Using Active Design Seating Systems in Vehicles

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WARNING!

Active Design seating systems should only be used in

- transport on a wheelchair base that meets the performance requirements of ISO 7176-19 and whose securement points conform to the design requirements of the same standard.
- a forward-facing position when used in a vehicle.
- line with their user instructions.

Also:

- trays should always be removed and safely secured elsewhere in the vehicle during transport
- postural support devices, such as postural lap straps and postural harnesses, should NOT be the PRIMARY means of restraint in transport.
- if you wish to modify the seat, you need to ask us first.
- Vehicle-based occupant restraint pelvic and shoulder straps should meet ISO 10542-1
- children less than 22kg should be transferred to a car safety seat.

Introduction

This document describes the way in which our seating systems (the CAPS II and MiniCAPS) should be used when they are transported with an occupant. It should only be read as an addition to the Medicines and Healthcare Products Regulatory Agency (MHRA) guidance on the safe transportation of wheelchairs, in particular documents DB2001(03) and DB2003(03). We provide here an interpretation of these guidelines with specific reference to our products. If you do not have a copy of the guidelines please contact the MHRA to obtain a copy before reading any further.

Background

The transport provider (not just the operator) has a duty of care to provide transport to allow an individual to travel in safety and reasonable comfort. The complexity and unique nature of each individual's disability and the combination of wheelchair and special seating, will require that all children using our seats should ideally have an individual risk assessment to establish best practice and reduce all the risks associated with travel to an acceptable level.

Research undertaken on behalf of the Department for Transport established that in forward facing crash tests, wheelchairs provided similar (or better) levels of occupant protection than conventional bus seats. However rear facing was found to be unsafe unless a padded head and back support was provided in accordance with ECE R17. This research also identified a reduced risk associated with larger vehicles.

None of our seats have been designed for use as a vehicle safety seat, therefore whenever possible the occupant should be transferred to vehicle seat or an approved safety seat. This especially applies to young children who would normally travel in a car safety seat. Both the MiniCAPS and CAPS II seats have however successfully passed a number of 'crash tests'. Tests have been carried out in accordance with the impact test requirements of ISO 7176 Part 19 and ISO 16840 Part 4.

There could be occasions when it may be necessary to transport a person whilst using their seat, possibly to ensure adequate postural support. All of our seating systems are suitable for this purpose when used in accordance with this guidance.

The following information provides further guidance for the safe use of the MiniCAPS or CAPS II when this is necessary and when they are used in conjunction with commonly used wheelchairs. It is essential to refer to the wheelchair manufacturer (or supplier) for their recommendations relating to the use of their product in transport particularly the maximum weight limits.

Transporting the Seat

The system should normally be secured using a three stage process:

Seat > Wheelchair > Occupant

We have also produced a Journey Checklist that will help to ensure all steps are taken to secure the system.

Securing the Seat

The following steps should ALWAYS be carried out. We have produced a journey checklist that can be attached to the seating system and provide instruction to those involved with transporting the CAPS II or MiniCAPS seating system.

The seat should be securely fastened into the wheelchair preferably using a passive locking interface. The red seat retaining strap must always be securely fastened around the wheelchair push handles in all cases.

In some wheelchair or buggy combinations, particularly if the depth of the seating system is set near its minimum, an extension strap may be needed to ensure the seat can be securely fastened. This is available from Active Design, Part No. C44/30Z.

Ensure that the seating system is fully engaged on the passive locking interface board.

Additional straps to independently secure the seating system are not normally required.

Dynamic Backrests

If the seating system has a dynamic backrest, the dynamic element should normally be ‘locked off’ by engaging the plunger pin on the sliding bar between the backrest and the seat base.

Securing the Wheelchair

The wheelchair should be secured in accordance with the manufacturers recommendations and with reference to the Department of transport code of practice 'The Safety of Passengers in Wheelchairs on Buses' No.VSE87/1 and DB2001(03).

It should normally only be used forward facing. This will typically be a four point tie-down system.

Securing the Occupant

A minimum level of occupant restraint is a 'lap and diagonal' belt securely fastened to the vehicle. Higher levels of protection may be provided by a four or five point system secured directly to the vehicle.

Care should be taken with the placement of the lap strap to ensure it is placed so as to lie across the hips in a position where it will anchor the pelvis and not ride up into the abdomen.

The shoulder strap should be positioned across the torso and over the shoulder, ensuring the strap neither cuts into the neck or slides off the shoulder.

In addition particular attention is drawn to the shoulder strap anchorage which should be secured approximately 40mm above the height of the shoulder to minimise the risk of compression injuries. We would recommend, however, that if this type of fixing is not possible the shoulder straps must still be used and must be secured directly to the vehicle.

If a chest strap or harness is used for postural purposes, this should remain secured in addition to the lap and diagonal belt.

An example of a journey checklist which may be a useful aide is set out below, this is not an exhaustive checklist, but may be useful to consider having undertaken an appropriate risk assessment.

□	**Journey Checklist**
	Wheelchair restrained in line with wheelchair manufacturer's recommendations
	Red strap tightened
	Interface securely attached to wheelchair
	Seating system latched onto passive locking interface
	Lap and diagonal correctly fitted
	Postural straps to remain in place
	If kneeblock is normally used, continue to use it in transport
	Headrests should be used as normal
	Other items are secured or fitted in line with transport plan

Other Considerations

Postural Straps

Postural straps supplied with the seat should continue to be used as normal, however the occupant must still be restrained as indicated above, irrespective of the number or type of straps, harnesses or waistcoats fitted (unless specifically designed as an occupant restraint).

Take care to ensure that any buckles on the postural straps are not caught beneath the vehicle lap and diagonal strap, since this may be uncomfortable and may increase the risk of injury in the event of a crash.

Headrests

Headrests should always be used. Our headrests are not tested for use as a ‘vehicle head restraint’, however it has been successfully used on all ‘crash tests’ undertaken by Active Design. Always check that the occupant cannot slide down in the seat and get their head/neck stuck in the gap between the backrest board and headrest.

If the headrest is used, ensure that it is correctly mounted and all bolts are securely tightened.

Trays

Trays should be removed and stored safely on the vehicle. If the support provided by the tray is important for posture a ‘custom made’ foam block (polystyrene or similar) could be considered as an alternative to an actual tray.

Kneeblocks

We recommend that if a kneeblock is normally used then it should continue to be used in transport. This has been verified by additional ‘crash testing’ over and above the requirements of any current ISO standards.

If the seat was supplied before 1st May 2003, we recommend the seat should have a strip of ‘hook’ Velcro™ glued and stapled to the seat board, please contact us for full instructions on this simple modification (Leaflet No. INS083).

Interfaces

Any of the interfaces manufactured by Active Design are suitable for use in transport. However it is preferable to use a ‘Passive Locking’ type interface, since this provides a more secure attachment and eliminates movement of the seat on the wheelchair during cornering and normal braking.

Tilt in Space Wheelchairs

Our seats can be used in a tilted position in transport and have successfully passed a ‘crash test’ in accordance with the impact test requirements of ISO 7176 part 19 on a tilt in space base set to full tilt (30 degrees). Not all tilt in space bases can be used in transport in a tilted position, therefore it is important to check this with the wheelchair manufacturer before use.

Risk Assessment

The number of factors to be considered and the potential conflicts created make the process of risk assessment very difficult, requiring a knowledge of medical conditions, postural management, wheelchairs, restraint equipment and the types of vehicle available.

A number of people may also need to be consulted possibly including the user, parents, care staff, therapists, wheelchair service, transport provider, transport operator, education, social

service, NHS trust and manufacturers. Information on many of the factors to consider can be found in the documents listed in the References section below.

It is important that the potential risk of an injury is weighed against the chance of this happening (statistically wheelchair users are far less likely to be involved in a major crash than other car or bus users). The benefit of gaining access to transport should also be considered.

Some factors to consider during an individual risk assessment:

- Consider the individual's health & safety for his normal journey, not just what might happen in a crash
- Duration of typical journey
- Type of journey, rural, town, motorway etc.
- Type and condition of wheelchair
- Type and condition of vehicle
- The individual's postural ability The individual's weight, and any handling considerations
- Any special requirements, medical, postural or psychological
- Type of injury anticipated in each travel scenario
- The probability of an incident happening – a serious crash is unlikely, whereas a negotiating a roundabout is almost certain
- Means of evacuation or escape and obstacles created by equipment
- Other means of restraint / support or alternative seating systems
- Alternative positions
- Safe and secure storage of any removable items
- Access to the vehicle – ramps and lifts
- Disability discrimination and the individuals right to travel in safety and reasonable comfort
- Human Rights

Training

All matters relating to transport should be discussed in detail with the user wherever possible and the user’s parents, carers, school and transport providers. In particular parents or guardians must be involved in any decisions affecting a child's safety, since they carry the overall responsibility for their child.

It is important that all drivers, parents, carers and escorts are trained appropriately in the use of any restraints, including evacuation procedures. It is also important that they understand how the MiniCAPS and CAPS II seats work and the importance of removing or leaving relevant components in place for each child.

Summary

As a summary, remember these key points:

- Take care getting on or off the vehicle
- Transfer to a vehicle (safety) seat wherever possible
- Travel forward facing
- Secure the seat (CAPS II or MiniCAPS) to the wheelchair
- Secure the wheelchair to the vehicle
- Use a lap & diagonal occupant restraint
- Use the headrest
- Use the kneeblock if normally used
- Remove the tray
- Larger vehicles = less risk to occupants

Travelling in a vehicle whilst seated in a wheelchair is normally safe if you follow basic safety guidelines. Whilst thousands of people are killed on the roads each year almost none of these deaths include people seated in wheelchairs. The highest risk to most wheelchair users occurs whilst getting on or off the vehicle. The hazards of normal driving, cornering and heavy braking often present a greater hazard than those off a crash.

If you would like further clarification on the transport of the MiniCAPS or CAPS II please contact us.

Notes on ISO 16840-4

- Active Design seating systems meets the requirements of ISO 16840-4.
- The CAPS II seat has met the Performance Requirements of the Frontal Impact Test.
- Belt Restraint Accommodation: Active Design seating systems are rated A (Good). This is on a 3 point scale where systems are rated as A (Good), B (Acceptable) or C (Poor).

References

ISO16840-4 Wheelchair Seating Part 4: Seating systems for use in motor vehicles (2009) International Standards Organisation

Guidance on the Safe Transportation of wheelchairs DB2001(03) (2001), MHRA, Tel: 01253 596000, www.mhra.gov.uk

Guidance on the Safe Use of Wheelchairs and Vehicle Mounted Passenger Lifts DB2003(03) (2003), MHRA, Tel: 01253 596000, www.mhra.gov.uk

Safety Guidelines for Transporting Children in Special Seats, MDD/92/07 (1992), MHRA, Tel: 01253 596000, www.mhra.gov.uk. Out of print.

The Safety of Wheelchair Occupants in Road Passenger Vehicles (2003), Department for Transport, Tel: 020 7944 5281, www.dft.gov.uk

The Safety of Passengers in Wheelchairs on Buses VSE87/1 (1987), Department for Transport, Tel: 020 7944 5281, www.dft.gov.uk

Safe Journey, Home to School Transport (1996), Association for Transport Co-ordinating Officers, Community Transport Association, Tel: 0161 351 1475, www.communitytransport.com

It's not my Problem (1991), Department for Transport, Department for Transport, Tel: 020 7944 5281, www.dft.gov.uk

School Transport: The Comprehensive Guide (1994) Sian Thornthwaite, Community Transport Association, Tel: 0161 351 1475, www.communitytransport.com

Guidance on Manual Handling of Loads in the Health Service (1992), Health & Safety Commission

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