Fusion Clinician Guide

Please contact us if you require a 5mm allen key and 13mm spanner to adjust this seating system.

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1 Your seating system

This User Guide will help you to get the most from your seating system – please take some time to read the relevant sections carefully!

We work hard to bring the best evidence-based products to market using the latest manufacturing techniques. We work as a multi-disciplinary team to develop our products, and have a highly skilled manufacturing unit to manufacture our designs in the UK.

Training, support and customer service are a key part of what we do to help to ensure you get the most from your seating system and it meets your postural and lifestyle needs.

All of our products are developed with durability in mind.

1.1 Important

- Wheelchair manufacturers' recommendations on usage should be checked prior to fitting, especially with regard to limitations or exclusions to use and weight limits (total combined weight should be considered).
- This system must only be fitted by a competent person.
- Stability must always be checked in accordance with MHRA guidelines, before using the seating system.
- Please refer to the MDD guidelines, No. MDD92/07, and the section on Transportation before using the seat in transport.
- We recommend you read the Fusion User Guide in conjunction with these instructions, and ensure a copy is passed onto the user when the seating system is issued.

1.2 Installation

The fusion seating system comes in various configurations. Please read the relevant sections, if you are unsure of what configuration you have please contact your prescriber or Active Design.

1.2.1 Attaching the seat base (Removable)

Your seat will arrive with two boards, wooden seat board and a polypropylene base. These two boards work in together to provide seat depth adjustment. The polypropylene interface board will fit onto the wheelchair with either hook brackets (with lock and latch) or clamps, and the plywood board is fitted above through slots in the polypropylene board. The process of fitting the boards to a base is as follows:

1 Remove the wheelchair seat canvas if there is one

2 Fit the lock and latch brackets to the seat rails, with the latch at the front

3 Fit the lock at the rear. Do not tighten as you will be adjusting these later. Use the drop hook brackets to ascertain a good position and check for obstacles on the frame

4 Using the polypropylene base board, check where the drop hook brackets need to be mounted so when placed on the seat rails they will be locked in place by the lock and latches.

5 Tighten the lock and latch brackets in place and fit the wooden seat board

1.2.2 Attaching the seat base (Fixed)

Fitting the fixed seat base will be either with tube clamps fitting onto seat rails or directly bolted from the angle brackets to the base. As wheelchairs have a myriad of types, the fitting will depend on the base. If there are any queries regarding fitting to a particular base, please get in touch and we will be happy to advise you.

1.2.3 Attaching the backrest

Depending on your chosen configuration, your backrest will arrive with a set of lock and latch mounting brackets with counterbored holes machined part way through the backrest board. If Active Design have wheelchair measurements the backrest brackets will also come fitted to the board. However, this might need to be changed depending on the required position of the backrest.

There are 3 versions of the backrest available, 2 removable types and 1 fixed type. All variations include a top hook bracket which will be secured to the wheelchair using a latch bracket (removable) or a tube clamp (fixed). The type of fitting should be specified on the first page.

A Removable Backrest will be in one of the following configurations:

4 Point Mounting

Uses a lock bracket secure the base of the backrest

2 Point with Tongue

Uses a tongue mounted off the base of backrest which fits into a slot on the seat board

1.2.4 Adjusting seat depth – Manual Wheelchairs

The Fusion seating system comes with seat depth growth. The amount of growth is around 40mm, however this might vary depending on the size of the seat and size of the wheelbase

1 Loosen the fixings shown under the seat board. Seat depth adjustment can be obtained by sliding the sliding the wooden seat board forwards

2 Further adjustment might be available by altering the position of the drop hooks on the wheelbase and/or the polypropylene base board. If fitted to a powerchair, it may be possible to adjust the wheelchair push handles towards the rear to allow create additional seat depth.

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1.2.5 Adjusting seat depth – Powered Wheelchairs

Powered bases are adjusted not via the Fusion system, but are instead adjusted by moving the wheelbase back posts. Remove the push handle bolts and slide back to give additional adjustment. The method to moving the push handles vary from base to base, please get in contact with ourselves or the wheelbase provider for advice.

1.2.6 Adjusting backrest height

1 The method of backrest height adjustment depends on the type of configuration:

4 Point Mounting

Height adjustment available through altering the position of the hook brackets on the backrest board or by raising the lock and latch brackets (tube clamps for fixed version)

2 Point with Tongue

Remove the tongue by undoing the bolts. The tongue comes with part machined holes. Using a drill open up the desired holes and move the tongue down the backrest, this will give you some backrest height adjustment. The top latch or hook position will also need to be altered.

2 Further adjustment might be available by altering the position of the drop hooks on the wheelbase and/or the polypropylene base board.

1.2.7 Pelvic Lateral Adjustment

The pelvic laterals come with height and width adjustment. This will allow the seat width to be grown. If the backrest height is adjusted the position of the pelvic laterals can be adjusted to suit too.

1 To adjust the width, loosen the pelvic lateral bolts as show in and slide the laterals in or out.

2 If you need to adjust the height, there are a series of holes below the fitted holes, remove the bolts and re-fit below. It is common to have to lower the pelvic laterals after raising the backrest.

1.2.8 Thoracic Lateral Adjustment

The Thoracic laterals come with height and width adjustment

1 To adjust the width and height, loosen the thoracic lateral bolts (or lever locks) and slide the laterals to the required position within the machined slot.

1.2.9 Headrest Fitting and Adjustment

The headrest can be adjusted to provide optimum support; it can also be removed.

1 To remove the headrest and adjust the height, loosen the headrest block lever to release the headrest stem. Tighten the lever when the headrest is in the desired position.

2 To adjust the depth position and angle of the headrest loosen the headrest bolts. Adjust to the required position. Tighten up bolts when the desired position is achieved.

1.2.10 Removing and adjusting the Pommel

If your system is supplied with a kneeblock or pommel you can remove it and adjust the height and depth.

1 To remove press the release pin located on the pommel mounting bracket underneath the seat, and pull the pommel out.

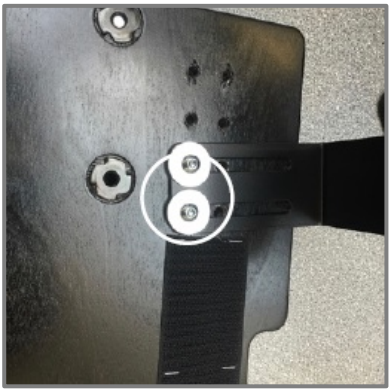
2 Adjust the height by loosening the bolt underneath the vertical stem and move the pommel up or down as needed, tighten the bolt to fix in position.

3 To adjust the depth of the pommel, relocate the release pin into one of the pre-drilled holes

1.2.11 Adjusting Knee Laterals

If your Fusion Seating System comes with Knee Laterals, the width and angle can be adjusted.

1 To adjust these lift up the seat cushion and loosen the fixing bolts. Adjust knee laterals to desired position and tighten the bolts.



1.2.12 Attaching straps

1 Your Fusion seating system comes with a pelvic belt which will normally be secured to the wheelchair.

2 Your Fusion backrest will come with two top clips and two lower cam-lock mountings, along with integrated harness guides to help maintain shoulder harness positioning.

2 Transportation

Active Design seating systems should only be used

- in transport on a wheelchair base that meets the performance requirements of ISO 7176-19:2008 and whose securement points conform to the design requirements of the same standard.
- in a forward-facing position when used in a vehicle.
- in 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 10542-1:2001
- children less than 22kg should be transferred to a car safety seat.

2.1 Introduction

This document describes the way in which our seating systems should be used when they are transported with an occupant. It should only be read as an addition to the Posture and Mobility Group document “Best Practice Guidelines: Transportation of People Seated in Wheelchairs” and 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 these guidelines please obtain the relevant documents before reading any further.

2.2 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.

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 our seating systems 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.

2.3 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.

2.3.1 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 seating system.

The seat should be securely fastened into the wheelchair. The red seat retaining strap must always be securely fastened around the wheelchair push handles in all cases.

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

2.3.2 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.

2.3.3 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.

2.3.4 Journey Checklist

- ☑ Seat secured to wheelchair
- ☑ Seating system latched onto locking interface
- ☑ Red strap tightened
- ☑ Wheelchair secured into vehicle
- ☑ Normally a four point webbing system
- ☑ Lap and diagonal seat belt fitted around user
- ☑ Postural straps to remain in place
- ☑ Kneeblock used as normal
- ☑ Headrests used as normal
- ☑ Tray should normally be removed
- ☑ Other items are secured or fitted in line with transport plan

2.4 Other Considerations

2.4.1 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.

2.4.2 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.

2.4.3 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.

2.4.4 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).

2.4.5 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.

2.4.6 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 7176-19 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.

2.5 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.

You may find it useful to refer to BS 8603:2013 Code of practice for wheelchair passport schemes as it contains a useful section on risk assessment.

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

2.6 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.

2.7 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.

2.8 Notes on ISO 16840-4:2009

- Active Design seating systems meets the requirements of ISO 16840-4:2009.
- 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).

2.9 References

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

BPG1 – Transportation of people seated in wheelchairs – Posture and Mobility Group. Download from www.pmguk.co.uk/bpg-transportation-comment

BS8603: 2013 – Code of practice for wheelchair passport schemes

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

3 Maintenance

3.1 Routine Maintenance

The seating and interface should be checked by the organisation who provided the seat every 6 month for security of fixings, nuts and bolts.

Seat & back cushions and lateral supports should be checked for wear and degradation of the foam.

Straps should also be checked for signs of wear (especially stitching). The seating Fusion is fully guaranteed for 24 months but should last between 3 and 5 years if the seat is correctly maintained.

The interface should be checked every 6 months (maximum period 12 months) for security of fixings, nuts and bolts and the correct operation of the catches.

3.1.1 Cushion

Check the condition of the seat and back cushions annually.

3.1.2 Harnesses

This product should be checked every six months for security of fixings and for signs of wear. It should be replaced if:

- There are any signs of damage to the buckles or they do not latch securely
- It cannot be adjusted to the correct length to support the required posture
- The webbing is frayed, or the stitching failing.

3.1.3 Lap Straps

This product should be checked every six months for security of fixings and for signs of wear. It should be replaced if:

- There are any signs of damage to the buckles or they do not latch securely
- It cannot be adjusted to the correct length to support the required posture
- The webbing is frayed, or the stitching failing.

4 Important Information

4.1 Statutory Compliance

Our seating systems are manufactured to comply with the Medical Devices Directive MDD93/42/EEC and amendments in 2007/47/EEC. In terms of the Medical Devices Directive, our seating systems are classified as Class I Medical Devices.

4.2 Wheelchair Stability

The stability of this system should be checked in accordance with local guidance, best practice and MHRA guidelines before being used. Dynamic stability as well as static stability should be considered.

The configuration of a seating system and its position will have an impact on the performance of the wheelchair on which it is interfaced, and this can effect braking and acceleration, and the ability to navigate kerbs for example. You may need to consider anti-tippers on a manual chair and the drive settings on a powerchair. Where relevant we would recommend a risk assessment if completed. You may wish to provide the user with a copy of the BHTA leaflet on wheelchair stability 'Get wise to making sure your wheelchair remains stable'.

4.3 Testing

4.3.1 Fabric

We need our fabrics to last. We independently test the materials used in our seating systems to the following standards:

- BS EN ISO 105-C06:1997 (Colour fastness)
- BS EN ISO 105-BO2:1999 (Fastness to light)
- BS EN ISO 12947-2:1998 Martindale abrasion resistance (30000 rubs with 12kPa load)

4.3.2 Foam

Our Reflex foams are tested to:

- BS 5852-2:1982 using Ignition Source Crib 5

4.3.3 Actiflex

The fabric used in our Actiflex lap straps and harnesses has been tested to the Aerospace standard C525.853 Part 1 Appendix F a-I for flammability.

4.4 Warranty

All of our products are manufactured to the highest standards.

Active Design Ltd warrants that seating systems supplied by Active Design will be free of all defects in material and workmanship for a period of 24 months from the date of purchase. Active Design will not be held responsible for any damage or injury due to misuse or modifications of these products

We provide a full two year warranty against manufacturing defects for our Actiflex range of lap straps and harnesses.

4.5 Who to contact for support

If you have a problem with any of our products, your first contact should the organisation who supplied the product to you. If there is a problem that your therapist is unable to answer then please do get in touch directly.

4.6 Further information

If you find any part of this User Guide unclear, or if you require further information please call us on 0121 326 7506 to speak to one of our team members.

Active Design Ltd

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