

Travelling safely in your wheelchair accessible vehicle (WAV)



FOREWARD

Disabled Motoring UK (DMUK) has joined forces with the Wheelchair Accessible Vehicle Converters' Association (WAVCA) to ensure disabled people are travelling safely in their wheelchair accessible vehicle (WAV).

Although WAVs manufactured by reputable companies have a very good track record in the UK, there

have been incidents where people have not used their wheelchair tie-down and occupant restraint system (WTORS) properly resulting in serious injury. Therefore DMUK has produced this booklet to help you ensure your wheelchair is always anchored down correctly and you are travelling as safely as you possibly can.

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Choosing the correct wheelchair to travel in

Many people will already have a wheelchair before deciding to purchase a WAV. However, if possible it is best if you have a wheelchair that has been designed and tested for use as a seat in motor vehicles. These wheelchairs are designated as "Transportable" or sometimes referred to as "crash tested". You need to ask if it has been crash tested to ISO 7176, part 19. Your wheelchair supplier will be able to advise you about this.

These chairs have four crash-tested securement points where tie-down equipment with straps and hooks can be easily attached. These points are usually clearly marked with a hook symbol.



You should always use a wheelchair head restraint when travelling to help reduce whiplash injury.



Using the wheelchair tie-downs

It is important to use a complete wheelchair tie-down and occupant restraint system (WTORS) to secure the wheelchair and provide a properly designed and tested seatbelt system. This should be provided with the vehicle. Do not buy a new or second hand vehicle which does not have a complete WTORS provided.

The most common type of wheelchair tie-down uses four straps to secure the wheelchair to the vehicle. This usually consists of four sets of belts which are mounted to the floor in tracking or on mushroom type fittings and which fit to the wheelchair, two on the front and two on the back. (Note: Manufacturers of some heavy power wheelchairs specify a six belt system with two fitted on the front and four on the back or heavy duty retractors – check your wheelchair manual).

When fitting tie-downs always refer to the manufacturers instructions, but as a guide, the front tie-downs should be fitted to the wheelchair on the recommended fixation points

which are marked on the chair. If you do not have marked positions try to ensure they are fitted to the chassis of the chair at an angle between 40-60 degrees to the horizontal, when viewed from the side. Do not fit the tie-downs to the footplate bars or other moving parts of the chair – this is very dangerous as the footplates can move around.

Once the front tie-downs are fitted, attach the rear tie-downs. If marked fixation points are not available, try to choose a position on the rear chassis structure where a 30-45 degree angle to the horizontal can be achieved.

When fitting the rear tie-downs move the wheelchair backwards to tighten the slack on the front belts before tightening the rear belts. Note that whilst reversing the chair can usefully tighten the front tie-downs, it also reduces the front tie-down angle and puts the chair closer to the rear tie-down attachment points. It may therefore be necessary to re-position the chair after

taking the slack out of the front tie-downs. It is better to have the front tie-down angles too steep than the rear ones, so it's always a good idea to travel with the wheelchair as far FORWARD in the wheelchair space as comfort allows.

Also make sure that as far as possible the tie-down belt is in a straight line – avoid

'bending' the belts round the rear wheelchair wheel, battery housing, or other similar pieces of equipment. Also make sure the buckle or attachment point is not rubbing against the wheelchair tyre and be careful not to get in the way of any battery leads. Under no circumstances should the tie-downs EVER be attached to the wheels of the chair.

Quick tips

- Attach the front tie-downs first
- Reverse the wheelchair to tighten the slack
- Ensure a straight line from anchorage point to the wheelchair
- Attach the belt to the recommended fixation points
- Ensure belts are properly tensioned
- Do not allow webbing to be twisted inside the retractor

Using the wheelchair occupant restraint

To protect the wheelchair user during a crash or sudden braking, and to minimise the likelihood of injury caused by contact with the vehicle, a three-point lap and diagonal seat belt system with both pelvic and upper torso belts should be used. This is similar to an ordinary car seat-belt but often splits into two parts to make it easier to thread the separate parts through the wheelchair to achieve a good fit. It is best if the upper torso belt has an upper mounting point high on the body of the vehicle.

The lap belt (2) should be placed low across the front of the pelvis near the upper thighs, not high over the abdomen. Do not fit the lap belt over the armrests or the large rear wheels of a manual chair as this will offer no protection at all, and may even cause more harm than it prevents. It may be necessary to feed the belt between the armrest and the seatback or temporarily remove the armrest, in order to achieve this optimum position.

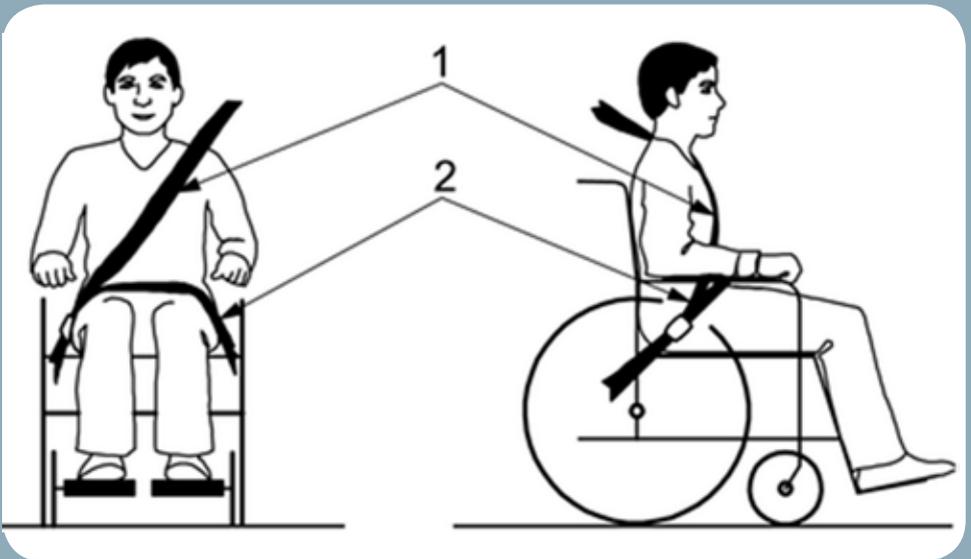
The diagonal shoulder belt (1) should cross the middle of the shoulder and the centre of the chest, and should connect to the lap belt near the hip of the wheelchair user. It is safest (and most comfortable) if no hard parts of the buckle assembly are in contact with the wearer's abdomen. The upper shoulder-belt anchor point should be anchored above and behind the top of the occupant's shoulder, so that the belt is in good contact with the shoulder and chest while travelling. Many occupant belts can be adjusted to suit the occupant's height.

It should be noted that postural seat belts which are attached to the wheelchair are not positioned correctly to restrain the occupant safely in a crash, and neither they, nor the parts of the wheelchair to which they attach, are designed to withstand the forces of a crash.

It is best to ride with the wheelchair backrest positioned at an angle of 30 degrees or less to the vertical.

Quick tips

- The lap belt should bear upon the bony structure of the body
- Adjust the belt as firmly as possible
- Ensure the belt is not twisted
- Use height adjuster if applicable
- Restraints should not be held away from the body by wheelchair components
- Never rely on the wheelchair's own lap belt unless it is an approved occupant restraint
- Make sure belts are kept clean and coiled within the retractor when not in use (unless stored separately)



Travelling in a safe environment

Clear space around the wheelchair user should be maximised, to reduce the possibility of contact with vehicle components and other passengers in a crash.

In addition auxiliary wheelchair equipment should be effectively secured to the wheelchair, or removed from the wheelchair and secured in the vehicle during transit, so as to not break free

and cause injury in an impact. Whenever possible, items attached to the wheelchair in front or behind the passenger should be removed and secured separately during transportation to prevent potential injury to the passenger in an accident.

Stow loose items securely to prevent them from breaking loose and causing injuries in case of an accident.



WTORS inspection checklist

Check wheelchair tie-down and occupant restraint system (WTORS) equipment regularly and replace worn or broken components. WTORS are not currently part of your vehicle's MOT test. You should ask for your WTORS to be checked when your vehicle goes in for its inspection. However, you should regularly check your own WTORS system using the following guidelines.

- Check the retractors by pulling out the webbing to ensure they are locking properly
- Ensure the webbing is not cut, frayed, damaged or contaminated by polishes, oils or chemicals
- Check that metal parts are not worn, broken or cracked
- Check connector parts to ensure they are not cracked, broken or missing
- Check that mounting hardware, such as bolts, nuts, etc. are secure
- Check floor anchorages for proper securement and operation
- Check lap and shoulder belt webbing is not cut, frayed or damaged
- Check buckles for damage

If a WAV and wheelchair have been involved in a vehicle crash, check with the manufacturers to determine if the equipment needs to be repaired or replaced.

If you are at all uncertain about using your wheelchair tie-down equipment you should contact the supplier of your WAV.

For further information please contact **info@wavca.co.uk**.

Get Motoring with DMUK

Disabled Motoring UK is the campaigning charity for disabled drivers, passengers and Blue Badge holders. We lobby government and business across the UK in order to improve parking, refuelling and access provision for disabled people, so that you can access the goods and services you need.

Supporting Disabled Motoring UK is free. Simply go to **www.disabledmotoring.org** and sign up using our online form or call the office on 01508 489449.

Once registered as an online member you will receive an electronic newsletter once a month keeping you up-to-date on our current campaigns and you will be able to access our members' only area of the website. Most importantly you'll be lending your voice to our vital campaigns.

If you want to be kept more informed you can sign up as a full member of Disabled Motoring UK. As well as receiving the benefits which online members have you'll also get a monthly magazine packed with news, member



Join free online at www.disabledmotoring.org

letters, features and road tests, access to our information service and discounts on a variety of goods and services. Full membership is £24 per year, You can even pay by monthly direct debit which makes it just £2 per month.

Disabled Motoring UK is not just an organisation for drivers. We also campaign for and support passengers, scooter and wheelchair users, families and carers.

It is because of the hard work of Disabled Motoring UK that disabled people have the Blue Badge, the Motability Scheme and are exempt from the London Congestion Charge. There is still plenty more to be done and we are currently working on many more campaigns.

Disabled Motoring UK will only be successful at campaigning on these issues as long as it has a strong membership. Campaigning on behalf of so many disabled people is how our voice is heard.



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