Wheelchair / School Bus Safety

- School Buses: Regulations and Best Practices
- Tuesday, April 29, 2014 - 10:45AM - 12:15PM

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Wheelchair / School Bus Safety

Manual Wheelchairs

Medical Strollers

Power Wheelchairs and Scooters

Wheelchairs

- All references to a wheelchair throughout the rest of this presentation will pertain to any of the previous mobility devices, with the exception of the 3-wheeled scooter.

Preferred Transportation Option

-It is generally safest to transport children on school buses in an age appropriate seat belt or CSRS – child safety restraint system – that complies with the federal safety standards.

-Wheelchair users that should be out of their wheelchair for transportation:

- sport style wheelchairs that have low back heights
- three wheeled scooters – these can not be anchored safely.

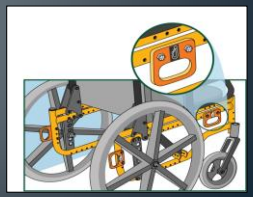
If transferring to bus seat is not possible, it is best to use wheelchairs with Transit Options

- A wheelchair with transit option has 4 points of securement, and has been crash tested.
- They have clearly marked hooks on the frame for attachment of tie downs.

WC19 - Wheelchairs

-Wheelchairs that are designed and crash tested to be used in motor vehicles

-Look for hooks on front and back of frame to secure wheelchair down with tiedowns, which may or may not be clearly marked.



ANSI/RESNA wheelchair standards

- (ANSI/RESNA) American National Standards Institute/Rehabilitation Engineering and Assistive Technology Society of North America
- These are voluntary standards that are made up by safety experts.
- Just because a wheelchair is not WC19 compliant does not mean it can denied transportation in vehicles.

Start with the right equipment

Some equipment will have labels that state that it is not approved for transportation purposes.

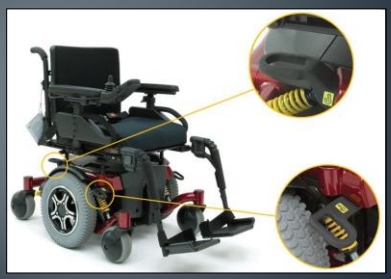
Wheelchairs – WC 19

Crash tested securement points.

Manual Wheelchair

Medical Stroller

Power Wheelchairs



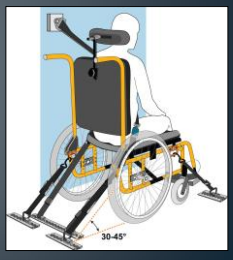
Website resources

- For a list of wheelchairs that meet W-19 standards go to the following website:
- **http://www.rercwts.org/WC19.html**

The Wheelchair Tiedown and Occupant Restraint System (WTORS)

Important -

- Always use a complete WTORS that has been crash tested and labeled as complying with ANSI/RESNA WC18 or SAE J2249, a voluntary standard developed by safety and rehabilitation experts.



WTORS

- The most common type of wheelchair tie down uses four straps to secure the wheelchair to the vehicle. This tie down system can secure a wide range of WC19 and non-WC19 wheelchairs.

Proper Installation – Securing the wheelchair

Proper installation includes the following:

- Face forward
- 4-point tie down
- Lap/shoulder belt or 5 point harness – separate of straps on the wheelchair.
- Remove lap trays
- Combined occupant and wheelchair weight should not exceed tie-down recommendations.

Securing the wheelchair that is WC19 compliant

- Always position the wheelchair and rider facing forward in the vehicle
- Attach the four tie down straps to the transit hooks provided on the wheelchair. Tighten the straps to remove all slack.

Securing a wheelchair that is not WC19 compliant

- Attach the tie down straps to welded junctions of the wheelchair frame or to other structural areas where the frame is fastened together.
- Secure either the top frame or the bottom frame with all four straps.

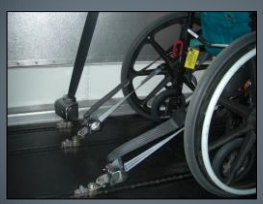
Wheelchairs – Non-WC19

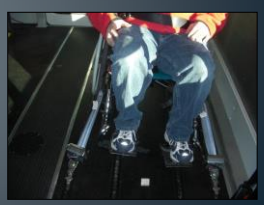
- Recommended that the point be marked clearly when you find a good attachment location on the wheelchair
  - Plastic ties
  - Colored tape
  - Or similar markings so that the operator will be able to identify the selected location.

Do Not attach tie downs to:

- Adjustable, moving or removable parts of the wheelchair, such as armrests, footrests & wheels

WC19 Wheelchairs





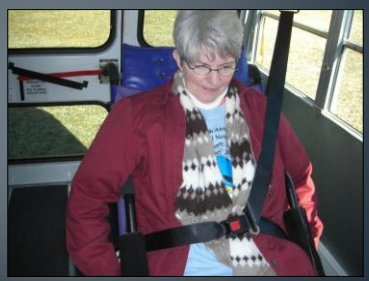
Securing / Protecting the Rider

- Should use a crash-tested lap and shoulder belt, or a child restraint harness.
- Lap and Shoulder Belt's should attach to the vehicle and be crash tested.
- Child Restraint Harness' are usually apart of a wheelchair and have been crash tested with the wheelchair.
- Remember that the positioning belt and chest strap on wheelchairs for positioning the client, are not safety restraints.

Continue – Securing the Rider

- The lap belt should be angled between 45 and 75 degrees to the horizontal when viewed from the side.
- A diagonal shoulder belt should cross the middle of the shoulder and the center of the chest, and should connect to the lap belt near the hip of the wheelchair rider.

Incorrect Belt Placement



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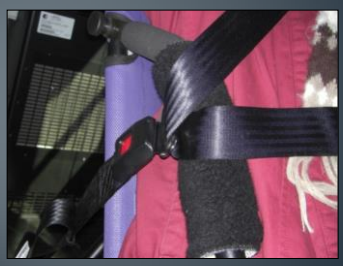
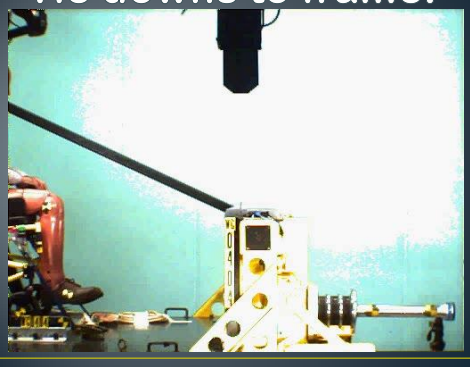
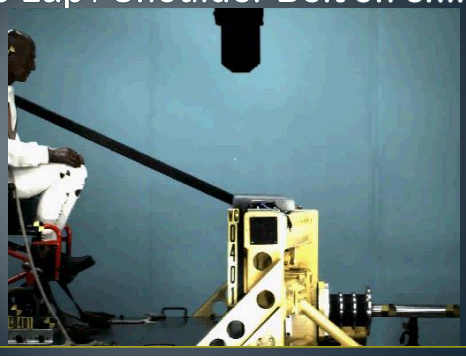


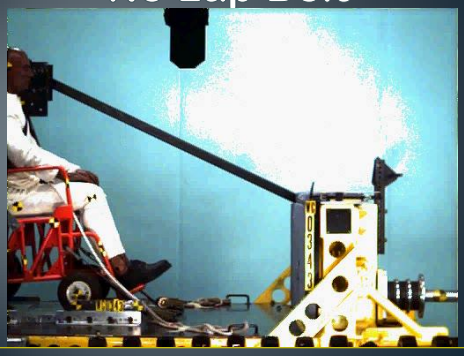
Tie downs to frame:



No Lap / Shoulder Belt on child



No Lap Belt



No Shoulder Belt

Important Points to Remember

- It is best to ride with the wheelchair backrest in the upright position however, a back can be reclined back up to 30 degrees, only.
- A properly positioned headrest can help protect the neck in a crash.
- If it is necessary to use a head and neck support during travel, choose a soft, flexible neck collar.

Important Points to Remember

- Remove hard trays to reduce the chance of rider injury from contact with the tray.
- Secure medical and other equipment elsewhere in the vehicle/bus to prevent it from breaking loose and causing injuries in a crash.
- Check WTORS equipment regularly and replace worn or broken components. Keep anchorage track free of dirt and debris

Important Points to Remember

- Read and follow all manufacturers' instructions
- If the WTORS and wheelchair have been involved in a vehicle crash, check with the manufacturers to determine if the equipment needs to be repaired or replaced.

Complete system with both the WORTS and the Shoulder / Lap belt system

Thanks

Sharon Conrad
- Child Passenger Safety Advocate/Consultant
- Child Passenger Safety Technician Instructor

For providing video footage and information for the presentation.

Resources

- University of Michigan Transportation Research Institute – www.umtri.umich.edu
- Rehabilitation Engineering and Research Center on Wheelchair Transportation Safety – www.rercwts.org
- Ride Safe brochure – www.travelsafer.org; umtridocs@umich.edu, 734-764-2171
- List of Crash Tested Wheelchairs - http://www.rercwts.pitt.edu/RERC_WTS2_KT/RERC_WTS2_19_Chart.html