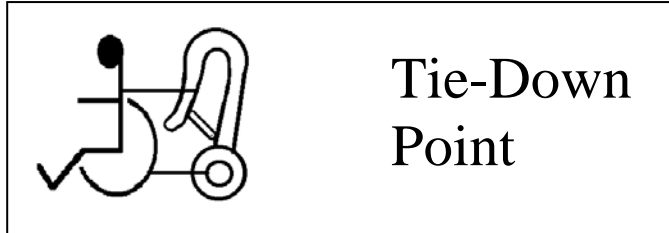


MANUAL & POWERED WHEELCHAIRS TRANSPORTATION & TIE-DOWN INFORMATION



This information is intended to be an easy reference to transportation for all users of R Healthcare Wheelchairs.

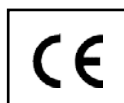
Within this context of wheelchair users we include Occupants, Attendants, Carers, Rehabilitation Professionals and also Transport Providers.

In providing this information separately from all other information we hope that it will be accessible and relevant to all persons who have a responsibility in the transportation aspect of wheelchair use.

IT IS ACCEPTABLE TO PHOTOCOPY THIS INFORMATION

Contents

1. Transfer to a vehicle Seat	Page 2
2. Stowing the Wheelchair in a car boot	Page 2
3. Car Driver Information	Page 2
4. Public Transport	Page 3
5. Occupant Transportation in Vehicles	Page 3 & 4
6. Specialised Transport	Page 4
7. Wheelchair Tie Down Procedure	Page 5, 6 & 7
8. Attachments & Occupant Supports	Page 8
9. Wider Safety Considerations	Page 8 & 9
10. Limitations of Wheelchair Clamps	Page 9 & 10



1. Transfer to a vehicle seat

Wherever possible it is recommended that wheelchair occupants transfer to a vehicle seat during a journey, with the wheelchair securely stored separately in a purpose made storage area.

To achieve this, the occupant should be able to transfer unaided or with a minimum of handling effort from the carers. If transfer involves having to lift the occupant from the wheelchair into a vehicle seat this may involve unsafe lifting practices and is therefore NOT recommended.

2. Stowing the wheelchair in a car boot

The folded chair should be placed close to the car boot with armrests, footrests and other removable parts detached to split total weight into component form. Wheelchairs with detachable wheels reduce the weight for lifting. The person stowing the chair should grip convenient fixed parts of the chair, and lift keeping the back straight, bending from the hips and knees.

If in any doubt about handling the weight of the wheelchair, assistance should be sought.

WARNING

If stowing proves difficult due to weight or space limitations, a compact folding wheelchair such as the R Healthcare Stowaway may provide a practical and additional alternative for transit purposes and occasional use.

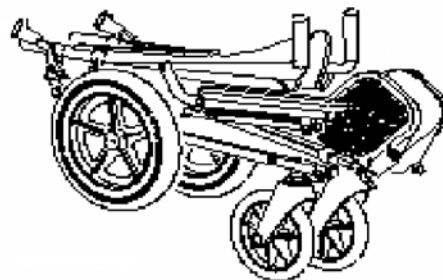


Figure 1 R Healthcare Stowaway

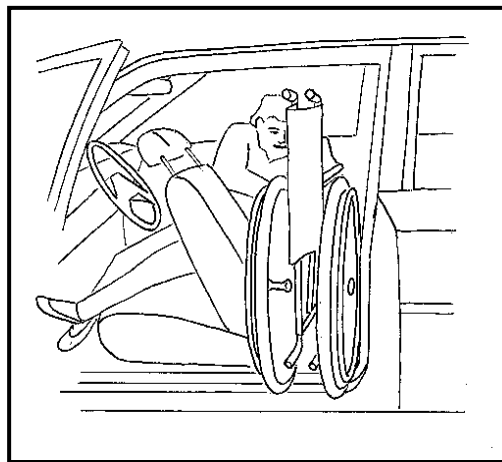
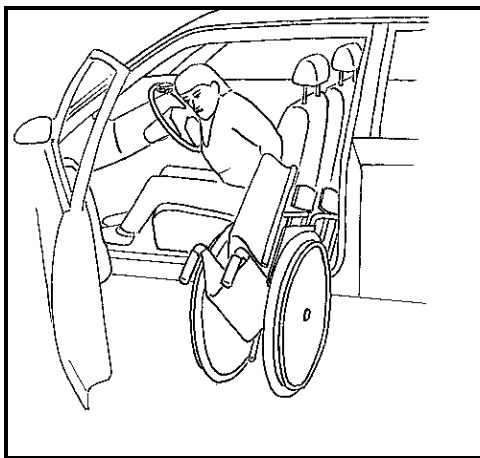
3. Car Driver Information

Physically active wheelchair users can drive cars and store the wheelchair in the car independently, with a lot of practice. Training at specialist driving centres is recommended. Two door cars provide the greatest access space. Gaining entry to the car first involves side transfer. When carrying out this manoeuvre, wheelchair users should chose a position where there is no risk of interference from other traffic.

The stored wheelchair requires locating not only so that the driver can reach it, but also to remain safely secured during the journey. With sideways folding wheelchairs the driver should pull the folded wheelchair into the vehicle into space behind the driver or passenger seat. **See figs 2 & 3.**

Fixed frame wheelchairs, with quickly detachable wheels can be disassembled once the driver has transferred into the car. The removed parts then being stored safely within the vehicle.

It is recommended that wheelchairs stored on the front passenger seat be secured using the car seat belt through the frame. A wheel bag may be useful for long journeys or for keeping dirt away from the car seating area. When there is another able-bodied passenger present, the storing option above (car boot) is recommended.



Figures 2 & 3.

A Sideways Folding wheelchair can be stored behind the front seat.

4. Public Transport

Wheelchair users who choose to travel in a local bus or public service vehicle should recognise that this involves risk, and a complexity of related issues. The user has a responsibility to make the decision of how to travel carefully. Pre journey planning will avoid difficult access situations, which could be encountered later, when it is too late to do anything about it. In busy, congested areas, users will require skill to avoid collisions with other passengers, when approaching and boarding the vehicle.

Wheelchair brakes may not hold a chair and occupant stable against inertia forces of normal traffic conditions, such as cornering or coming to a halt, and wheelchairs in vehicles should be prevented from moving by other means.

Department of Transport approved designated wheelchair areas in low floor buses with support pillars and hand rails at wheelchair height are the most suitable. Users are advised to check availability of wheelchair facilities with the transport vehicle operator, and note time schedules.

Department of Transport approved taxis for individuals are available, but users with neck problems are advised to check that there is adequate headroom.

5. Guidelines & Published Information for Wheelchair & Occupant Transportation in Vehicles

Wheelchair users and transport operators have a responsibility to ensure that safety measures take account the needs of wheelchair occupants and other passengers to minimise the risks involved for each individual situation.

Vehicles transporting wheelchair occupants should have safe, secure wheelchair access, transport operators should recognise this. Available publications are MDD Report No 92/07. Dept of Transport Code of Practice VSE 87/1. MHRA guidelines DB2001 (03) Guidance on the safe transportation of wheelchairs contains practical advice, and a useful assessment of many of the considerations, which should be understood. The CTA also provide useful advice.

6. Specialised Transport for Wheelchair Occupants.

Restraint systems for minibuses range from wheelchair tie downs, to more compact foldaway devices. Installers and operators of vehicles with restraint systems must be trained in their correct use by the restraint manufacturer, or approved mobility specialist.

The wheelchair must be secured to the floor by a restraint system, **most importantly in line with the direction of travel**. More than one person should not occupy the wheelchair. Fittings such as trays should be stowed separately. Wheelchairs used for transportation of occupants in vehicles should have a full height backrest of at least 415 mm for adults. This means that some active user chairs, should have a backrest extension.

R Healthcare, testing, has also shown that the occupant of the wheelchair is better positioned in an impact when there is a head restraint.

Wheelchair Seat Belts and Posture Belts are not crash tested restraints, although they help keep an occupant in a preferred position during normal vehicle motion. To meet crash safety standards, wheelchair and occupant must be secured to the vehicle independently.

The occupant restraint should be secured directly to the vehicle at a point above shoulder height. No component of a wheelchair restraint should pass through the wheels. Wheelchair restraints should secure the wheelchair in such a manner that they cannot become free if chair components deform, or if one or more tyres deflate.

Under no circumstances should wheelchairs be modified or strained to allow installation of restraints.

7. Tie down procedure

R Healthcare recommends Unwin Tie Down and Occupant Restraints.

Unwins provide in depth training courses for the application of their products which meet proposed ISO 10542 standards, and have a proven test record with the R Healthcare wheelchair range.

We recommend that persons responsible for securing wheelchairs in vehicles attend an Unwin training course, or any other informative training applicable to the usage environment.

Restraint systems should only be fitted in specially adapted vehicles, where the structure has been strengthened to take wheelchair location points.

Details of Unwin systems we have tested are as follows.

There are similar products available from other suppliers, which we know, have also been tested satisfactorily, and if used these should be applied as per the suppliers recommendation.

The following reference table only covers Unwin chair restraints.

WHEELCHAIR	RESTRAINT TYPE	UNWIN PART NO.
Access & Accent	4 Point Webbing with Karabiner	W120
8TRL & 8TRLJ	4 Point Webbing with Karabiner	W120
9TRL & 9TRLJ	4 Point Webbing with Karabiner	W120
SP & AP 100 SERIES	4 Point Webbing with Karabiner	W120
Tilt In Space Chair	4 Point Webbing with Karabiner	W120
Optimo	4 Point Webbing with Karabiner	W120
Dash Lite	4 Point Webbing with Karabiner	W120
Dash 4Life	4 Point Webbing with Karabiner	W120

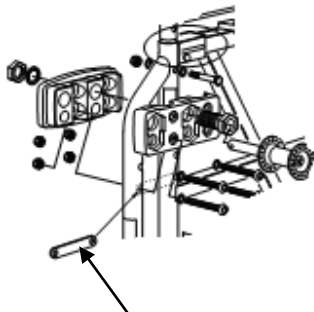
PLEASE NOTE TIE DOWN RESTRAINTS HAVE BEEN UPGRADED BY UNWINS FROM W85

All listed chairs have been crashed tested successfully to ISO 7176-19 which is for forward facing with tie downs.

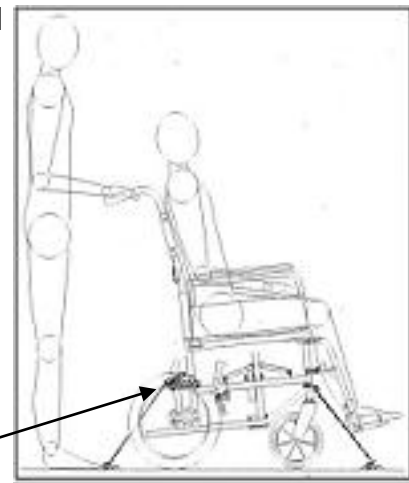
Stowaway** it is recommended this wheelchair is stowed separately as fig 1 shows.

Under no circumstances should the information provided in this table be used with wheelchairs tied down facing rearwards, or sideways.

Access Attendant propelled wheelchair requires a karabiner location link to locate the webbing restraint at the required downward securing angle. Part number MSAWAM1133.



Tie down bracket to be fitted to all attendant (AP) model Access chairs



Position of bracket and tie down points between rear tubes on Access AP, ref shaded area.

Tie Down Point labels (*Fig 4*) on all R Healthcare supplied chairs indicate the correct position to attach karabiner type chair restraints. Continuous product improvement has resulted in new design chairs having specific tie down karabiner locations to enable correct and easy attachment by the transport operator.

Fig 4.



**GENERIC FOLDING FRAME
WHEELCHAIRS – ACCESS,
AURORA, 8 & 9 TRL MODELS.**

Note that to maintain the correct angle of the rear webbing restraint on Access attendant chairs a karabiner location link, which fits across the rear frame at the upper mounting holes, is required

Fig 5



POWERIDER

Has integrated frame features at the front and rear to locate Tie Down Restraints

Fig. 6

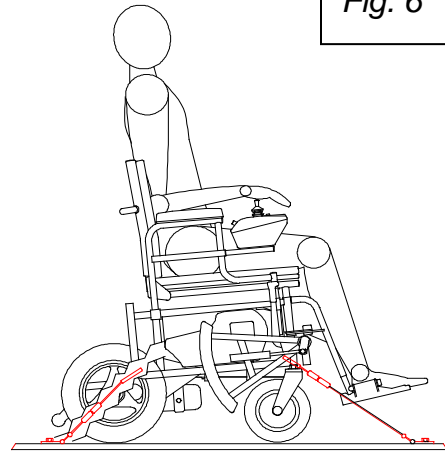
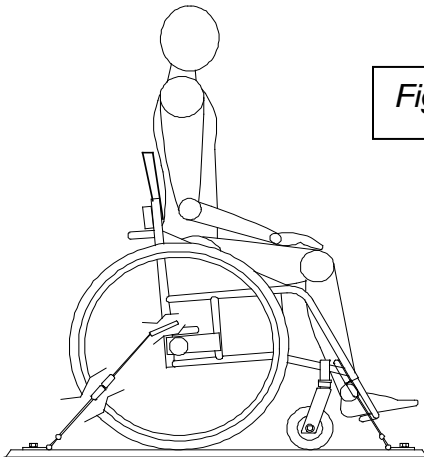


Fig. 7



**GENERIC ACTIVE USER CHAIRS.
ROLLER, VELOCE, LIGHTNING**

Note that Rigid Frame Lightning, Veloce, Vivace and Roller require a minimum backrest height of 415mm.

Tilt in Space



Fig 8. Pictures of Tilt in Space tie down locations, front and rear of wheelchair

Optimo



Fig 9. Pictures and graphic of Optimo indicate tie down locations front and rear of wheelchair, also the requirement for leg / calf restraints or toe straps to restrict sudden leg movement.

Pictures of Optimo also indicate the use of “D” rings around the rear section of the wheelchair.

8. Attachments & Occupant Supports

Wheelchairs restrained in vehicles for the transportation of disabled occupants require the removal of all loose fitting components and attachments. In a crash situation, flying objects may cause injury. Trays etc. should be removed.

Transportation Head Restraints, which fit over, and clamp the pushing handles are only for use whilst wheelchair and occupant are restrained for transportation. They are not intended for general use, and should be removed after the journey. Push handle grips used with these head restraints should be checked frequently for damage.

It may be assessed that a seat / posture belt or other support should continue to be used during transportation, but this should not be relied upon as a crash restraint. Persons concerned with transportation of disabled people in wheelchairs should attend a training course. e.g. as available via Unwin Safety Systems of Yeovil.

**The vehicle structure should be approved to accept the restraint fixing points.
The occupant and wheelchair should be restrained separately to the vehicle.**

R Healthcare Healthcare, tests were carried out with a cross lap, and diagonal belt restraint, with inertia reel system which retracts the harness webbing when not in use.

Occupant restraints must be securely anchored behind the occupant, e.g. To rails in the vehicle floor at the lower end, and above occupant shoulder level at the upper end, the upper fixing position is often referred to as a "B Pillar."

Wheelchair lap / posture belts are not crash tested restraints



9. Wider Safety Considerations

The illustration (*Fig 10.*) shows a three-point double inertia reel occupant restraint. Chair and occupant head restraints are not shown in the picture. It is not R Healthcare's intention to develop all models in our wheelchair range to meet the crash test standard. Avanti, by nature of its compact function is an alternative product, stowed separately, whilst the occupant is seated in a vehicle passenger seat.

Crash testing should be seen in the correct context (see annex1).

The driver of the vehicle has the significant responsibility of ensuring that everyone arrives safely. Minor surface bumps in the road such as traffic calming features can result in undesirable occupant movement or the displacement of inadequately stored items. Journey planning which eliminates the need for the vehicle to encounter surface hazards is recommended.

Accident statistics show that the most hazardous aspect of the transportation of wheelchair and their occupants is that of transfer in and out of the vehicle. Facilities for transfer such as tail lifts and ramps should be regularly checked and maintained, and operators fully trained in their correct use.

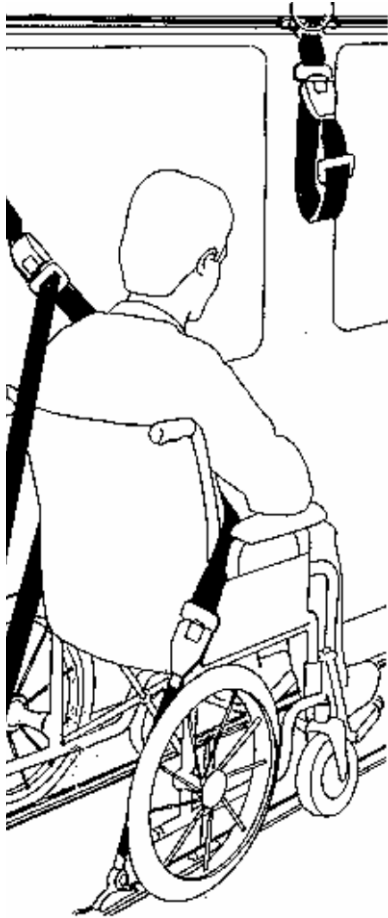


Fig. 10

Our research also indicates that the attendant, driver or carer who is involved with transportation of wheelchairs and their occupants is also at risk of injury because of the range and variety of circumstances in the application and environment of use. We would again emphasise the importance of adequate training to meet these complex and demanding issues.

The Dept of Transport advise that there is no evidence of serious injury arising out of the use of transportation restraint systems, although we believe that there have been many minor incidents, probably as a result of someone improvising incorrectly in some way, which have gone unreported. On the other hand, correct use of restraints has undoubtedly saved the lives of some wheelchair occupants.

Users should also understand that they have a responsibility to consider all the issues and risks involved to both themselves and others, before deciding how to travel.

Wheelchairs and their occupants have been transported in adapted vehicles in the UK for some time, and during that period, experience of restraint systems in actual use, have resulted in many product refinements and improvements.

Good accessibility into small confined spaces is an important feature of a wheelchair, which is required for vehicle use. Data showing the “width to turn” is a useful indication of this. The modularity options of the R Healthcare Access, and Powerider configured in a compact form, in line with the size of the occupant and environment, make these wheelchair models particularly suitable for these criteria.

10. Limitations of Wheelchair Clamps

Powered wheelchairs are heavy, and MHRA advise that under no circumstances should clamps be used to secure them.

The 4 point tie down restraint systems should be used in all transportation situations, on all R Healthcare, transportable wheelchair products.

Do not use clamps as advised by MHRA and UNWINS.

⚠WARNING

TRANSPORTATION ADVICE - CATELOGUE PART NUMBER MSPML510