatbelt restraint system.

The purpose of the ANSI standard is to reduce the risk of injury for motor-vehicle occupants who remain seated in their wheelchair during transit, by improving the crashworthiness of wheelchairs. If a wheelchair is not secured effectively, not only could the wheelchair occupant be seriously injured during a crash, but other passengers could be struck by the unsecured wheelchair and its occupant.

For more information about Stokes Straps, contact Donna Powers, transportation project coordinator for Phoenix's Community Forum, (602) 223-4104.

Sources

Transit Access Report, July 10, 2000.

Transit Access Report, July 25, 2000.

Reprinted from the April 2001 issue of the *Kansas TransReporter*, a publication of the Kansas Rural Transit Assistance Program (RTAP) at the Kansas University Transportation Center.



What about Securing Wheelchair Occupants? Is it Mandatory?

The short answer is: It depends. Providing effective protection for riders in a transit bus involves the vehicle, the vehicle seat, and the occupant restraint system, according to ANSI/WC-19. While securing a wheelchair is required, wheelchair occupant restraints, i.e., seatbelts, are optional under ADA rules, but only if other riders on the bus are not required to use seat or shoulder belts. If passengers in regular seats are required to wear seatbelts, so must riders in wheel-