

# Rear tie-downs

User manual

Thank you for choosing a

# Rear tie-downs from BraunAbility!

The following manual is an important part of the product, providing you with information on how to achieve maximum performance and safe operation. Keep the manual in a safe place so that you can refer to it when necessary.

If you have any questions about your equipment, please contact us.

Once again, thank you for placing your confidence in our products!



Safe vehicle adaptation solutions

*For your safety BraunAbility products  
are designed and tested according to  
current directives and standards.*

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# Safety information

## Limitation of use

The development of BraunAbility wheelchair tie-downs is a continuous process. Applications are added on a regular basis. For more details contact BraunAbility or look on the BraunAbility website.



*These tie-downs are designed to secure the rear of a wheelchair when facing forward in a vehicle and must be used as instructed. The rear webbing tie-downs are designed to secure wheelchair weights up to 100kg, with the exception of Titan wheelchair tie-down, which can secure wheelchair weights of up to 200kg. The use of an appropriate front wheelchair tie-down and occupant restraint will be required for all.*



*In addition to the details given in these instructions, users of BraunAbility wheelchair & occupant restraint kits must refer to the wheelchair manufacturer's 'Instructions for Use in Transport' for full details of tie-down attachment points on the wheelchair, plus any other specific instructions relating to use in transport.*



*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.*

Rear tie-downs

Titan - OR03



ROBH



SOBT



ROBJ



## General guidance

- Wheelchair Accessories that have not been approved by the Wheelchair Manufacturer must be removed from the wheelchair and secured in the vehicle during transport to reduce the potential for injury. Refer to 'Instructions For Use in Transport' provided with the wheelchair or contact wheelchair manufacturer for further guidance.
- These wheelchair tie-downs comply with all applicable requirements of ISO 10542, including a 48km/h, 20g frontal impact test using a forward facing 85kg surrogate wheelchair and an ATD (test dummy) with a mass of 76.3kg. The test dummy was restrained by both a pelvic and upper-torso restraint. Use of a pelvic only belt may compromise the performance of the WTORS system and should be avoided.
- If the installation is to be used with an occupant head rest anchored to the vehicle, then a vehicle-anchored back rest must be provided to minimise rearward deflection of the wheelchair seatback, preventing neck injury.
- Regular inspection of all parts is recommended and the equipment should be used only if all components are in good condition.
- **Warning:** protect webbing from contacting sharp edges and corners. Replace equipment if the webbing does becomes cut, contaminated or frayed.

- Any restraints which have been subjected to a crash situation from which the vehicle must be towed should, in the interest of safety, be replaced.
- Do not attempt to modify the equipment. For further advice on the installation and use of this tie-down please contact BraunAbility. Please read this manual fully before use.
- Avoid contact with corrosive liquids. Care should be taken to prevent contamination of the webbing with polishes, oils and chemicals.
- The restraint kit anchorages should be installed by an experienced technician/vehicle converter. Anchorages should not be installed into unsound materials such as corroded metal, wood, plastic and fibre glass panels, without additional and suitable reinforcement.
- The equipment has been tested in a configuration similar to that recommended by BraunAbility and any deviation from the recommendations here is the responsibility of the installer/user. These instructions refer use with both our rails and Solo anchors, however the equipment may be used with any BraunAbility proprietary rail product.

## Before installing and using the rear webbing tie-downs

- Ensure that the wheelchair is correctly maintained and that the settings of any adjustable parts are made according to 'Instructions for Use in Transport'.
- Whenever possible remove any items of luggage etc that may be attached to the wheelchair and secure or store separately during transport in order to reduce the potential for injury to other passengers travelling in the vehicle.
- Extra care must be exercised when using vehicle boarding aids such as passenger lifts or ramps during the loading process. Refer to 'Instructions For Use' for information on safe slopes.
- Position the wheelchair facing forward - centrally in the designated region of the vehicle.  
**Ensure the wheelchair brakes are applied.**
- To minimise the potential for head injuries in an impact, allow a clear space of at least 400mm behind and 650mm, (FCZ, front clear zone), in front of the head of the wheelchair user, (Fig A). The shoulder belt anchorage must be roof or side-wall anchored at a height level such that the belt webbing passes over the midpoint of the occupant shoulder and at a height that is at or just above the level of the occupants shoulders so as not to impose downward loads on the spine.
- A height provision (HHT) ranging from 1000mm to 1550mm should be made, depending on the size of the passenger. There should also be 200mm of clear space either side of the wheelchair centre line. If these clear space dimensions cannot be provided then any structure protruding into this space should be adequately padded and comply with impact performance requirements of ECE Regulation 21 'FMVSS 201'. All vehicle padding should comply with the flammability requirements of ECE Regulation 118 'FMVSS 302'.

*Note: seated head height (HHT) ranges from as low as 1000mm for a 6-year-old child to 1550mm for a tall adult.*

- Wheelchair users, their carers and family are advised to check vehicle specifications to ensure that sufficient floor space is available to accommodate the wheelchair and tie-down system. These distances are based upon the desire to maintain clear zones for potential head excursions of occupants provided with both upper and lower torso restraints.
- Users of heavy powered wheelchairs are also advised to check vehicle carrying capacity. If in doubt consult the vehicle supplier for further details.
- Any airbag, as fitted to the vehicle, shall be used only as a supplementary occupant restraint if designed to be used in combination with the wheelchair tie-down.
- Installers of this tie-down should take note of any vehicle airbag position when planning the installation. Airbags can cause serious injury if a wheelchair-seated occupant is seated too close to an airbag position. If in doubt contact the vehicle manufacturer or your National Automotive Regulatory Body for advice.

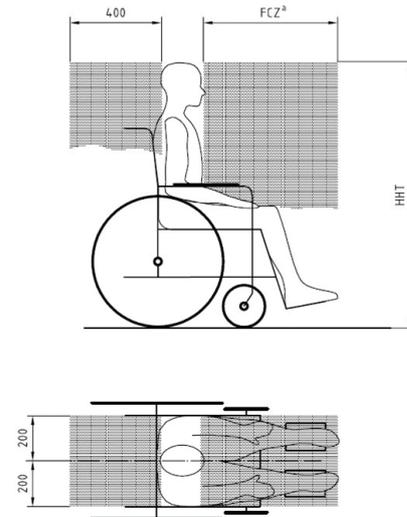


Figure A

## Fit and use

### Fitting and using the rear tie-downs

#### Rail floor

1. The rail will have been installed in the vehicle in accordance with our own and the vehicle converter's instruction. Position the wheelchair within the vehicle as required.
2. Attach the front wheelchair tie-downs (not supplied as part of this product), in accordance with its own instructions.
3. Moving to the wheelchair rear, select rear webbing tie-down so that the karabiner or hook gates faces outboard from wheelchair (Fig 1A). If using tongue & buckle, the buckle may be positioned facing outboard or inboard.
4. Fit the rear tie-down ATF (aluminium track fitting) into the rail by aligning the ATF feet with the cut-out sections of the rail. Locate into the rail, (Fig 2). Press on the ribbed part of the ATF, (Fig 2A), and push firmly towards the wheelchair until the yellow plunger drops and locks into the rail. Install the second tie-down ATF in the same way. **IMPORTANT: Check that both feet are positioned opposite each other, are secured and the plungers are fully dropped.**
5. Remove the webbing from the Velcro patch and release the over-centre buckle.
6. If using tongue & buckle, press the red buckle button down to release the webbed tongue, extend and pass around each of the rear wheelchair frame tie-down points, and reconnect the tongue back into the buckle, creating an angle of around 30 to 45° within the rear view zone, (Fig 3), (some wheelchairs will indicate these tie-down positions, Fig 4).
7. If using karabiner or hook, fasten on each of the rear tie-down to wheelchair frame tie-down points, making sure the karabiner gate is fully closed. The webbing should create an angle of around 30 to 45° within the rear view zone, (Fig 1), (some wheelchairs will indicate these tie-down positions, Fig 4).
8. Pull the webbing through the over-centre buckle until it is tight. With the free hand begin to close the buckle, and once the webbing is retained, fully close the buckle using both hands (Fig 5). Re-secure the Velcro to prevent the loose end from becoming a tripping hazard. Repeat operation with other strap.
9. An occupant restraint must now be fitted.



#### Removing the rear tie-down

1. Release the webbing tension in each strap by pressing in the silver release on the over-centre buckles and detach the karabiner(s), hook(s) or tongue & buckle(s) from the wheelchair frame. **NOTE:** in emergency and if using tongue & buckle, the tie-down can be quickly removed from the wheelchair by simply pressing each buckle release button.
2. Close the over-centre buckles and return the webbing ends to the Velcro patches.
3. Lift the yellow plungers fully and slide back away from the wheelchair to align the ATF feet with the rail cut outs. Lift away from the rail and store securely.

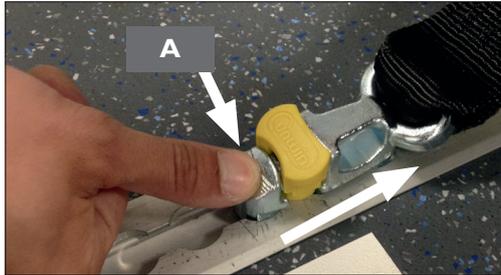


Figure 2



Figure 1

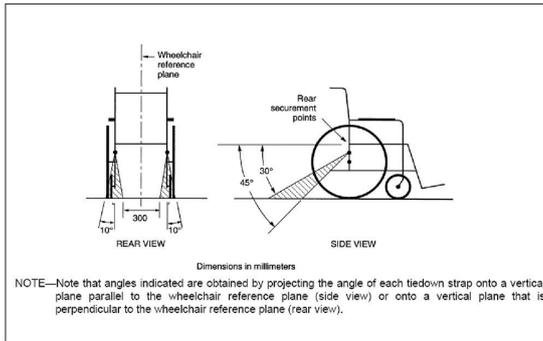


Figure 3



Figure 4



Figure 5



## floor anchors

1. The Solo floor anchors will have been installed in the vehicle in accordance with their own and the vehicle converter's instruction. Position the wheelchair within the vehicle as required.
2. Attach the front wheelchair tie-downs (not supplied as part of this product), in accordance with its own instructions.
3. Moving to the wheelchair rear, select rear webbing tie-down so that the karabiner or hook gates faces outboard from wheelchair (Fig 6A). If using tongue & buckle, the buckle may be positioned facing outboard or inboard.
4. Attach each rear tie-down onto a rear floor point anchor by aligning the protrusion within each cleat, to the slot on the floor anchors (Fig 7). Slide the cleats fully home, (Fig 8, raising the anchor from its housing if using the retractable floor anchor), rotate the cleats through 90° to align the hook, karabiner, or tongue and buckle arrangements with the wheelchair rear vertical frame.
5. Remove the webbing from the Velcro patch and release the over-centre buckle.
6. If using tongue & buckle, press the red buckle button down to release the webbed tongue, extend and pass around each of the rear wheelchair frame tie-down points, and reconnect the tongue back into the buckle, creating an angle of around 30 to 45° within the rear view zone, (Fig 1), (some wheelchairs will indicate these tie-down positions, Fig 4).
7. If using karabiner or hook, fasten on each of the rear tie-down to wheelchair frame tie-down points, making sure the karabiner gate is fully closed. The webbing should create an angle of around 30 to 45° within the rear view zone, (Fig 1), (some wheelchairs will indicate these tie-down positions, Fig 4).
8. Pull the webbing through the over-centre buckle until it is tight. With the free hand begin to close the buckle, and once the webbing is retained, fully close the buckle using both hands (Fig. 5). Re-secure the Velcro to prevent the loose end from becoming a trip hazard.
9. An occupant restraint must now be fitted.

## Removing the rear tie-down

1. Release the webbing tension in each strap by pressing in the silver release on the over-centre buckles and detach the karabiner(s), hook(s) or tongue & buckle(s) from the wheelchair frame. **NOTE:** in emergency and if using tongue & buckle, the tie-down can be quickly removed from the wheelchair by simply pressing each buckle release button.
2. Close the over-centre buckles and return the webbing ends to the Velcro patches.
3. To remove the cleats from the floor anchors, turn the cleats to align the raised protrusion on the cleats with the indent on the floor anchors, slide off and store securely (Fig 7). **Note:** protrusion and indent features are only applicable to retractable anchors, not to static anchors S10. When using S10, turn the cleat back through 90° and slide off.



Figure 8



Figure 6

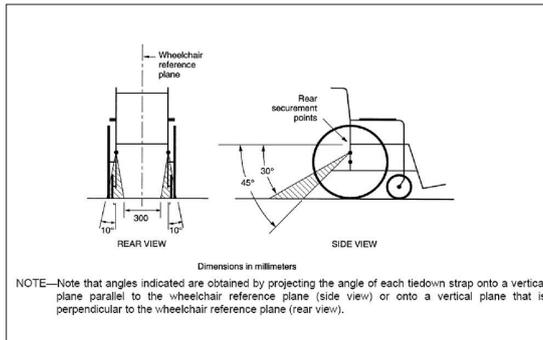


Figure 3



Figure 4



Figure 5



## rail floor - Titan 1

1. The rail will have been installed in the vehicle in accordance with their own and the vehicle converter's instruction. Position wheelchair within vehicle as required.
2. Attach the front wheelchair tie-downs (not supplied as part of this product), in accordance with its own instructions.
3. Moving to the wheelchair rear, select rear webbing tie-down so that the karabiner faces outboard from wheelchair (Fig 9).
4. Attach a first pair of tie-downs as close as possible to the rear of the wheelchair, with the karabiners fitted onto the securement points as shown in the wheelchair manufacturer's Instructions for Use. If the wheelchair manufacturer's Instructions For Use in Transport indicate two pairs of tie-down attachment points then fit the karabiners to the lower points first. The yellow plungers must face the rear of the vehicle.
5. Pull the webbing gently through the over-centre buckle to remove any slack and create an angle of around 30 to 45° (Fig 3).
6. Close the buckle using both hands and re-secure the Velcro. **Note: Do not over tension the tie-down straps.** Apply sufficient tension to the webbing straps so that the body of the over-centre buckle can be rotated 90° on either side of it's natural line of attachment with moderate hand effort (Fig 12).
7. Attach a second pair of tie-downs to the appropriate securement points on the wheelchair as indicated in the manufacturer's Instructions For Use. The track fitting must be positioned as close as possible behind the 1<sup>st</sup> pair (Fig 10).
8. Tension the second pair of tie-downs in the same way as the first pair. Check that similar tension exists in all four webbing straps, adjusting where necessary (Fig 11). **IMPORTANT: Ensure that all the karabiner gates are fully closed (Fig 13).**
9. The occupant restraint must now be fitted, please refer to the appropriate user instructions.

## Removing the rear tie-down

1. Release the over-centre buckles on the first pair of rear straps, loosen the webbing and remove the karabiner from the wheelchair.
2. Pull the webbings, close the over-centre buckles and re-secure the Velcro.
3. Lift the yellow retaining clips fully and pull away from the wheelchair to remove the first set of rear straps from the rail. Repeat operation with the second sets of rear straps.

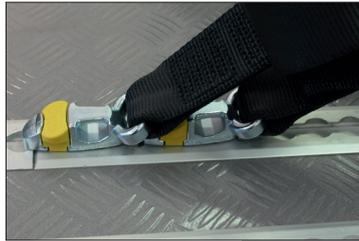


Figure 10



Figure 11

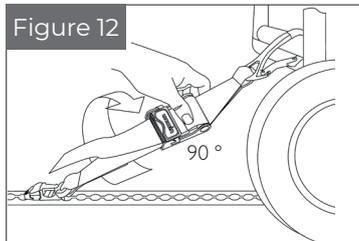


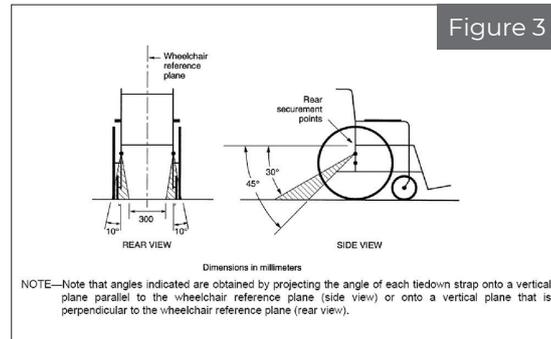
Figure 12



Figure 13



Figure 9



## After care

### Equipment storage and maintenance

- Store the restraint safely off the floor to avoid damage and ensure that it cannot become a projectile in an accident. This can be achieved by using a wall mounted storage bag such as SLR111.
- Regularly inspect the wheelchair tie-down systems for damage, wear or malfunction. If any problems are identified replace it immediately.
- When not in use, keep loose occupant webbing ends connected to their corresponding buckle sleeves, etc, to prevent them from becoming trip hazards and from flailing around when the vehicle is in motion.
- All webbing and components can be cleaned as necessary, but care should be taken to prevent contamination of the webbings with polishes, oils and chemicals, particularly battery acid.
- To clean the straps 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 and do not use products containing bleach. **Important: when cleaning or disinfecting, do not immerse or flood buckles, karabiner fittings or floor anchors in the disinfectant or water.**
- 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 BraunAbility.

## Warranty

BraunAbility products are extensively tested using BraunAbility anchorage systems, and our full warranty normally only applies to BraunAbility equipment when used with BraunAbility branded anchorages or as instructed.

BraunAbility have also participated in test programs with other manufacturers anchorage products and will support warranty on the BraunAbility products when used in conjunction with such jointly tested systems.

For further details on specific applications please contact the Sales Office. In other situations, using BraunAbility products, for which BraunAbility has not participated in a joint test program, a limited BraunAbility warranty will apply.

# Declaration of conformity

## Manufacturer /

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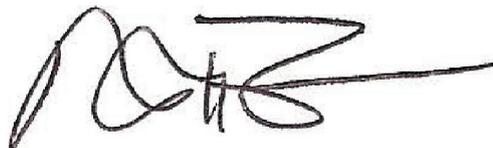
## Declares that the products /

ROBT, ROBH, ROBK, SOBT, SOBH,  
SOBK, OR03, OR02, BOBJ, ROBJ,  
SOBJ

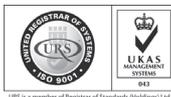
## Conforms to applicable paragraphs in the following Directives, Standards and Regulations /

214/2014/EU Paragraphs 2.3.1 and 2.3.2 ISO 10542:2012  
RESNA WC-4 2012 Section 18  
2007/46/EC

BraunAbility, Martock, 1<sup>st</sup> April 2020

A handwritten signature in black ink, appearing to read 'Rob Butcher', with a long horizontal stroke extending to the right.

Rob Butcher  
Director of Engineering



URS is a member of Registrar of Standards (Holdings) Ltd.

Quality system certified in accordance with ISO 9001:2015

Illustrations, descriptions and specifications in the user manual are based on current product information. BraunAbility UK Ltd reserves the right to make alterations without previous notice.

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