

Titan 1 tie-down with 3 point occupant restraint

User Manual

Thank you for choosing

KIT9, KIT10, KIT11 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 kits is a continuous process. Applications are added on a regular basis. For more detail contact BraunAbility or look on the BraunAbility website.



*BraunAbility wheelchair & occupant restraint kits are designed to secure the front and rear of a wheelchair when facing **forward** in a vehicle and must be used as instructed for forward-facing seating. The wheelchair & occupant restraint kits are designed to secure wheelchair weights up to 200kg.*



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.

Kit 9



Kit 10



Kit 11



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 & occupant restraint kits 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 BraunAbility rails and Solo anchors, however the equipment may be used with any BraunAbility proprietary rail product.

Before installing and using the wheelchair & occupant restraint kits

- 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 400 mm behind and 650 mm, (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 200 mm of clear space either side of the wheelchair centre line. If these clear space dimensions cannot be provided then any 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 Solar Quattro and an appropriate occupant restraint.
- 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.

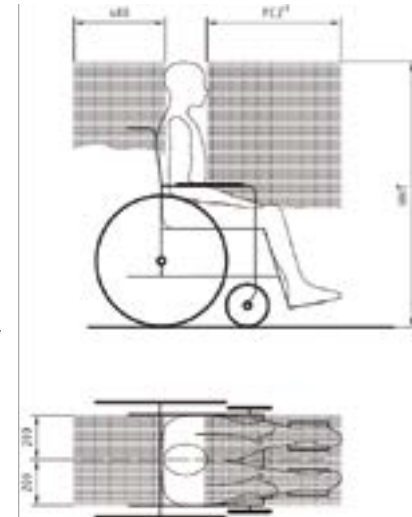


Figure A

Fit and use

Fitting and using the wheelchair and occupant restraint

Fitting the front wheelchair tie-down

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. The front straps must be fitted into the rail, with the yellow plungers facing the front of the vehicle.
3. Press on the ribbed part of the ATF, (Fig 1A) and push firmly towards the wheelchair until the yellow clip drops and locks into place. Install the second clip. The position of this must be in line with the first. **IMPORTANT: Check the clips are fully engaged on both sides.**
4. Remove the webbing from the Velcro and release the over-centre buckle by pressing down the spring loaded bar.
5. Attach the front karabiner to the tie-down brackets, (Fig 2), fitted to the front of the wheelchair. Pull the webbing gently through the over-centre buckle to remove any slack and create an angle of around 40 to 45° (Fig 4).
6. Close the buckle using both hands, (Fig 3) and re-secure the Velcro. **IMPORTANT: 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 its natural line of attachment with moderate hand effort, (Fig 5).**
7. Repeat operation with the other strap. Ensure that both straps are similarly tensioned.
8. The rear tie-down must now be fitted.

Removing the tie-downs

IMPORTANT: First remove the rear tie-downs, as instructed on pages 12 and 13.

1. Release the over-centre buckle on the front strap, loosen the webbing and remove the karabiner from the wheelchair.
2. Pull the webbing, close the over-centre buckle and re-secure the Velcro.
3. Lift the yellow retaining clip fully and pull away from the wheelchair to remove the front straps from the rail. Repeat operation on the opposite strap.



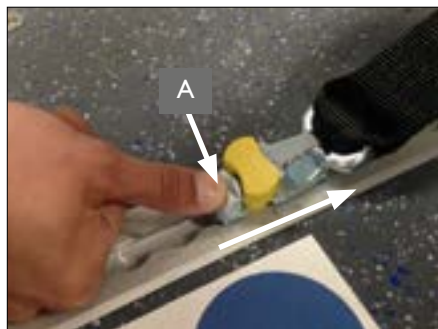


Figure 1



Figure 2



Figure 3

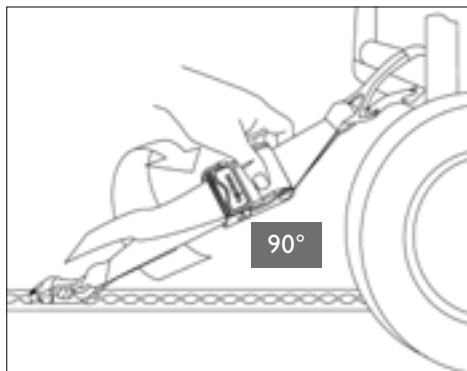


Figure 5

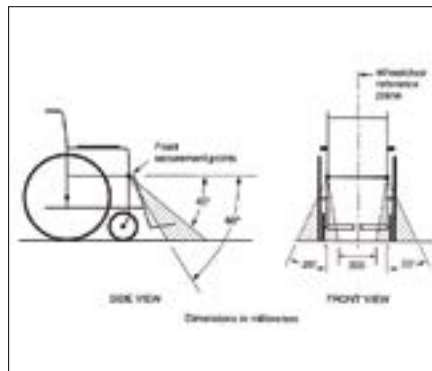


Figure 4



Fit and use

Fitting and using the wheelchair and occupant restraint

Fitting the rear wheelchair tie-down

1. Moving to the wheelchair rear, select rear webbing tie-down so that the karabiner faces outboard from wheelchair (Fig 6).
2. To attached the first pair of tie-downs, press on the ribbed part of the ATF, (Fig 7A) and push firmly towards the wheelchair until the yellow clip drops and locks into place. Install the second clip. The position of this must be in line with the first. **IMPORTANT: Check the clips are fully engaged on both sides.**
3. The first pair of tie-downs must be as close as possible to the rear of the wheelchair (Fig 7), 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.
4. Pull the webbing gently through the over-centre buckle to remove any slack and create an angle of around 40 to 45° (Fig 10).
5. 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 9).**
6. 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 1st pair (Fig 8).
7. Tension the second pair of tie-downs in a similar manner. Check that similar tension exists in all four webbing straps, adjusting where necessary (Fig 8). **IMPORTANT: Ensure that all the karabiner gates are fully closed (Fig 2).**
8. The occupant restraint must now be fitted.

Removing the tie-downs

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 clip 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 7



Figure 8

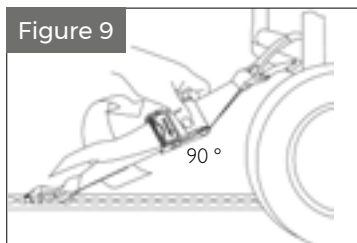


Figure 9



Figure 2



Figure 6

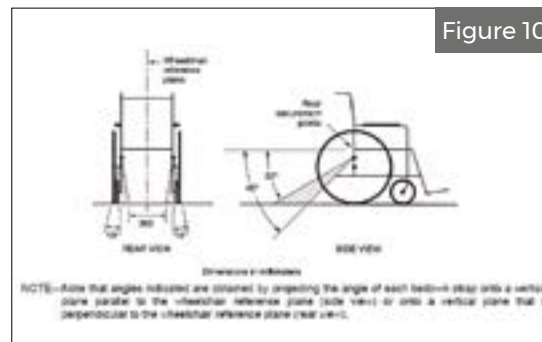


Figure 10

Fit and use

Fitting and using the wheelchair and occupant restraint

Fitting the occupant restraints

BraunAbility 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.

In accordance with International regulations, standard our occupant restraints are designed to be used for passengers weighing 22kg or above. If the passenger weighs less than 22kg, we recommend that a suitable, and appropriately tested child restraint seat is used. This may involve a secondary seat belt restraint as recommended by the original seat manufacturer.

1. For the kits with bolted upper anchorage, the upper anchorage will have been fitted in accordance with vehicle converter's instructions.
2. Where applicable, position the third point fixing into the cant rail, (Fig 11), so that it is vertically above the inertia reel casing fixed onto the floor fixing. Unfasten the tongue and buckle.
3. Pull the black webbing upwards and unfasten the tongue from the grey webbing buckle. Position the black webbing to form the lap belt and insert the tongue into the buckle stalk, (Fig 12). Ensure that the lap belt lays low on the pelvis of the occupant, running as close as possible over the hips on both sides.
4. Where applicable, remove the black plastic cover on the grey shoulder belt tongue and fit into the third point fixing (Fig 9). Position the grey webbing to form the shoulder belt and insert the buckle into the black lap belt tongue.
5. Adjust the height of the shoulder belt to clear the occupant's shoulder by approximately 25mm - 1 inch, (Fig 13).

6. The lap belt anchor points 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 reducing the possibility of the belt loading the abdomen, (Fig 14). The pelvic restraint is designed to bear upon the bony structure of the body and should be worn low across the front of the pelvis with any junctions between the pelvic and shoulder restraints located near the wearers hips.

Removing the tie-downs

1. Release the grey shoulder belt from the lap belt section, then from the third point fixing and carefully allow the shoulder belt to return to the retractor.
2. Disconnect the black lap belt from the buckle stalk on the aisle side and carefully allow the lap belt webbing to return onto it's retractor.
3. Connect the shoulder belt buckle to the lap belt tongue above the opening of the retractor box.
4. The wheelchair tie-down must now be removed.



Figure 12



Figure 13



Figure 11

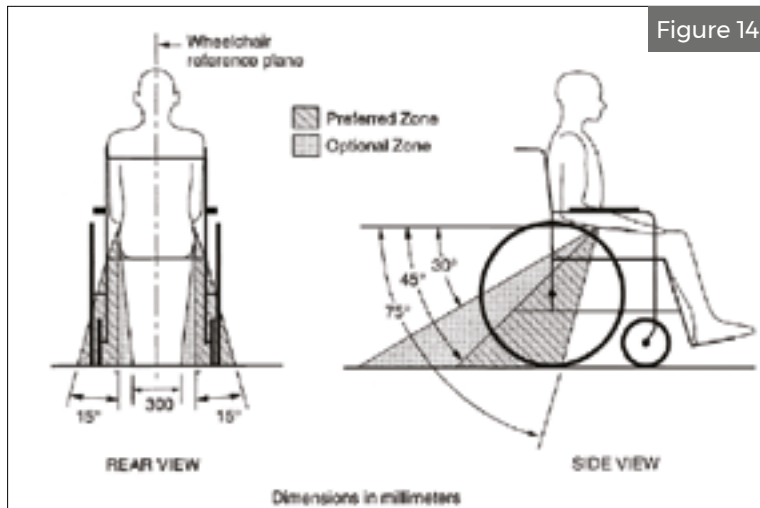


Figure 14

Dimensions in millimeters

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 wall mounted storage bag such as SLR111.
- Regularly inspect the BraunAbility Kit for damage, wear or malfunction. If any problems are identified replace it immediately.
- All webbings and components can be cleaned as necessary, but care should be taken to prevent contamination of the webbings with polishes, oils and chemicals.
- 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 buckles, karabiners or Solo fittings 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 product /

KIT9, KIT10, KIT11

Conforms to 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 UK Ltd, Martock 30 May 2019

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

Rob Butcher
Director of Engineering



Accredited by URS as testing laboratory in accordance with ISO/IEC 17025:2005
Quality system certified in accordance with ISO 9001:2008

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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