

TOR WAV OCCUPANT BELT



User Manual

Applicable to products:
T-WBB, T-WRR, T-WRB, -T-WTR, T-WBR

UI12349

EN Instructions for fitting and use

Thank you for choosing

TOR WAV Occupant Belt 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 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 details contact BraunAbility or look on the BraunAbility website.



These products have been designed to secure the passenger only and must only be used where the wheelchair has already been secured with a separate wheelchair tie-down system.



In addition to the details given in these instructions, users of BraunAbility restraints 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.



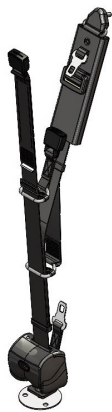
BraunAbility recommends the use of a 3 point occupant restraint system to provide greater protection in case on an impact. However, we also recognise that some vehicle layout/designs or specific postural or medical conditions do not allow that style of seatbelt to be used easily.

This system is not ISO 10542 compliant if used in a 2 point configuration.



In accordance with international regulations, 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.

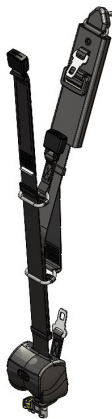
TOR WAV Occupant Belt



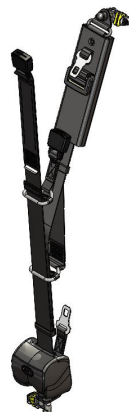
T-WBB



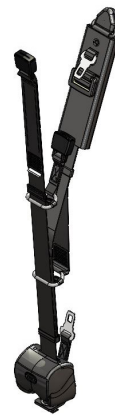
T-WBR



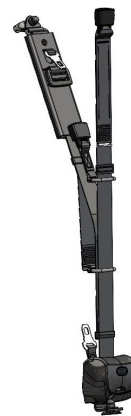
T-WRB



T-WRR



T-WTB



T-WTR

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 occupant restraints 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 headrest 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 becomes cut, frayed, or contaminated with polishes, oils or chemicals, particularly battery acid.

- 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 wheelchair 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 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 recommended by BraunAbility and any deviation from the recommendations here is the responsibility of the installer/user.

Before installing TOR WAV occupant belt

- 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 traveling 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 minimize the potential for head injuries in an impact, allow a clear space of at least 450mm (18in) behind and 650mm (26in), (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 (39in) for a 6-year-old child to 1550mm (61in) 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 WTORS.
- 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.

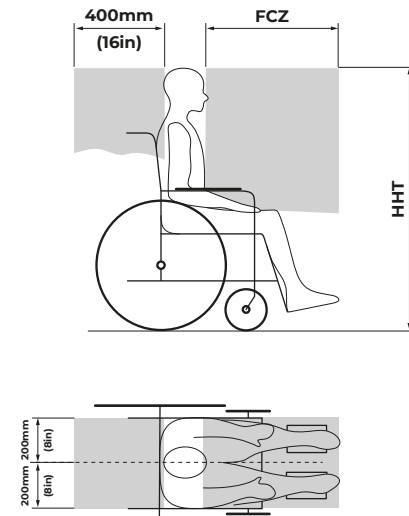


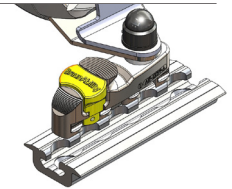
Figure A

Fit and use

TOR WAV Occupant Belt

Rail

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. Wheelchair tie-downs (not supplied with these restraints) should be fitted first to secure the wheelchair, before any occupant restraint is fitted.
3. Fit the shoulder belt ATF (aluminium track fitting) into the rail by aligning the ATF feet with the cut-out sections of the rail, (Fig. 2). The inertia reel should be mounted at an angle of 90/90° as viewed in 2 planes to the road level, (Fig. 1).
4. Press on the ribbed part of the ATF, (Fig. 2A), push firmly in the direction of the rail until the yellow plunger drops and locks into the rail. (T-bolts will have been fitted to 40Nm)
5. Position the third point ATF fixing into the cant rail, (Fig. 1B), so that it is vertically above the inertia reel casing fixed onto the floor fixing. Install the third point ATF as per point 4. (T-bolts will have been fitted to 40Nm)
6. Once installed check the free running of the webbing into, and out of, the inertia reel and check the 'lock up' facility of the reel by engaging a short tug at various intervals along the extension and retraction of the webbing in and out of the reel. Disconnect buckles, (Fig. 1D & E), from fixed tongues (Fig. 1F & G).
7. Adjust the drop link position at or above the shoulder height to comfortably suit the user, (Fig. 1C), and draw the running Buckle, (Fig. 1D), across the occupant, through the furthest arm of the wheelchair and connect to the wheelchair retractors tongue, (Fig. 3), to form a diagonal belt.
8. Pass the buckle, (Fig. 1E), through the near arm of the wheelchair and connect it to the wheelchair retractors tongue bracket (Fig. 3) forming the complete lap and diagonal. 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 4).
9. 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 TOR WAV Occupant Belt

1. Unfasten the buckles, remove the occupant restraint and let the webbing retract back into the housing.
2. Fit running buckle, (Fig. 1D), into the 3rd point tongue, (Fig. 1F), and fixed buckle, (Fig. 1E), into the reel's tongue, (Fig. 1G).

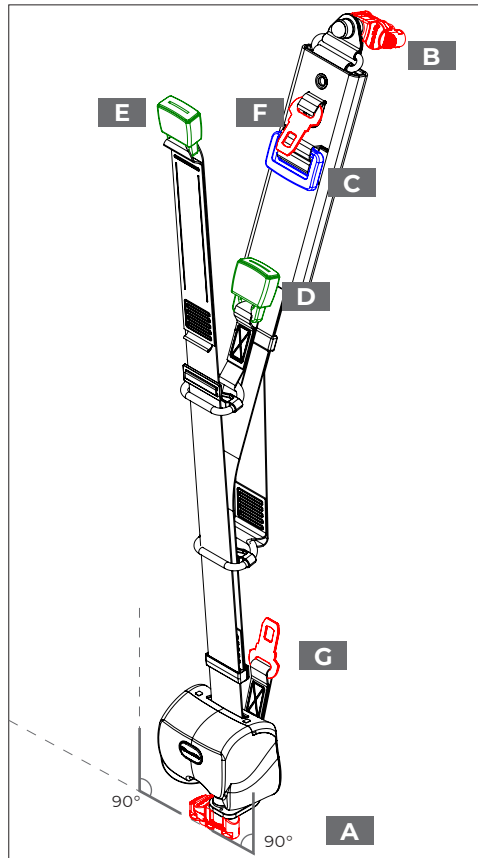


Figure 1

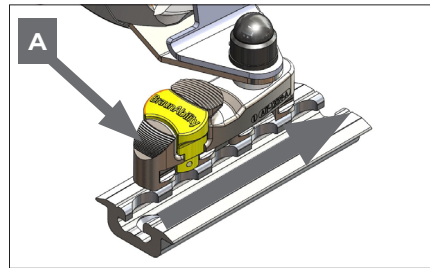


Figure 2

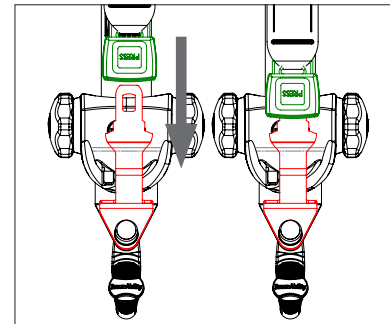
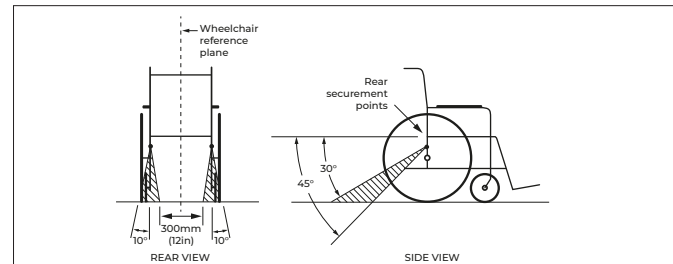


Figure 3

Fit and use



NOTE Note that angles indicated are obtained by projecting the angle of each tie-down strap onto a vertical plane parallel to the wheelchair reference plane (side view) or onto a vertical plane that is perpendicular to the wheelchair reference plane (rear view).

Figure 4

Fit and use

TOR WAV Occupant Belt

Bolted



1. Bolted occupant restraints, as well as T-bolts (T-WBB, T-WBR, T-WRB, T-WTB, T-WTR) will have been installed in the vehicle in accordance with our own and the vehicle converter's instruction. **Note:** if fitting hardware, other than that provided in this kit, is to be used with the equivalent fixing bolts (cross sectional and an equivalent grade), namely B.S. Grade 'S' (ISO 8.8). **Items torqued to 40Nm**
2. The componentry, (Fig. 5), is assembled with inertia reel anchorage points, (Fig. 5A), and the upper 3rd point, (Fig. 5B), fixed to an approved anchorage position on the vehicle body. The inertia reel should be mounted at an angle of 90/90° as viewed in 2 planes to the road level, (Fig. 5). The reel and its bracketry is bolted through the vehicle and reinforced on the underside, if required, with the 100mm diameter load spreader plate and nyloc nut, (Fig. 5A). All bolts T-Bolts should be tightened to a torque of 40Nm. **Note:** All vehicle anchorage points may require reinforcement as necessary to meet any required minimum strength recommendations for the vehicle.
3. Once installed check the free running of webbing into, and out of, the inertia reel and check the 'lock up' facility of the reel by engaging a short tug at various intervals along the extension and retraction of the webbing in and out of the reel. Disconnect buckles, (Fig. 5D & E), from fixed tongues, (Fig. 5F & G).
4. Adjust the drop link position at or above the shoulder height to comfortably suit the user, (Fig. 5C), and draw the running Buckle, (Fig. 5D) across the occupant, through the furthest arm of the wheelchair and connect to the wheelchair retractors tongue, (Fig. 3), to form a diagonal belt.
5. Pass the buckle, (Fig. 5E) through the near arm of the wheelchair and connect it to the wheelchair retractors tongue bracket, (Fig. 3), forming the complete lap and diagonal. 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 4).
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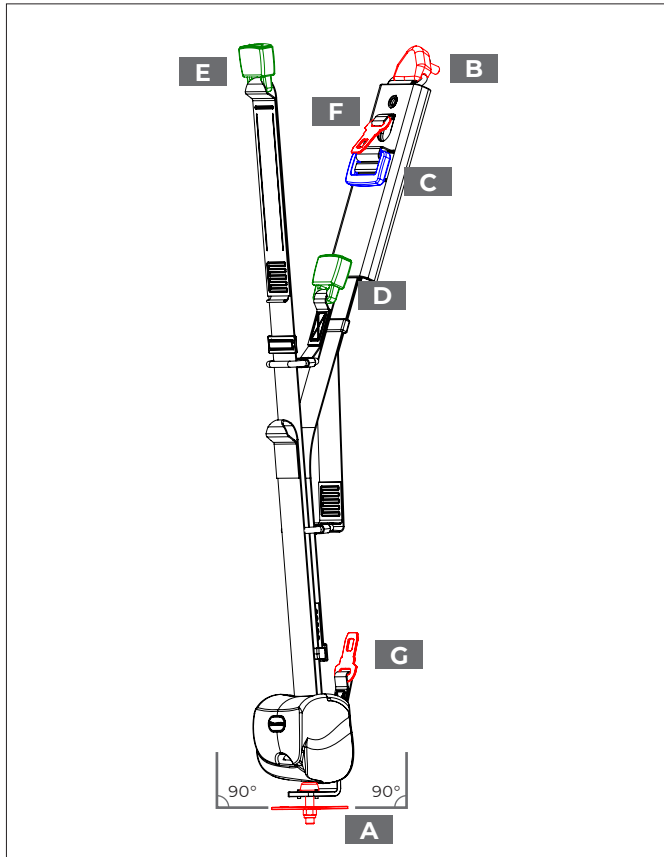


Figure 5

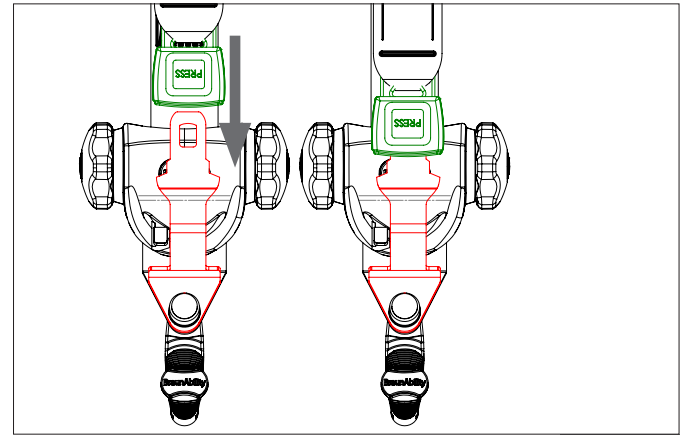
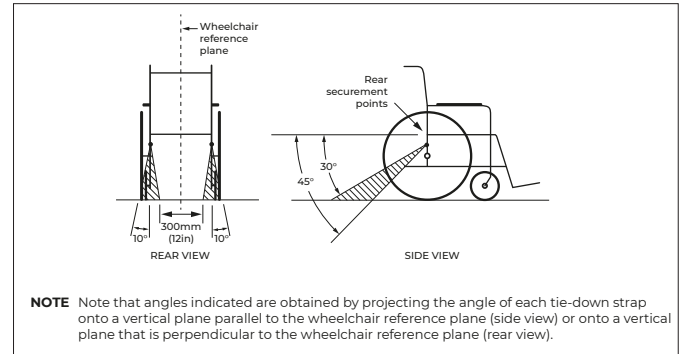


Figure 3



NOTE Note that angles indicated are obtained by projecting the angle of each tie-down strap onto a vertical plane parallel to the wheelchair reference plane (side view) or onto a vertical plane that is perpendicular to the wheelchair reference plane (rear view).

Figure 4

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 SLR1111.
- Regularly inspect the wheelchair restraint systems for damage, wear or malfunction. If any problems are identified replace components 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 /

T-WBB, T-WRR, T-WRB, T-WTR,
T-WTB, T-WBR

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

214/2013/ EU Paragraphs 2.3.1 and 2.3.2
ISO 10542:2012
RESNA WC-4 2012 Section 18
2001/85/EC
R.107.06
DIN 75078
2018-858-EU

BraunAbility, (insert date of publishing)



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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