



## COMBINED QUATTRO WITH DOUBLE INERTIA REEL

QHDCR, QCR, QECR  
QHDCRT, QCRT

### USER MANUAL



**Read instructions fully before use.**

**It is recommended that training be given on the proper use of this product.**

**Retain this manual for future reference.**

**Include it with the product in the event of transfer to new users.**

**Additional copies are available upon request.**

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## Quattro Parts



This picture shows a Combined Quattro System with plastic cover, however these instructions apply to all models in the Combined Quattro range. For the full range of products applicable see section J.

## A. Warnings

1. The Quattro Combined wheelchair tiedown and occupant restraint system is to be used for the securement of wheelchairs — as recommended by the manufacturer - used as a forward facing seat in a motor vehicle. (See Unwin Wheelchair Guide for full Applications List).
2. In addition to the details given in these Instructions, users of this tiedown system must refer to the wheelchair manufacturer's 'Instructions For Use in Transport' for full details of tiedown attachment points on the wheelchair, plus any other specific instructions relating to use in transport.
3. Wheelchair users and their carers must make sure that their wheelchair is recommended for use in transport, including any 'add-on' components such as power tilt or recline options.

## **B. Limitations of use**

1. The combined systems are to be used as rear only in conjunction with a front assembly.
2. Both Combined Quattro and Combined Quattro Express are designed to restrain a wheelchair weight of up to 120kg.
3. Some wheelchairs need specific restraints, this is often true of buggy-type wheelchairs. If in doubt please contact Unwins or the wheelchair manufacturer.
4. Unwin products are extensively tested using Unwin rail, and our full warranty normally only applies to Unwin equipment when used in Unwin branded rail. Unwins have also participated in test programs with manufacturers of structural rail products and will support warranty on the Unwin products when used in conjunction with such jointly tested systems. For further details on specific applications please contact the Sales Office.
5. In other situations using rail products for which Unwin has not participated in joint test programs, a limited Unwin warranty will apply.

## **C. General Guidance**

1. Please read this manual before using the equipment.
2. Regular inspection of all parts is recommended and the equipment should be used only if all mechanical parts are functioning smoothly and all components are in good condition.
3. Replace equipment when the webbing becomes contaminated or frayed.
4. Wheelchair accessories attached to the wheelchair in front of the occupant - other than footrests - should be removed and secured in the vehicle during transport to reduce the potential for injury.
5. Any restraints which have been subjected to a crash situation should, in the interest of safety, be replaced immediately.
6. Do not attempt to modify the equipment. If there is a problem please contact Unwin Safety Systems.
7. Avoid contact with corrosive liquids and keep the webbing away from sharp edges. Care should be taken to prevent contamination of the webbing with polishes, oils and chemicals.
8. If the proposed installation cannot be made to comply with the following requirements, please contact Unwin Safety Systems.

## **D. Before using the Combined Quattro Systems**

1. Ensure that the wheelchair is appropriate for the tiedown being used.
2. Position the wheelchair, facing forward, symmetrically over the two rails. If the vehicle is positioned on a slope, apply the brakes to ensure the wheelchair cannot move.
3. To minimise the potential for head injuries in an impact, it is recommended to allow a clear space of at least 400 mm behind and 650 mm for 3 point systems or 950mm for 2 point systems in front of the head of the wheelchair user when positioning the chair for transit. A height provision ranging from 1200mm to 1550mm should be made, depending on the size of the passenger. There should also be 200 mm of clear space either side of the wheelchair centre line. If these clear space dimensions cannot be provided, then any object that protrudes into the wheelchair space should be well padded.

## D. Before using the Combined Quattro Systems

4. Electric wheelchairs may require an additional strap to secure batteries.
5. Check that the restraint is complete. An Unwin Combined Quattro System comprises:
  - 1 combined rear Quattro or Quattro Express and double inertia reel.
  - 1 combined rear Quattro or Quattro Express and reversible stalk.
6. If you use the 3 point inertia occupant restraint you will also need a third point attachment strap (the Upper Anchorage Strap).

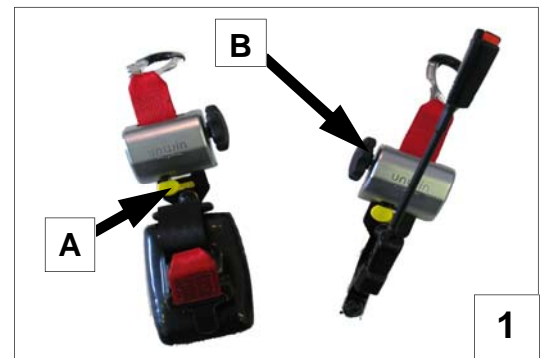
## E. Fitting the Combined Quattro Systems - Wheelchair Restraint

1. Fit the appropriate front straps following the instructions supplied with that product.
2. Fit the two aluminium bars, one with inertia reel and one with seatbelt stalk into the rail behind the wheelchair. **IMPORTANT: Check both bars are parallel in the rail and that the plungers are fully dropped.**

It is acceptable to use restraint either for left hand or right hand use. The double inertia reel should be fitted to the rail adjacent to the 3<sup>rd</sup> point anchorage.

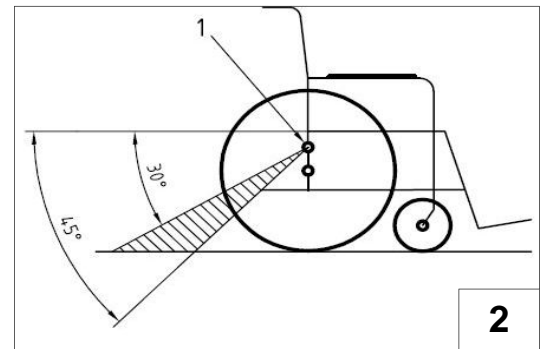
### USING THE STANDARD QUATTRO SYSTEM:

4. Press the yellow button (Fig 1A) to release the webbing and attach the Karabiner or Snaplock to the wheelchair mainframe, creating an angle of around 45° (Fig 2).
5. Press and release the Quattro release button to take up the slack in the webbing. Repeat operation on the other side.
6. Final tensioning is achieved by turning the tensioning handles (Fig 1B) until the webbing is equally taut on each Quattro.
7. The passenger restraint should now be fitted as described in section F.



### USING THE QUATTRO EXPRESS SYSTEM:

4. Pull the Quattro Express webbing and attach the Karabiner to the main frame of the wheelchair to create an angle of about 45° (Fig 2). The self-tensioning mechanism will automatically remove any slack in the webbing.



Repeat operations on the other side.

5. The yellow positive locking label must be clearly visible, to ensure that the reel is safely locked into place (Fig 3).

6. Final tensioning is achieved by turning the tensioning handles until the webbing is equally taut on each Quattro Express.

**IMPORTANT: Following final tensioning, ensure that the yellow label is still clearly visible 'LOCKED'.**

7. The passenger restraint should now be fitted as described in section F.



## F. Fitting the Combined Quattro System - Occupant Restraint (3 point)

- Unwin recommends the use of a 3 point occupant restraint system to provide greater protection in case of an impact. However we also recognise that some vehicle layout/designs or specific postural or medical conditions do not allow that style of seatbelts to be used easily.
- This system is not ISO 10542 compliant if used in 2 point configuration.
- Before fitting the occupant restraint, ensure that the reversible stalk orange button is facing outside in relation to the wheelchair. If the reversible stalk orange button faces inside, turn the stalk 180° to sit in the right position.

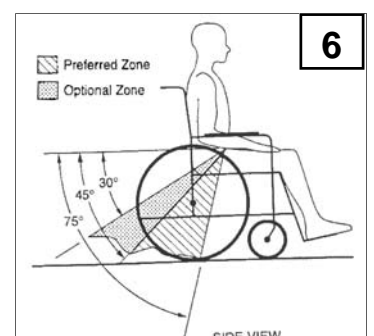
### Wheelchairs without armrests or with armrest removed

1. Position the third point fixing into the wall rail so that it is vertically above the inertia reel casing fixed onto the floor anchor.
2. Ensure the Comfort Clip (Fig 4) is released, and the tongue & buckle separating the lap and shoulder belts is disengaged. Release the third point tongue from the buckle.
3. If applicable, remove black plastic cover off the tongue on the red webbing of the double inertia and pull both tongues upwards to release the webbing from the inertia reel. Insert the first tongue fixed to the red webbing into the buckle on the third point fixing.
4. Position the webbing across the passenger, with the black webbing forming the lap belt and the red webbing the shoulder belt.
5. Insert the second tongue into the stalk buckle. Adjust the height of the shoulder belt so that it clears the occupant's shoulder by approximately one inch.
6. Unlock the Comfort Clip to take up the slack, then re-lock the clip so that it rests on the reel cover.



### Wheelchairs with fixed armrests

1. Release the Comfort Clip (Fig 4) and the buckle separating the lap and shoulder belts. Undo the third point tongue from the buckle.
2. Position the black webbing around the occupant's pelvic area, threading it through the armrests if necessary.
3. If applicable, remove the black plastic cover off the tongue on the red webbing of the double inertia and insert into the buckle on the third point fixing.
4. Position the red shoulder belt on the occupant at about mid shoulder point (Fig 5) and adjust the height so that it clears the occupant's shoulder by approximately one inch.
5. Unlock the Comfort Clip to take up the slack, then re-lock the clip so that it rests on the reel cover.
6. It is essential that the lap belt anchor point should be positioned to achieve belt angles of 30° or more to the horizontal and preferably between 45° and 75° in order to fit low across the pelvis and/or over the upper thighs to reduce the possibility of the seat belt loading the abdomen (Fig 6).



## G. Fitting the Combined Quattro Systems - Occupant Restraint (2 Point)

- Unwin recommends the use of a 3 point occupant restraint system to provide greater protection in case of an impact. However we also recognise that some vehicle layout/designs or specific postural or medical conditions do not allow that style of seatbelts to be used easily.
- This system is not ISO 10542 compliant if used in 2 point configuration.
- Before fitting the occupant restraint, ensure that the reversible stalk orange button is facing outside in relation to the wheelchair. If the reversible stalk orange button faces inside, turn the stalk 180° to sit in the right position.

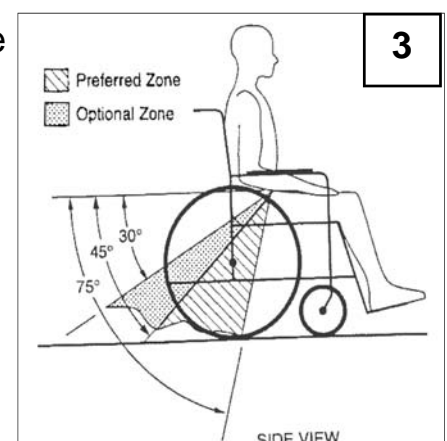
### Wheelchairs without armrest or with armrest removed.

1. Ensure the Comfort Clip is released (Fig 1) and press the buckle to release the lap belt.
2. Pull the metal tongue on the black webbing upwards to release the webbing from both inertia reels.
3. Position the webbing across the occupant with the black webbing forming the lap belt and the red webbing forming the shoulder belt.
4. Insert the tongue fixed to the black webbing into the stalk buckle. Adjust for comfort by raising the webbing on the shoulder by two finger widths, unlock the Comfort Clip to take up the slack, then re-lock the clip so that it rests on the reel cover.



### Wheelchairs with fixed armrests

1. Ensure the Comfort Clip is released (Fig 1) and undo the buckle to separate the lap and shoulder belts.
2. Position the black webbing around the occupant's pelvic area, threading it through the armrests if necessary and fit to the metal tongue into the lap belt.
3. Pull all of the red webbing out of the inertia reel and secure with the Comfort Clip.
4. Position the shoulder belt on the occupant at about mid shoulder point (Fig 2).
5. Adjust for comfort by raising the webbing on the shoulder by two finger widths, unlock the Comfort Clip to take up the slack, then re-lock the clip so that it rests on the reel cover.
6. It is essential that the lap belt anchor point should be positioned to achieve belt angles of 30° or more to the horizontal and preferably between 45° and 75°, in order to fit low across the pelvis and/or over the upper thighs to reduce the possibility of the seat belt loading the abdomen (Fig 3).



## **H. Removal and storage**

### **Occupant Restraint:**

1. Release the Comfort Clip and disconnect the tongue from the stalk.
2. Remove the restraint by unclipping the lap and shoulder belts.
3. If applicable, disconnect the shoulder belt from the third point fixing and allow the webbing to retract back evenly into the inertia reel housing.
4. Replace the black plastic cover on the red webbing tongue if applicable.
5. On the third point wall fixing, re-secure the tongue to the buckle and remove from the wall rail.

### **Wheelchair Tiedown**

#### **Standard Quattro**

1. Tightened the handle slightly to release the tension in the system, and then press the yellow release button of one of the Quattro reels to allow you to remove the Karabiner or Snaplock from the wheelchair frame.
2. Guide the webbing as it retracts into the Quattro housing reel.
3. Release yellow button. Repeat for opposite side.

#### **Quattro Express**

1. Tightened the handle slightly to release the tension in the system, and then press the yellow release button of one of the Quattro Express and remove the Karabiner from the wheelchair frame.
2. Release yellow button.
3. Let the webbing retract gently into the Quattro Express housing reel.
4. Repeat for opposite side.

### **Combined Assembly from Rail**

1. Lift the plunger of the aluminium bar and remove from the rail.
2. Repeat for the opposite fitting.
3. Push the chair forward to loosen the front straps and remove them from the rail.
4. Remove the front straps as indicated in the instructions supplied with the product.
5. Store the Combined Assembly safely off the floor to avoid it becoming a projectile or being damaged in the event of an accident. Storage should be on a wall mounted rail or a stowage box.

## I. Maintenance

1. Regularly inspect the Combined Quattro System for damage, wear or malfunction. If any problems are identified replace it immediately.
2. All webbing and components can be cleaned as necessary. To clean the Combined Quattro Systems, use warm soapy water and a clean soft cloth. Rinse with clear water, and allow to air dry.  
To disinfect use a mild spray disinfectant - do not use products containing bleach.  
**IMPORTANT: when cleaning or disinfecting do not immerse buckles or rail fittings in any type of liquid.**
3. If the vehicle is involved in an accident when any restraints are deployed, remove them from service and replace immediately. If in doubt please contact Unwin Safety Systems.

## J. Product Range

- Combined Quattro with metal housing cover, Karabiner and Split Reel Double Inertia (QHDCR)
- Combined Quattro with metal housing cover, Snaplock and Split Reel Double Inertia (QHDCRT)
- Combined Quattro with plastic housing cover, Karabiner and Split Reel Double Inertia (QCR)
- Combined Quattro with plastic housing cover, Snaplock and Split Reel Double Inertia (QCRT)
- Combined Quattro Express with metal housing cover, Karabiner and Split Reel Double Inertia (QECR)

The Upper Anchorage Strap allows easy conversion from a 2 point to a 3 point system.

- Bolted Upper Anchorage Strap (3PTF)
- Removable Upper Anchorage Strap (3PTR)



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