



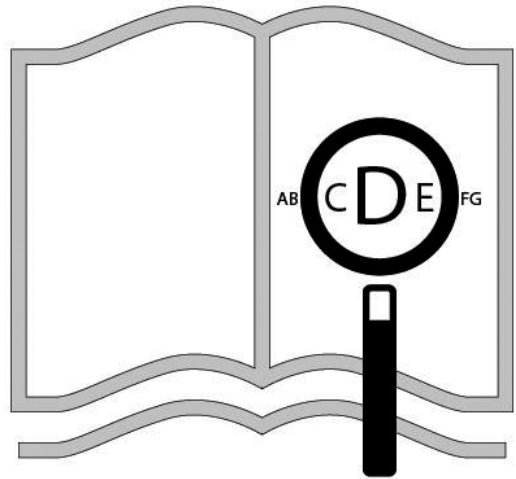
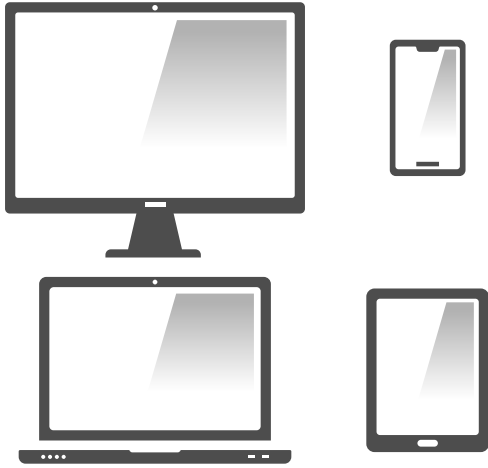
Nitrum
Nitrum Hybrid

Directions for use


QUICKIE[®]

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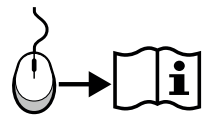
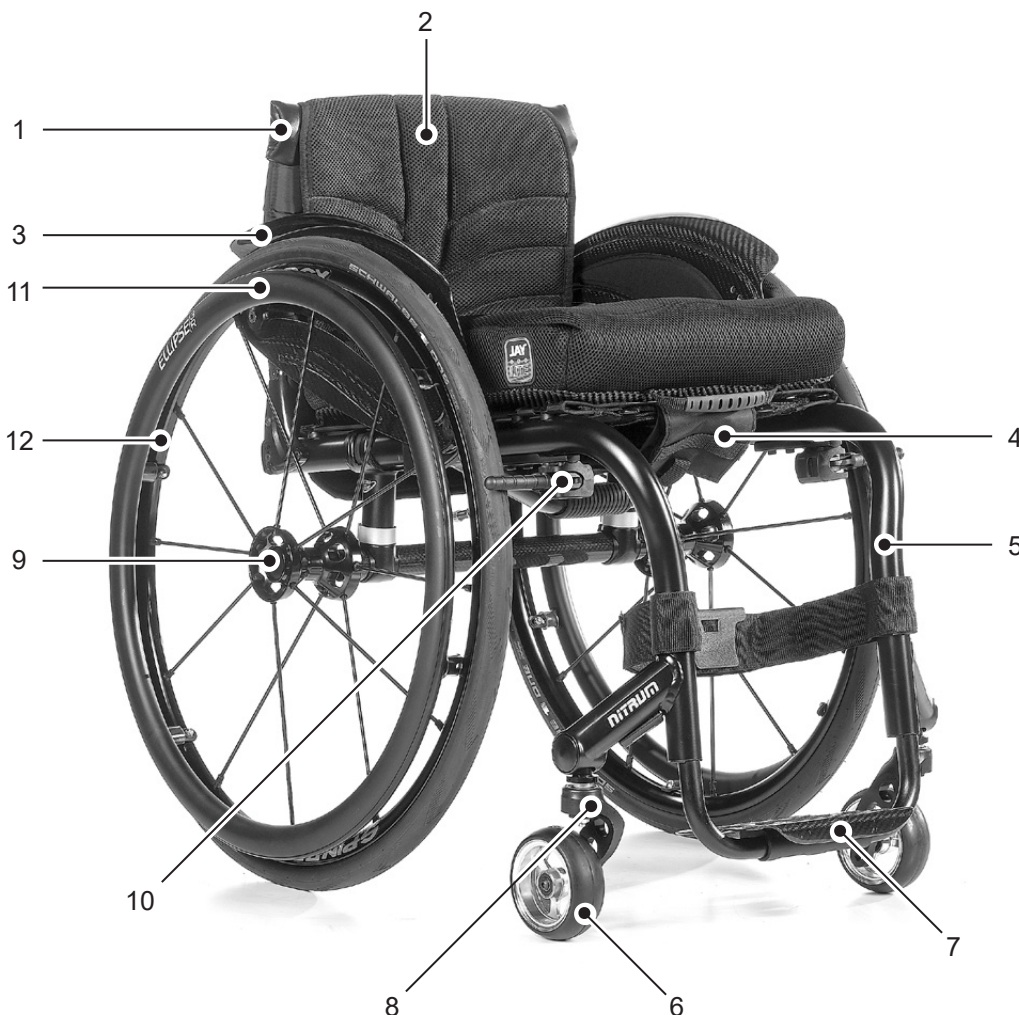


If you are visually impaired, this document can be viewed in PDF format at www.SunriseMedical.co.uk.

Wheelchair Components

EN 

We at SUNRISE MEDICAL have been awarded the ISO-13485 certificate, which affirms the quality of our products at every stage, from R & D to production. This product complies with the standards set forth in EU and UK regulations. Options or accessories shown are available at extra cost.



EN 03

1. Push handles
2. Backrest upholstery
3. Sideguard
4. Seat sling
5. Frame
6. Castors
7. Footboard
8. Fork
9. Quick-release axle
10. Wheel locks
11. Handrim
12. Rear wheel

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NOTE:

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Definitions

Definitions of words used in this manual

Word	Definition
 DANGER!	Advice to the user of potential risk of serious injury or death if the advice is not followed
 WARNING!	Advice to the user of a risk of injury if the advice is not followed
 CAUTION!	Advice to user that potential damage to equipment may occur if the advice is not followed
NOTE:	General advice or best practice
	Reference To Additional Documentation

NOTE:

Please keep a note of your local service agent's address and telephone number in the space provided.

In the event of a breakdown, contact them and try to give all relevant details so they can help you quickly.

Dealer signature and stamp

Foreword

Dear Customer,

We are very happy that you have decided in favour of a high-quality product from SUNRISE MEDICAL.


This owner's manual will provide numerous tips and ideas so that your new wheelchair can become a trustworthy and reliable partner in your life.

For Sunrise Medical, it is very important that we have a good relationship with our customers. We like to keep you up-to-date about new and current developments at our company. Keeping close to our customers means: fast service, as little red tape as possible, working closely with customers. When you need replacement parts or accessories, or if you just have a question about your wheelchair – we are there for you.

We want you to be satisfied with our products and service. At Sunrise Medical we are constantly working to develop our products further. For this reason, changes can occur in our palette of products with regard to form, technology and equipment. Consequently, no claims can be construed from the data or pictures contained in this user's manual.

The management system of SUNRISE MEDICAL is certified to EN ISO 13485 and ISO 14001.

 As the manufacturer, **SUNRISE MEDICAL**, declares that this product conforms to the **Medical Device Regulation (2017/745)**.

 As the manufacturer, **SUNRISE MEDICAL**, declares that the product conforms to the **UK Medical Devices Regulation 2002 No. 618**.

NOTE:

General user advice.

Not following these instructions may result in physical injury, damage to the product or damage to the environment!

Notice to the user and/or patient: Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

B4Me special adaptations

Sunrise Medical strongly recommends that in order to ensure that your B4Me product operates, and performs as intended by the manufacturer; all the user information supplied with your B4Me product is read and understood, before the product is first used.

Sunrise Medical also recommends that the user information is not discarded after reading it, but it is kept safely stored for future reference.

Medical Device Combinations

It may be possible to combine this Medical device with one or more other Medical Device or other product. Information on which combinations are possible can be found at www.Sunrisemedical.co.uk. All combinations listed have been validated to meet the General Safety and Performance Requirements, Annex I Nr. 14.1 of the Medical Device Regulation 2017/745.

Guidance on the combination, such as mounting, can be found at www.SunriseMedical.co.uk

Please contact your local, authorised SUNRISE MEDICAL dealer if you have any questions concerning the use, maintenance, or safety of your wheelchair.

In case there is no authorised dealer in your area, or you have any questions about product safety and product recalls, contact Sunrise Medical either in writing or by telephone or find the information on www.sunrisemedical.co.uk



IMPORTANT:

DO NOT USE YOUR WHEELCHAIR UNTIL THIS MANUAL HAS BEEN READ AND UNDERSTOOD.

Sunrise Medical
Thorns Road
Brierley Hill
West Midlands
DY5 2LD
England
Phone: 0845 605 66 88
Fax: 0845 605 66 89
www.SunriseMedical.co.uk

Use

Wheelchairs are exclusively for children and adults who are unable to walk or have limited mobility, for their own personal use, when self-propelling and being moved by a third party (pushed by attendant), within the home and outdoors.

The maximum weight limit (includes the user and any weight of accessories fitted to the wheelchair) is marked on the serial number label, which is affixed to the Axle Tube below the seat.

Warranty can only be taken on if the product is used under the specified conditions and for the intended purposes.

The intended lifetime of this product is 5 years.

Please DO NOT use or fit any 3rd party components to the wheelchair unless they are officially approved by Sunrise Medical.

Storage

- Store indoors in a cool, dry place
- During storage, the ambient temperature should not be lower than -20°C or higher than +65°C.
- Recommended humidity: 15% - 93%.
- No restrictions on air pressure.

Area of Application.

Indications

The varieties of fitting variants, as well as the modular design, mean that it can be used by those who cannot walk or have limited mobility because of:

- Paralysis
- Loss of extremity (leg amputation)
- Extremity defect deformity
- Joint contractures/joint injuries
- Illnesses such as heart and circulation deficiencies, disturbance of equilibrium or cachexia, Neurological disease patterns, Muscle dystrophy, Hemiplegia as well as for elderly people who still have strength in the upper body.

Contraindications

The wheelchair shall not be used without attendant in case of:

- Perception disorder
- Imbalance
- Loss of both arms, if not supported by a caregiver
- Joint contracture or joint damage on both arms
- Seating disability

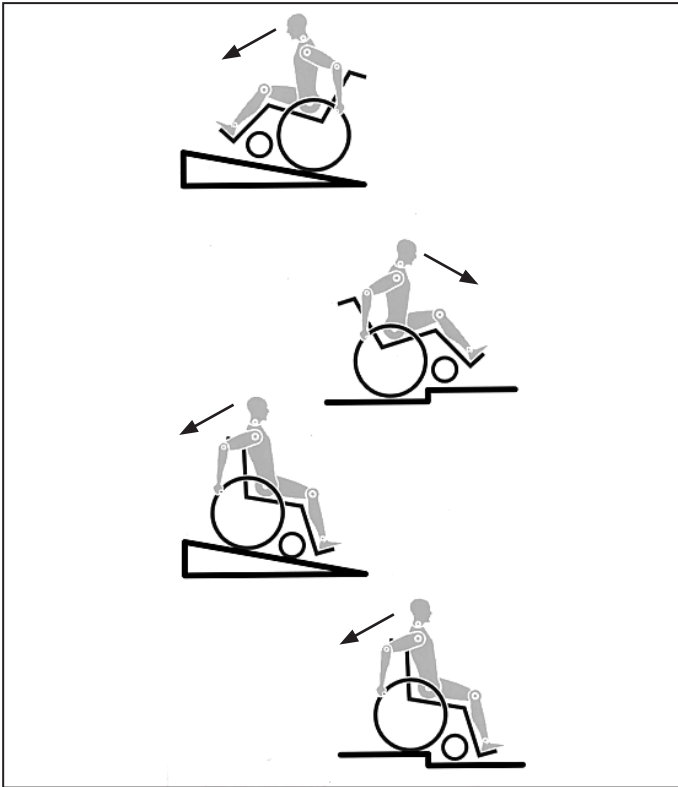
When considering provision, please also note the body size, weight, physical and psychological constitution, the age of the person, living conditions and environment.

NOTE:

Please note that driving a wheelchair requires sufficient cognitive, physical and visual skills. The user must be able to assess the effects of actions during the operation of the wheelchair and, if necessary, to correct them. These capabilities and the safe use of the additionally attached components cannot be assessed by Sunrise Medical as a manufacturer. We cannot accept any liability for any damage resulting from this.

Please refer to the operating instructions of the wheelchair and the additionally mounted components. Instruct the user in the safe use of the wheelchair and the additionally mounted components. Inform users of specific warnings that need to be read, understood, and respected.

1.0 General safety notes and driving limits



The engineering and construction of this wheelchair has been designed to provide maximum safety. International safety standards currently in force have either been fulfilled or exceeded in parts. Nevertheless, users may put themselves at risk by improperly using their wheelchairs. For your own safety, the following rules must be strictly observed.

Unprofessional or erroneous changes or adjustments increase the risk of accident. As a wheelchair user, you are also part of the daily traffic on streets and pavements, just like anyone else. We would like to remind you that you are therefore also subject to any and all traffic laws.

Be careful during your first ride in this wheelchair. Get to know your wheelchair.

Before each use, the following should be checked:

- Quick-release axles on the rear wheels
- Velcro on seats and backrests
- Tyres, tyre pressure and wheel locks.

Before changing any of the adjustments of this wheelchair, it is important to read the corresponding section of the user's manual.

It is possible that potholes or uneven ground could cause this wheelchair to tip over, especially when riding uphill or downhill.

When riding forwards over a step or up an incline, the body should be leaning forward.

DANGER!

- NEVER exceed the maximum load of 125 kg, (140 kg with "Hybrid-frame" option, 100kg with handbike-axle), for driver plus any items carried on the wheelchair. Please note the weight information for lighter weight options, which are quoted separately. If you exceed the maximum load, this can lead to damage to the chair, or you may fall or tip over, lose control and may lead to serious injury of the user and other people.
- When it is dark, please wear light clothing or clothing with reflectors, so that you can be seen more easily. Make sure that the reflectors on the side and back of the wheelchair are clearly visible. We would also recommend that you fit an active light.
- To avoid falls and dangerous situations, you should first practice using your new wheelchair on level ground with good visibility.

- When getting on or off the wheelchair, do not use the footboards. These should be flipped up beforehand and swung to the outside as far as possible. Always position yourself as close as possible to the place where you wish to sit.
- Only use your wheelchair properly. For example, avoid travelling against an obstacle without braking (step, kerb edge) or dropping down gaps.
- The wheel locks are not intended to brake your wheelchair. They are only there to ensure that your wheelchair does not begin rolling unintentionally. When you stop on uneven ground, you should always use the wheel locks to prevent such rolling. Always apply both wheel locks; otherwise, your wheelchair could tip over.
- Explore the effects of changing the centre of gravity on the behaviour of the wheelchair, for example on inclines, slopes, all gradients or when overcoming obstacles. Do this with the secure aid of a helper.
- With extreme settings (e.g. rear wheels in the most forward position) and less than perfect posture, the wheelchair may tip over even on a level surface.
- Lean your upper body further forward when going up slopes and steps.
- Lean your upper body further back when going down slopes and steps. Never try to climb and descend a slope diagonally.
- Avoid using an escalator which may lead to serious injury in the event of a fall.
- Do not use the wheelchair on slopes $> 10^\circ$. The Dynamic safe slope is dependent on the chair configuration, the user's abilities and the style of riding. As the user's abilities and style of riding cannot be pre-determined then the max safe slope cannot be determined. Therefore this must be determined by the user with the assistance of an attendant to prevent tipping. It is strongly recommended that inexperienced users have anti-tip tubes fitted.
- It is possible that potholes or uneven ground could cause this wheelchair to tip over, especially when riding uphill or downhill.
- Do not use your wheelchair on muddy or icy ground. Do not use your wheelchair where pedestrians are not allowed.
- To avoid hand injuries do not grab in between the spokes or between the rear wheel and wheel lock when driving the wheelchair.
- In particular when using lightweight metal handrims, fingers will easily become hot when braking from a high speed or on long inclines.
- Riding sideways on to a slope or incline, increases the possibility of the wheelchair tipping over sideways.
- Only attempt stairs with the help of an attendant. There is equipment available to help you, e.g. climbing ramps or lifts, please use them. If there is no such equipment available, then the wheelchair must be tipped and pushed, never carried, over the steps (2 helpers). We recommend that users over 100 kg in weight do not use this stairway manoeuvre!
- In general, any anti-tip tubes fitted must be set beforehand, so that they cannot touch the steps, as otherwise this could lead to a serious tumble. Afterwards the anti-tip tubes must be set back to their correct position.
- Make sure that the attendant only holds the wheelchair using securely mounted parts (e.g. not on the footrests or the sideguards).
- This wheelchair is not designed to be used whilst weight training and/or when using dumbbells. Only use equipment specifically designed for this purpose.
- Do not lift or carry the wheelchair by the backtubes or the pushhandles.
- When using the lifting ramp make sure that the anti-tip tubes fitted are positioned outside the danger area.
- Secure your wheelchair on uneven ground or when transferring, e.g. into a car, by using the wheel-locks. Make sure the wheel locks are properly locked and can't be accidentally opened while transfer i.e. by asking an attendant to hold the wheel-lock levers.

- If and whenever possible, during a journey in a specially fitted vehicle for disabled people, vehicle occupants should use the seats in the vehicle and the appropriate restraint system. This is the only way to ensure that occupants will have the maximum protection if there is an accident. When using safety elements offered by SUNRISE MEDICAL and using a specially designed safety system, lightweight wheelchairs can be used as a seat when being transported in a specially fitted vehicle. (See the Chapter on "Transportation").
 - Depending on the diameter and setting of the castors, as well as the centre of gravity setting of the wheelchair, the castors may begin to wobble at high speeds. This can lead to the castors being blocked and the wheelchair may tip over. Therefore, please make sure that the castors are adjusted correctly (see the Chapter "Castors"). In particular, do not travel on an incline without brakes, travel at a reduced speed. We recommend that novice users use anti-tip tubes.
 - Anti-tip tubes should prevent the chair tipping over backwards unintentionally. Under no circumstances should they take the place of transit wheels, and be used to transport a person in a wheelchair with the rear wheels removed.
 - When reaching for objects (which are in front of, to the side or behind the wheelchair) make sure that you do not lean too far out of the wheelchair, as if you change the centre of gravity there is a risk of tipping or rolling over. The hanging of additional load (back pack or similar items) onto your chair backposts can affect the rearward stability of your chair, especially when used in combination with recliner backrests. This can cause the chair to tip backwards causing injury.
 - Adjustments to your wheelchair, particularly to safety-related components must be carried out by an approved dealer. This applies to adjustments to wheel locks, anti-tip tubes, backrest angle and height, lower leg length, COG, lap belt, rear wheel toe-in and camber, seat height as well as toe-in and directional stability of the castor fork.
 - When using mobility accessories fitted to the wheelchair such as handbikes, electronic power assist, etc, make sure that your wheelchair is fitted with the appropriate castor forks, approved for this use. Please contact your dealer if you have any questions.
 - Do not fit any unauthorized electronic equipment, powered or mechanically operated mobility drives, hand-bike or any other device that changes the intended use or the structure of the wheelchair.
 - Any combination with other medical devices requires the approval of Sunrise Medical.
 - Please note that in certain configurations the wheelchair may exceed a width of 700 mm. If this is the case, under certain circumstances, it may not be possible to use some or all of the available escape routes from a building. It may be more difficult or impossible to travel on public transport.
 - Further information and safety instructions can be provided by your authorised dealer.
 - For thigh amputees you must use anti-tip tubes.
 - Before setting off, check that your tyre pressure is correct. For rear wheels it should be at least 3.5 bar (350 kPa). The max. pressure is indicated on the tyre. The knee-lever brakes will only work if there is sufficient tyre pressure and if the correct setting has been made (see the Chapter on "Brakes").
 - If the seat and back sling are damaged, you must replace them immediately.
 - Be careful with fire, in particular with burning cigarettes. Seat and back slings can be set alight.
 - If the wheelchair is subject to direct sunlight for a long period of time, then parts of the wheelchair (e.g. frame, legrests, brakes and sideguard) may become hot (>41°C).
 - Always make sure that the quick-release axles on the rear wheels are set properly and lock in. If the button on the quick-release axle is not pressed in, the rear wheel cannot be removed.
 - Your wheelchair may be carrying electrical current, so be careful when interacting with electrical sources.
 - When easing into the chair from a standing position, make sure not to use excessive force. This might lead to unnecessary wear and damage to the seat-upholstery and frame.
 - Always make sure that an attendant is adequately instructed and trained in handling and supporting an occupant in a wheelchair. As an attendant, always make sure:
 - To only use intended handles, such as push-handles or the frame-tubes. Never use the footrest, sideguards, wheels or parts of the upholstery as handle
 - that you have a safe stand and a good grip on the handles
 - not to lean on the push-handles, as this might tip the chair backwards
 - to always apply the wheel locks for transfers in order to prevent unintended movement of the wheelchair
 - to always apply the wheellocks when standing still in order to prevent unintended movement of the wheelchair
- As wheelchair-user, always make sure to advise an attendant accordingly.
- Please check wheelchair frame for potential damage after impacts or accidents.
 - When using a new wheelchair or after adjustments affecting the user's position in the wheelchair, frequently check the user's skin for redness or pressure marks.

 **WARNING!**

- The effect of the knee-lever brake as well as the general driving characteristics are dependent on tyre pressure. The wheelchair is significantly lighter and easier to manoeuvre when the rear wheels are pumped up correctly and both wheels have the same pressure.
- Make sure that your tyres have sufficient tread! Please note that you are subject to any and all traffic laws when driving in public traffic.
- Always be careful with your fingers when working or adjusting the wheelchair!

 **WARNING!**

CHOKING HAZARD – This mobility aid uses small parts which under certain circumstances may present a choking hazard to small children.

The wheelchairs shown and described in this user guide may not correspond in every detail exactly to your own model. However, all instructions are completely relevant, regardless of possible detail differences.

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2.0 Handling

Quick-release axles on rear wheel

The rear wheels are equipped with quick-release axles. The wheels can thus be installed or removed without using tools. To remove a wheel, simply depress the quick-release button on the axle (1) and pull it out (Fig. 2.1).



⚠ CAUTION!

Hold the quick-release button on the axle depressed when inserting the axle into the frame to mount the rear wheels. Release the button to lock the wheel in place. The quick-release button should snap back to its original position.

3.0 Transporting the wheelchair

Transporting the wheelchair

Removing the rear wheels will keep the wheelchair as compact as possible. The backrest can be folded by either pushing the push-bar upwards or rotating the Twist-lock handle (optional) clockwise



In this state the wheelchair can be lifted by the frame tubes and the seat sling. When transporting the unoccupied wheelchair in a vehicle, it should be tied down or strapped in.

4.0 Options

Step Tubes

Step Tubes

Step tubes are used by attendants to push a wheelchair over an obstacle. Simply step on the tube to push a wheelchair, for example, over a kerb or step.

⚠ WARNING!

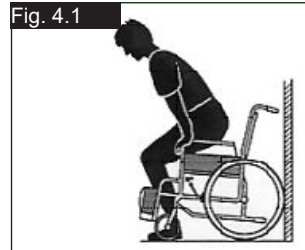
Sunrise Medical strongly recommends the use of a step tube on any model where attendant use is the predominant intended use. Damage to the backposts may occur if you constantly use the backpost without a step tube, as a lever to pull back on to tip the wheelchair.

Getting into your wheelchair on your own

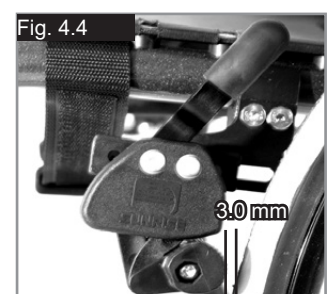
- Push the wheelchair to a wall or a solid piece of furniture
- Apply the brakes
- The user can lower themselves into the wheelchair
- Then position the feet in front of the heel straps (Fig. 4.1).

Getting out of your wheelchair on your own

- Apply the brakes
- With one hand on the wheel or side guard, the person should lean forwards slightly, to transfer the body weight to the front edge of the seat and then push up to an upright position with both feet firmly on the floor and one foot behind the other (Fig. 4.2).



Brakes



⚠ CAUTION!

Braking power can be affected by incorrect fitting and adjustment of the brakes, as well as tyre pressure which is too low.

Wheel Locks

Your wheelchair is equipped with two wheel locks. They are applied directly against the tyres. To engage, press both wheel lock levers forward against the stops. To release the locks, pull the levers back to their original positions.

Braking power will decrease with:

- Worn tyre tread
- Tyre pressure that is too low
- Wet tyres
- Improperly adjusted wheel locks.

Brakes

The wheel locks have not been designed to be used as brakes for a moving wheelchair. The wheel locks should therefore never be used to brake a moving wheelchair. Always use the handrims for braking. Make sure that the interval between the tyres and wheel locks complies with given specifications. To readjust, loosen screw and set the appropriate interval. Then re-tighten the screw, (Fig. 4.3 and 4.4).

⚠ CAUTION!

After each adjustment of the rear wheels, check the interval to the wheel locks and readjust if necessary.

Brake lever extension

The longer lever helps to minimize the effort needed to set the wheel locks.

The brake lever extension is screwed to the brakes. By raising this, it can be flipped forward (Fig. 4.5).

⚠ CAUTION!

Mounting the wheel lock too close towards the wheel will result in a higher effort to operate. This might cause the brake lever extension to break!

Leaning onto the brake lever extension while transferring will cause the lever to break! Splashing water from tires might cause the wheel lock to malfunction.

⚠ CAUTION!

Incorrect mounting of the wheel lock will result in a higher effort to operate. This might cause the wheel lock extension lever to break!

Compact Wheel Lock

Compact wheel locks are underneath the seat sling and are operated by pulling the wheel locks towards the rear, in the direction of the tyre. For the brakes to work properly, this must be pulled until it reaches the stops, (Fig. 4.6).

⚠ CAUTION!

The mounting bolts for the brakes must not be loosened and/or re-tightened.

The One-arm Wheel Lock

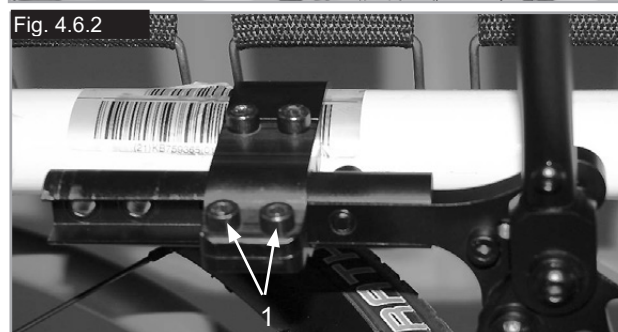
The one arm wheel lock is underneath the seat sling and is operated by pulling the brake lever, which is located on the left or right side, towards the rear, in the direction of the tyre. For the brakes to work properly, this must be pulled until it reaches the stop, (Fig. 4.6.1)

Adjustment

To adjust the brake, loose the screws (1) and mount the wheel lock where it will work in a proper way (Fig. 4.6.2).

⚠ CAUTION!

Incorrect mounting of the one arm wheel lock can lead to serious injury of the user and other people.



Suspension System

⚠ WARNING!

Rear suspension can affect the stability of the wheelchair. To avoid a fall, use a spotter and/or anti-tip tubes when becoming familiar with new equipment.

1. Tuning the 4-Link Rear Suspension

- to stiffen the suspension, turn the spring preload adjuster (E) clockwise (looking up at the suspension system from underneath the wheelchair).
- to soften the suspension, turn the spring preload adjuster (E) counter-clockwise (looking up at the suspension system from underneath the wheelchair).

2. Alignment of Suspension Link Arms

Do not adjust the link arms (F, Fig. 4.10). These are set at the factory to ensure proper tracking and performance of the 4-Link suspension system.

(see next page).

Setting the toe-in/toe-out to zero (using the factory fitted adjuster)

Loosen the Allen screws (G), (2 per side), that secure the axle tube on both sides. Observe the ball in the transparent adjuster in the centre of the axle tube, then turn the axle tube (C), until the ball is exactly centred at the lowest point of the adjuster. The toe is now set at zero (Fig. 4.7, 4.10).

Before re-tightening the screws (G), check that the flat surfaces of the camber adapter in the axle tube protrude outside the axle tube clamp. The end of the cylindrical camber adapter should be flush with the end of the axle tube. Tighten the screws to a torque of 7 Nm

Setting the toe-in/toe-out to zero (using a 90° setting gauge)

Place the entire wheelchair on a flat horizontal table or ground surface. Loosen the Allen screws (G) (2 per side) which hold the axle tube on both sides of the axle tube.

Then put the setting gauge at an angle of exactly 90° (e.g. a carpenter's square) on the flat surfaces of the camber adapter (D) (Fig. 4.8, Fig. 4.9). Then turn the axle tube until the wrench surfaces are exactly parallel to the upper surface of the setting gauge (Fig. 4.8).

Before re-tightening the screws (G), check that the flat surfaces of the camber adapter in the axle tube protrude outside the axle tube clamp. The end of the cylindrical camber adapter should be flush with the end of the axle tube. Tighten the screws to a torque of 7 Nm

⚠ CAUTION!

When turning the 4-Link Rear Suspension, make one change at a time and write down each change. This takes patience, but allows you to understand how each change affects the ride of the wheelchair in conjunction with rear suspension.

NOTE– The lower shock mount is designed to have a loose feel, this is by design to allow for proper suspension travel.

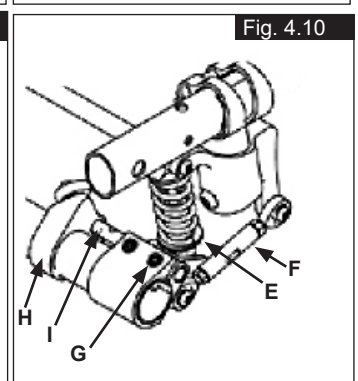
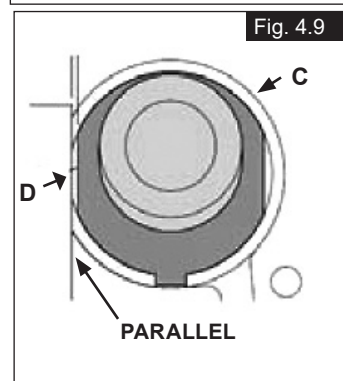
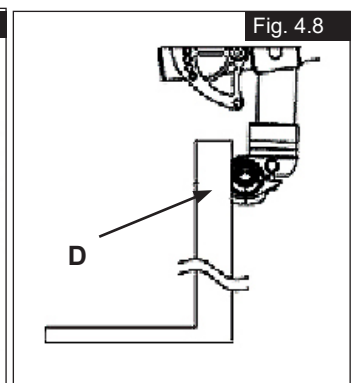
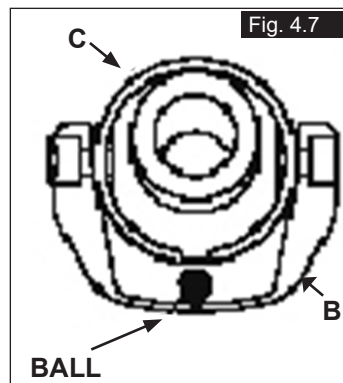
⚠ CAUTION!

Under no circumstances, loosen the screw connection between the axle clamp and the shock absorber.

3. Maintenance

The maintenance requirements listed below should be followed along with general wheelchair maintenance shown in Section 6.0.

- do not apply lubrication to shock end bushings or coils.
- you can apply lubrication to the link ends after cleaning with a mild soap and soft brush.
- use a soft brush to clear any dirt or debris from coil system.
- never use a high-powered washer for cleaning the 4-Link Rear Suspension.



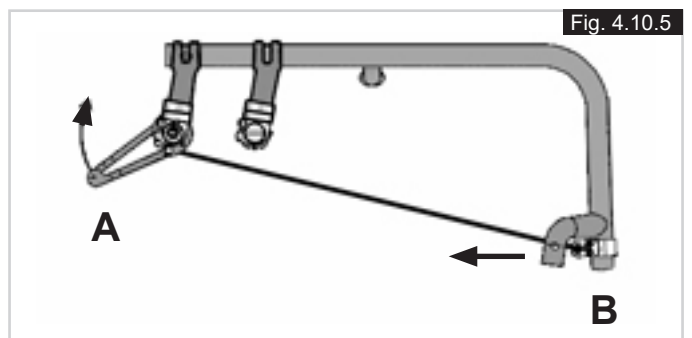
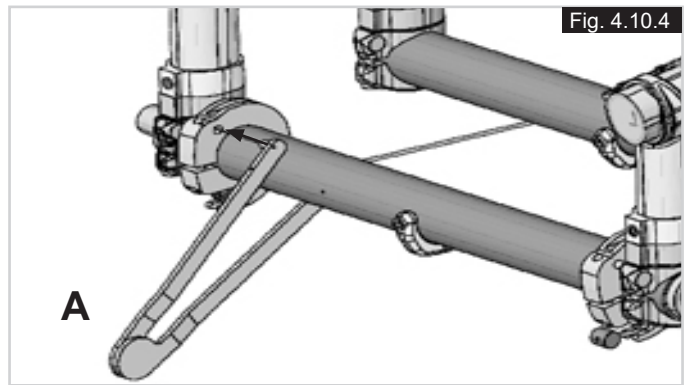
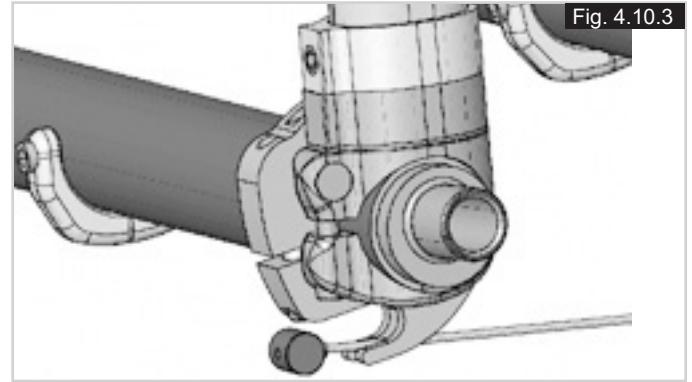
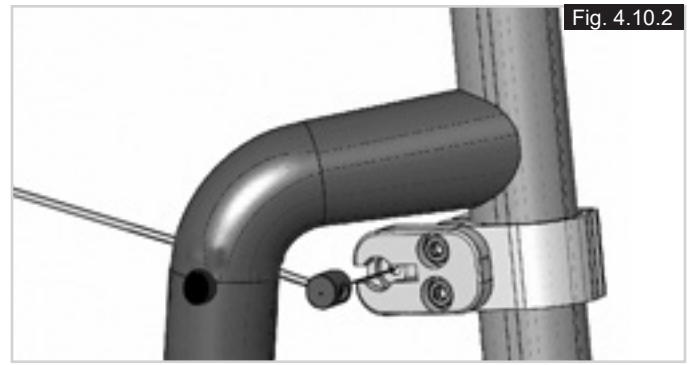
Hand-Bike Axle Adjustment

Hand-Bike-Axle

It is necessary to adjust the hand-bike axle to bias the centre of gravity rearwards. This allows safe use of a hand-bike accessory, (Fig. 4.10.1).

DANGER!

Using a hand-bike without the hand-bike axle makes the wheelchair unstable and can lead to serious injury of the user and other people.



Hand-Bike Reinforcement Kit

To assemble the hand-bike reinforcement kit:

- Insert the nipple at one end of the cable into the receptor at the front of the frame, (Fig. 4.10.2).
- Insert the nipple at the other end of the cable into the receptor at the rear of the frame, (Fig. 4.10.3).
- Insert the tensioner tool, (A), into the cable receptor at the rear of the frame, (Fig. 4.10.4).
- Move the tensioner tool, (A), upwards until the receptor and the front tube, (B), just starts to move towards the rear, (Fig. 4.10.5).
- Hold the cable under tension with the tensioner tool and tighten the screw on the rear cable receptor, (Fig. 4.10.5).
- Repeat the process for the other side.

WARNING!

The tension of both cables must be checked for tightness before and after each use of the hand-bike.

Nitrum centre of gravity setting

Remove the rear wheels. Undo both Allen screws (A) on the bottom of the axle stem (B) on both sides of the wheelchair, (Fig. 4.10.6). Then push the complete unit (axle and axle-stems) forwards on the frame, (in terms of the direction of travel), for a more active COG, or backwards for a more passive, stable COG. Then re-tighten the screws (A) on both sides to a torque of 5 Nm. Now adjust the side guards and brakes to the new wheel position.

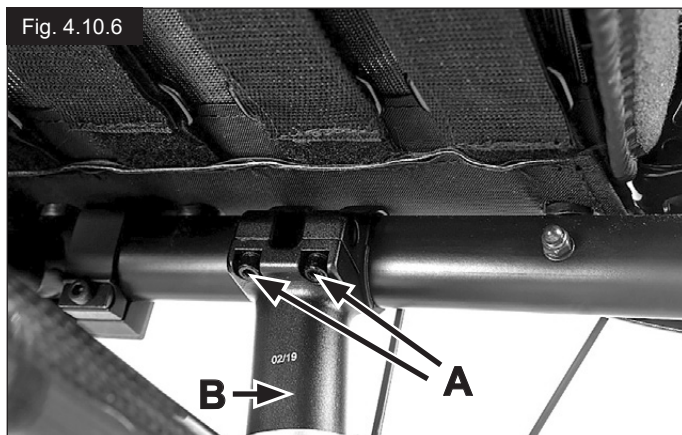
⚠ CAUTION!

Please note that the tipping behaviour of the wheelchair will change if the COG has been changed. This may mean that you need to use anti-tip tubes.

Only adjust the position of the COG within the markings on the frame tube.

⚠ DANGER!

The brakes must be adjusted to the new COG position.



Nitrum Hybrid centre of gravity setting

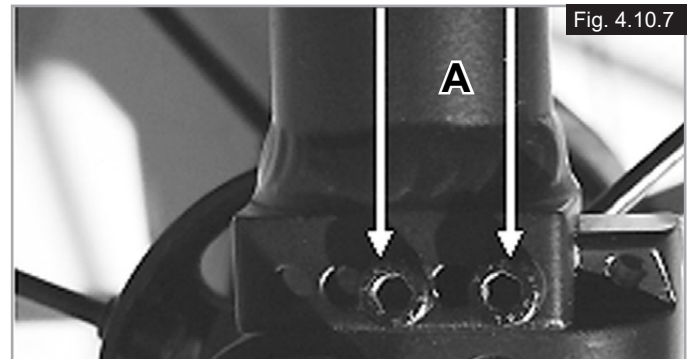
To adjust the centre of gravity (COG) remove the 2 screws, (A) and move the bracket into preferred position, (Fig. 4.10.7). Refit and tighten the screws (5 Nm).

⚠ CAUTION!

Please note that the tipping behaviour of the wheelchair will change if the COG has been changed. This may mean that you need to use anti-tip tubes.

⚠ DANGER!

The brakes must be adjusted to the new COG position.



Footplate Adjustment

Adjusting The Footrest

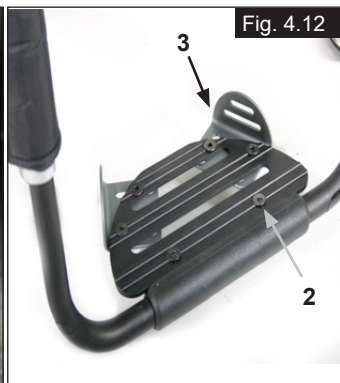
WARNING!

- Do not stand on the footboard! Even if the user is sitting in the chair, there is still a risk of tipping over and injury.
- When transferring, do not stand on the footboard, there is a risk of tipping over and injury.

Releasing the screw (1) will allow you to adjust the footrest to correspond to the length of your lower leg and re-attach the footrest. The angle of the footrest may be individually adjusted by loosening screws (2). The side protection (3) on the footrest prevents the feet slipping off accidentally. Make sure that after any adjustment work, all screws are tightened correctly (see the page on torque) (Fig. 4.11 - 4.12).

WARNING!

Always maintain a minimum of 30mm between the lowest part of the footrest and the floor.



High-mount footrest

The high-mount footrest is fitted on the inner part of the frame and permits a higher footrest position (Fig. 4.13).



Seat

Adjusting the seat height

To adjust the rear seat height release the Allen screws (1) (one on each side), that fix the clamp to the axle stem (2). Remove the spacer (3), to adjust the seat height by -10 mm or add the spacer to increase the seat height by 10 mm. Tighten the 2 Allen screws to 7 Nm. (Fig. 4.14).

NOTE:

An adjustment to the castor angle may be necessary when adjusting the rear seat height.

Seat Sling

To tighten the upholstery, please use the straps below the upholstery.



Castors

Castor, Castor adapter, Castor fork

From time to time the wheelchair may veer slightly to the right or left or the castors may flutter. This may be caused by the following:

- Forward and/or reverse wheel motion has not been set properly.
- The castor angle has not been adjusted properly.
- Castor and/or rear wheel air pressure is incorrect; wheels do not turn smoothly.

The optimum adjustment of the castors is required so that the wheelchair runs in a straight line. The castor plates must be re-adjusted, and the wheel locks must be checked every time the rear wheel position has been altered.

Adjusting the castor

Setting directional stability and fine-tune caster-height

These are works-settings and require special tools- please contact your dealer for support.

Adjusting the caster-fork angle

This adjustment is necessary when changing the front- or rear seat-height.

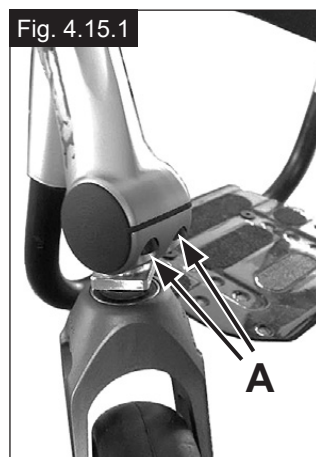
CAUTION:

Failure to adjust the correct angle can result in caster-flutter, locking caster wheels and injury of the user.

Loosen Allen screws (A) (Fig. 4.15.1). The caster-fork angle can now be adjusted to the correct position: the flat section of the fork must be positioned 90° to the ground (Fig. 4.15.2). Once you have set the correct position, then tighten the allen screws (A) using the following procedure:

Tighten the outer allen screw first to a torque of 7Nm, then tighten the inner allen screw to a torque of 7Nm.

Repeat this procedure up to 6 times until both allen screws are evenly tightened to a torque of 7Nm.



Anti-Flutter adjustment

Most caster-forks are equipped with an anti-flutter adjustment to suppress caster-flutter

Turning the set-screw (Fig. 4.16 - A) on the caster-fork clockwise using an allen-key, will put load on the bearing and reduce caster-flutter.

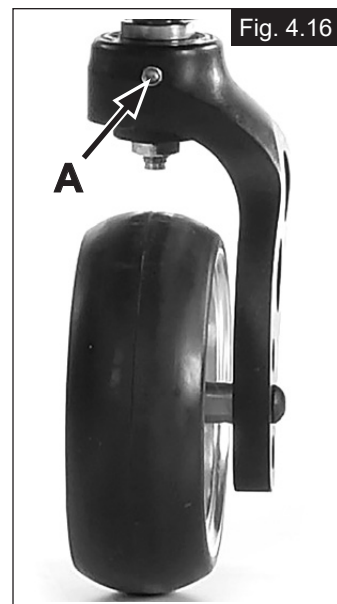
You might notice that the caster-fork does not spin freely but with a slight resistance. This has no effect on the driving behaviour of the wheelchair.

CAUTION:

When load on the bearing is released by turning the set-screw counter-clockwise, caster-wheels can be prone to flutter on medium or higher speeds. If you choose to conduct this adjustment, make yourself familiar with the driving-behaviour of the wheelchair.

DANGER:

Caster-flutter can cause a sudden lock of the caster-wheels on medium or higher speed, which can cause the user to fall out of the wheelchair.



Wheel Alignment

Adjusting the wheel alignment

Important: To achieve the very best movement, the rear wheels must be adjusted to their optimum position, which means correctly adjusting the wheel alignment.

To do this, measure the distance between both wheels front and rear to ensure that they are parallel to one another.

The difference between both measurements should not exceed 5 mm.

To adjust the wheels to make them parallel, loosen the screws and turn the axle sleeve accordingly. Make sure that after any adjustment work, all screws are tightened correctly (see the page on torque).

NITRUM tracking adjustment

Setting the toe-in/toe-out to zero

NOTE: A wheelchair with 0° camber cylinders cannot have toe-in or toe-out. This setting is necessary only with 3° and 6° camber cylinders.

The term "toe-in or toe-out" defines how well the rear wheels of the chair are aligned in relation to the ground. This determines how well the chair will run. Normal resistance or rolling resistance is present when toe-in is set to zero.

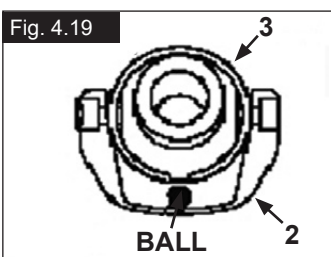
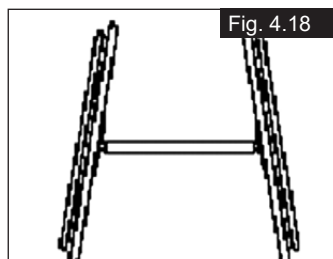
To set toe-in/toe-out to zero: Loosen the Allen screw (1) (one on each side), that secures the camber tube clamp. Check the ball in the horizontal (2) plane and turn the angle tube (3) until the ball is in the centre. Toe-in is now zero.

Before tightening the screws (1), check that the camber tube is centred left-to-right. The gap should be the same on both sides, or there should be no gap at all. Tighten the screws to 7 Nm. (Fig. 4.17 - 4.19).

Adjusting the rear wheelbase width:

The rear wheelbase is defined as the distance between the upper side of the rear wheels and the backrest tubes, and is represented by factory setting (125 mm). This has to be increased if a larger gap between the tyres and the optional height-adjustable armrests has to be created (Fig. 4.20).

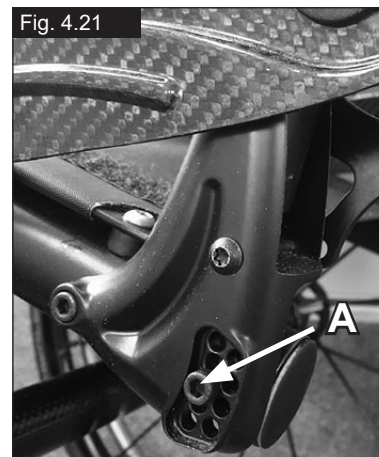
NOTE: When adjusting the rear wheelbase, adjust first one wheel then the other. If both sides are loosened at the same time, this will alter the toe-in/toe-out adjustment. To adjust the rear wheelbase, the parts of the camber (4) move telescopically into or out of the camber tube (5), and lock into place when they reach the end. Loosen screw (6) (located closest to the camber tube) on the left side of the chair. Move the axle receiver inwards or outwards to achieve the desired wheelbase. Tighten the screws to 7 Nm. Repeat this procedure on the right side of the chair and adjust the gap so that it is the same amount as on the left side.



Backrest

Angle-adjustable back

Remove allen screws (A) on both backrest tubes. Adjust angle within the hole-pattern (3° increment per hole), insert allen screws (A) on both sides and tighten to 5Nm (Fig. 4.21).



Folding backrest

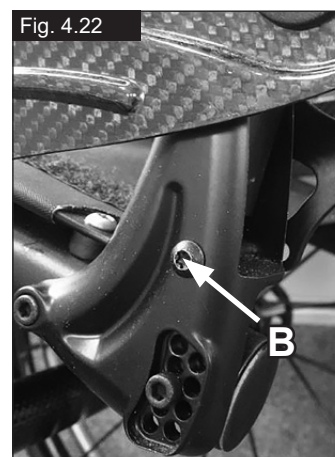
The backrest is foldable, two versions of the release mechanism are available:

- Pushbar- release: push the release bar upwards, hold the position and fold the backrest forward
- Twist-lock-release : rotate the handle on the crossbar forward, hold the position and fold backrest forward. The handle can only be rotated in the forward direction.

A double-locking option is available on the backrest- if the wheelchair is equipped with this option, the backrest will lock in the flat-folded position.

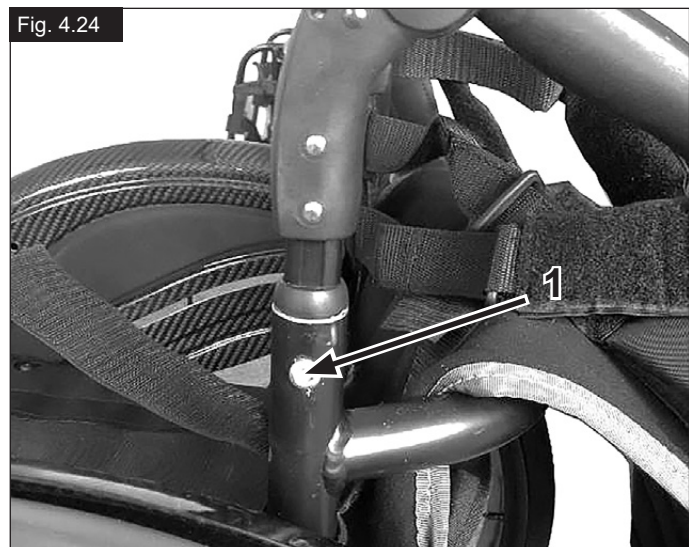
To unfold the backrest, either push the pushbar upwards or rotate the twist-lock handle forward.

The locking position (angle) of the folded backrest can be adjusted : remove allen-screw (B) on both sides (Fig. 4.22), set the desired locking angle by choosing the corresponding hole within the hole-pattern (C) (Fig. 4.23) and re-tighten allen screws (B) on both sides to 5Nm



Height-adjustable backrest

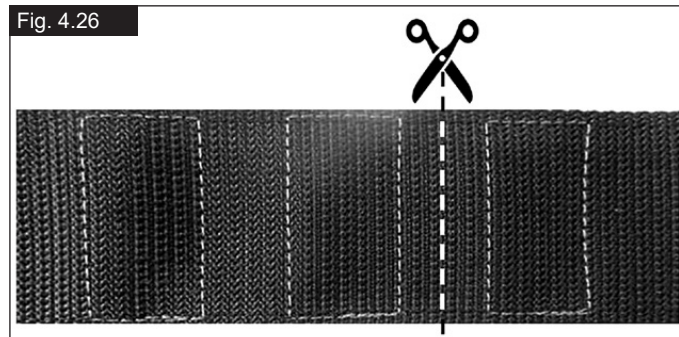
The backrest may be set to various back heights, in 25 mm increments. The adjustment ranges are 250 - 300 mm, 300 - 350 mm, 350 - 400 mm and 400 - 450 mm. Release the screw (1) and set the backrest to the desired height. Tighten up the screws again to 5Nm. (Fig. 4.24)



Adjusting the backrest upholstery

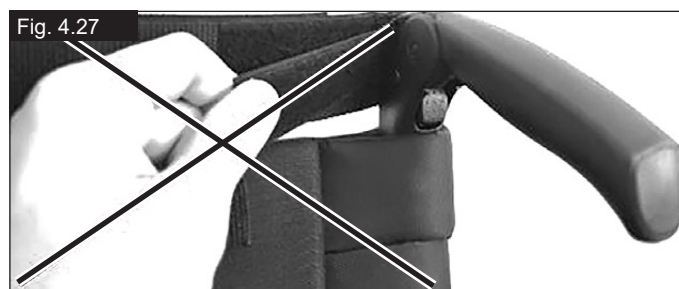
Adjust the tension of the backrest's top-belt

- Tear both velcroed halves of the top belt apart (Fig.4.25)
- Tension the top-belt or remove tension. Once the desired strain is set, velcro both halves back together
- In case of the top-belt laterally protruding over the push-handles, the belt can be cut to size with a pair of scissors. Cut the belt between the grey stitchings. The stitching will prevent the belt from fraying. Melt the cutting edge of the belt for additional fray-protection. (Fig.4.26)



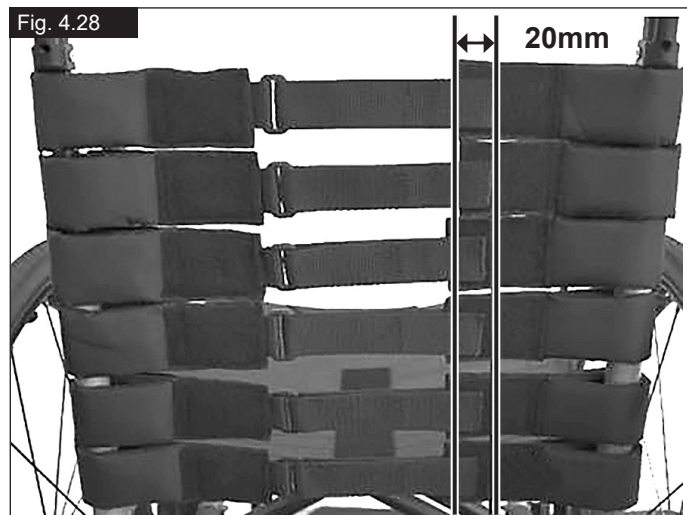
Note for wheelchairs with fold-down push-handles

Do not use the velcro-laces around the push-handles to set the strain of the belt (Fig.4.27). Those must be velcroed to the top-belt using their full length.



Adjust the tension of the backrest-belts

- Tension of the backrest-belts can be continuously adjusted using the velcro-laces
- Ex-works, the velcro-laces overlap by 20mm (Fig.4.28). This overlap allows you to adjust slack on the backrest-upholstery
- When further tensioning the belts, the ends can laterally protrude. In these cases, the belts can be cut to size with a pair of scissors. Cut the belt between the black stitchings. The stitching will prevent the belt from fraying, Melt the cutting edge of the belt for additional fray-protection.



⚠ CAUTION!

When folding the backrest down, please make sure that your fingers do not get caught.

⚠ CAUTION!

Please note that the tipping behaviour of the wheelchair will change if the backrest angle or backrest upholstery has been changed. This may mean that you need to use anti-tip tubes.

LED lights

The optional LED lights are mounted to the caster-links using an adhesive tape and an allen screw.

The control-Box (Fig. 4.29) is clipped to the calf-straps and can be removed for charging.

- **Switching the lights on:** by pushing the button **A** on top of the control-Box, you can cycle through operating-modes of the LEDs:

1. Full power mode
2. Low-power mode
3. Flash-mode
4. Off

Remove the control-box from the calf-strap:

Detach cables on the sides by gently pulling the pins out of the connectors (C). Now pull the control-box upwards to remove it from the calf-strap.

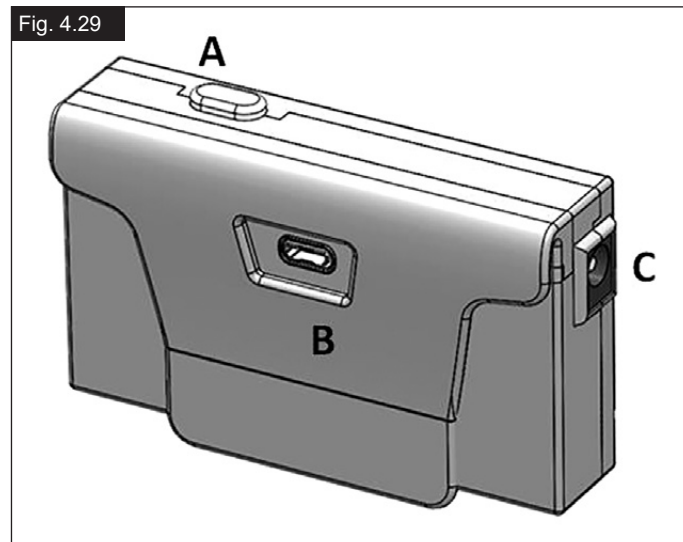
Charge the battery:

Connect the USB-cable to the connector (B) on the front-side of the control-Box. Use a standard USB-charger or your Computer's USB-port to charge the battery.

Battery-type	Lithium-Ion
Nominal capacity	2600mAh
Nominal voltage	3,6V
Charging-time	3hrs

Battery storage

Store the control box in a dry and cool environment within a temperature range between -10 to +50°Celsius.



⚠ CAUTION!

Never try to open the control box!
Avoid the ingress of liquids or dirt into the control box.

Freestyle Back

The Freestyle back can be adjusted in height, depth and angle to provide maximum comfort and support.

Height adjustment:

Remove the back cushion to gain access to the adjustment hardware. Loosen the 4 screws (1) using a 4 mm hex key and move the back shell up or down to the desired height. Tighten the screws to lock the adjustment and re-install the back cushion.

Fine Depth and Height adjustment

The Freestyle back adjustment system provides a maximum of 25 mm fine depth combined with a fine height adjustment. Loosen the screws (2) using a 8 mm hex key and rotate the back shell to the desired position. Tighten the screws with 20 Nm to lock the adjustment.

Angle adjustment

The Freestyle back adjustment system allows the adjustment of the backrest angle. Loosen the screws (3) using a 8 mm hex key and rotate the back shell to the desired position. Tighten the screws with 20 Nm to lock the adjustment.

In case some attendant support is required the removable push handles can be screwed into position A.

⚠ WARNING!

Always make sure that the push handles are screwed in completely.

⚠ WARNING!

The Freestyle back is not approved for using the wheelchair as a seat in a car during transport.

Sideguards

Single Post Height-Adjustable Armrests (Fig. 4.34 - 4.37).

1. Assembly

- a. slide the outer armrest into the receiver mounted to the wheelchair frame.
- b. the armrest will automatically lock into place.

2. Height adjustment

- a. rotate height release lever (2) to second stop.
- b. slide armrest pad up or down to desired height.
- c. return lever to locked position against arm post.
- d. push arm pad (4) until upper arm post locks firmly into place.

3. Removing the armrest

- a. pull lever 3 and lift entire arm.

4. Replacing Armrest

- a. slide armrest back into receiver until arm latches in place.

Armrest Receiver Attachment

(Fig. 4.34 - 4.37).

Adjusting Armrest Receiver Fit

To tighten or loosen the fit of the outer armrest in the receiver:

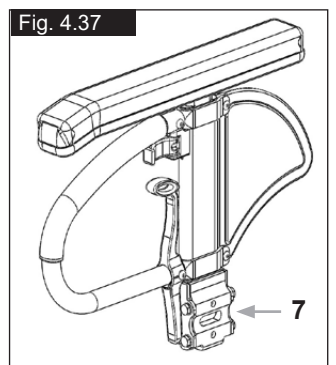
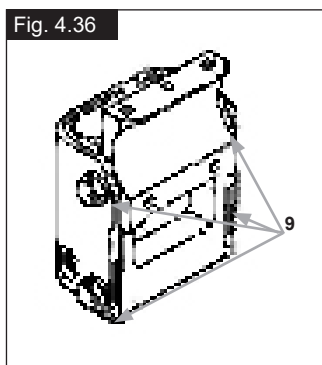
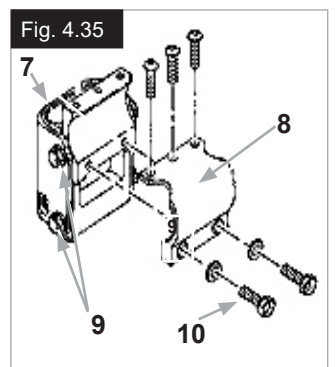
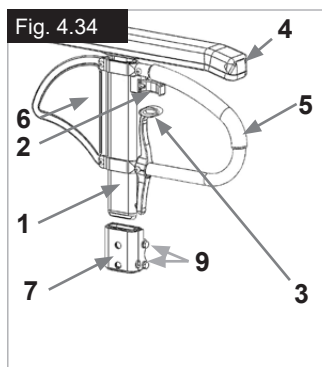
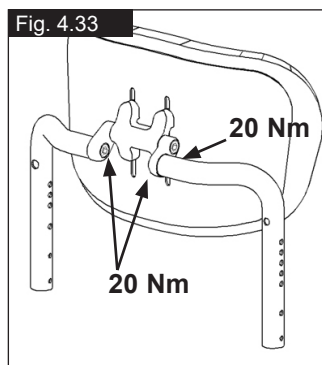
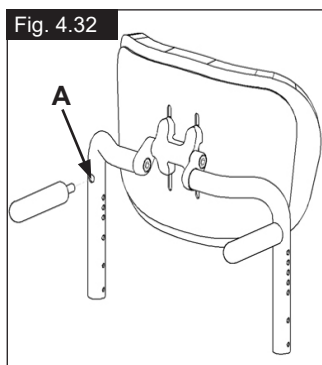
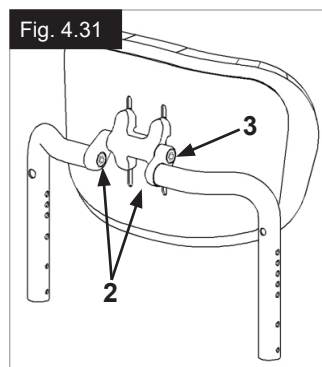
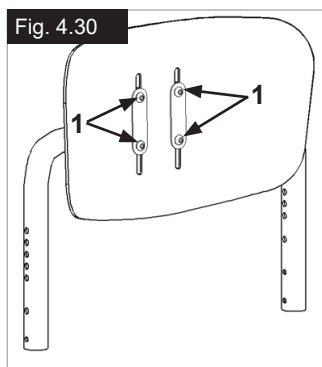
1. Loosen the four receiver adjustment bolts (9) on the sides of the receiver.
2. With the armrest in the receiver (7), squeeze the receiver to achieve the desired fit.
3. Tighten the four bolts (9). (16.3 Nm)

Position Adjustment

1. Loosen the two clamp bolts (10) until clamp is loose.
2. Slide armrest receiver to desired position.
3. Tighten

Fig. 4.34 - 4.37 Parts key

1. Outer armrest	6. Sideguard
2. Height Release Lever	7. Receiver
3. Release lever	8. Clamp
4. Armrest Pad	9. Receiver adjustment bolts
5. Transfer bar	10. Clamp bolts



Central support

Installation: Slide the arm post into the receiver, located on the wheelchair frame, until it stops

Height adjustment:

Slide the armrest post out of the receiver.

Adjust the position of the height adjustment bracket (1) by removing the screw (2) and moving it to the desired position. Re-fit the screw and tighten it.

Slide the arm rest post back into the receiver, (Fig. 4.37.1).

Armpad Position:

The armpad position can be adjusted by releasing the screws (3), then moving the arm pad to the desired position. Re-tighten the screws, (Fig. 4.37.1).

Adjusting Armrest Receiver

The tightness of the armrest receiver can be adjusted (tightened /loosened) by means of the 2 screws (1) - (Fig. 4.37.2).



WARNING!

Always make sure that the armrests are properly locked after height-adjustments.



WARNING!

Do not use the armrest to push up or for transfers.

Push handle

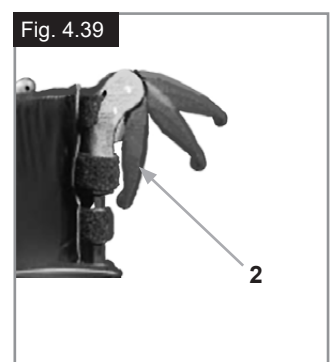
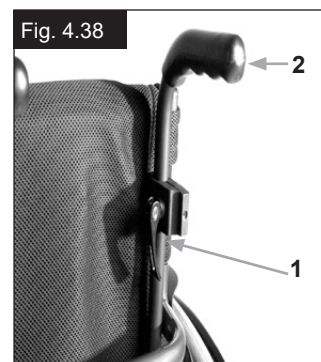
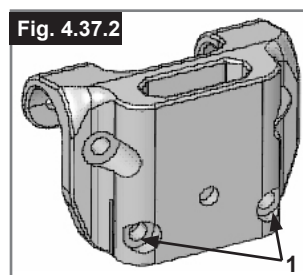
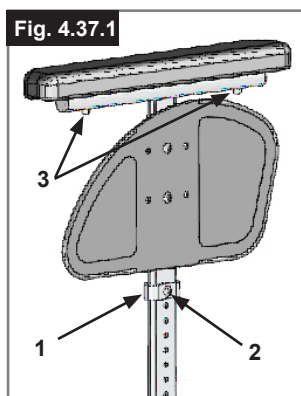
Height-adjustable push handles

These handles are secured with pins to prevent them from sliding out unintentionally. Opening the quick-release lever (1) makes it possible to adjust the height of the push handles (2) to meet your individual needs. As you move the lever, you will hear a locking mechanism; you may now easily position the push handle as desired. The nut on the tension lever determines how tightly the push handles are clamped into place. If the nut is loose after adjusting the tension lever, the push handle will also be too loose. Turn the push handle from side to side before use to make sure that it is clamped securely enough into place. After adjusting handle height, always clamp the tension lever (1) securely into place. If the lever is not secure, injuries could result when ascending stairs. (Fig. 4.38).

NOTE – If the height-adjustable push handles are not fitted properly, there is a risk that these will develop "play" or that they move out of position. Please make sure that the relevant screws are tightened correctly.

Folding push-handles

If the push handles are not in use, they can be folded down by depressing the button (2). When they are needed again, simply flip them back up until they click into place. (Fig. 4.39).



Anti-tip tubes

WARNING!

Sunrise Medical recommends anti-tip tubes for all chairs. When fitting anti-tip tubes, use a torque of 7 Nm.

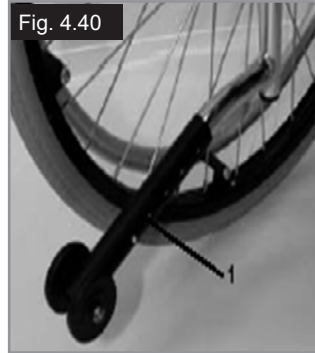
1. Slotting the anti-tip tubes into the clamp:

- press the rear button on the anti-tip tube on the anti-tip tube adaptor, so that both release pins are drawn inwards.
- slot the anti-tip tubes (1) into the anti-tip tube adapter.
- turn the anti-tip tubes downwards until the release pin locks into the clamp.
- fit the second anti-tip tube in the same way.

2. Adjusting Anti-Tip Tubes

To achieve the correct ground clearance of approx. 1" to 2" (25 mm to 50 mm), the anti-tip tubes must be raised or lowered.

Press the anti-tip tube release button, so that both release pins are drawn inwards. Move the inner tube up or down to slot into the height holes provided. Release the button. Fit the second anti-tip tube in the same way. Both wheels should be at the same height. (Fig. 4.40).



DANGER!

Sunrise Medical Recommends Use Of Anti-Tip Tubes:
If the anti-tip tubes are not fitted, or have been fitted incorrectly, there is a risk of tipping over and of injury.

Active Anti-Tip tube/Flip Up

The active anti-tip tube is mounted on the left or right side of the axle tube. By pushing it towards the axle tube, it can be flipped downwards for operation, (Fig. 4.40.1).

WARNING!

Make sure that the anti-tip tube will lock in the final position. An unlocked active anti-tip tube can lead to serious injury of the user.



Active Anti-Tip tubes For Sport

To remove the active anti-tip tubes for sport, press the button of the quick release pin and pull it out. Now pull out the tube from the anti-tip receiver, (4.40.2 - 4.40.3).

Fig. 4.40.2



Fig. 4.40.3



Crutch Holder

Crutch Holder

This device permits crutches to be transported directly on a wheelchair. It has a Velcro loop to fasten crutches or other aids.

CAUTION!

Never try to use or even remove the crutches or other aids while moving.

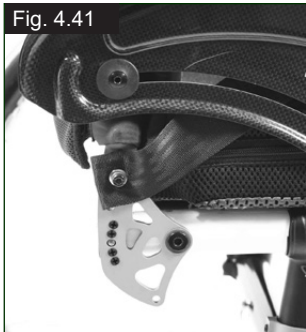
Pelvic Restraint Belt

DANGER!



- Before using your wheelchair ensure the lap belt is worn.
- The lap belt must be checked on a daily basis to ensure it is free from any obstruction or adverse wear.
- Always make sure that the lap strap is correctly secured and adjusted prior to use. If the strap is too loose it could cause the user to slip down and risk suffocation or cause serious injury.

The lap belt is fitted to the wheelchair as shown in the illustrations. The seat belt comprises 2 halves. They are fitted using the existing seat stay retaining bolt fitted through the eyelet on the belt. The belt is routed under the rear of the side panel. (Fig. 4.41)

Adjust the belt position so buckles are in the centre of the seat. (Fig. 4.42)

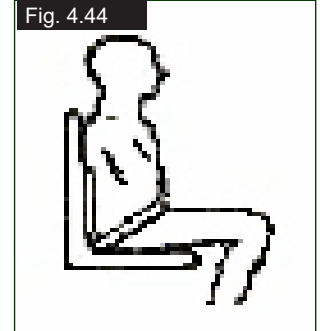
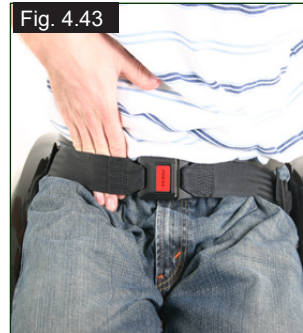


Adjust lap belt to suit the user's needs as follows:

To reduce the belt length	To increase the belt length
	
<p>Feed free belt back through male buckle and slide adjusters. Ensure belt is not looped at male buckle.</p>	<p>Feed free belt through side adjusters and male buckle to provide more belt length.</p>

When fastened check space between the pelvic restraint belt and user. When correctly adjusted it should not be possible to insert more than the flat of the hand between the lap belt and the user. (Fig. 4.43)

The lap belt should be fixed so that the belt sits at an angle of 45 degrees across the user's pelvis. The user should be upright and be as far back as possible in the seat when correctly adjusted. The lap belt should not allow the user to slip down in the seat. (Fig. 4.44)



To fasten buckle:
Firmly push male buckle into female buckle.

To release belt:
Press exposed sides of male buckle and push towards centre whilst gently pulling apart.

WARNING!

- If in doubt about the use and operation of the lap belt then ask your healthcare professional, wheelchair dealer, carer or attendant for assistance.
- If you want to retrofit a lap belt, then please contact your authorised Sunrise Medical dealer.
- The lap belt must be checked on a daily basis to ensure it is adjusted correctly and free from any obstruction or adverse wear.
- Sunrise Medical does not encourage the transportation of any person in a vehicle using this lap belt as a method of restraint.



Please see Sunrise Medical transit booklet for further advice on transportation.

Maintenance:

Check lap belt and securing components at regular intervals for any sign of fraying or damage. Replace if necessary.

WARNING

The lap belt should be adjusted to suit the end user as detailed above. Sunrise Medical recommends that the length and fit of the belt be checked on a regular basis to reduce the risk of the end user inadvertently re-adjusting the belt to an excessive length.

5.0 Tyres and Mounting

Solid rubber tyres are standard.

With pneumatic tyres always make sure that the tyres have the correct air pressure, as otherwise the performance of the wheelchair may be affected. If the tyre pressure is too low, rolling resistance will increase, requiring more effort to move the chair forward. Low tyre pressure also has a negative impact on manoeuvrability. If the tyre pressure is too high, the tyre could burst. The correct pressure for a given tyre is printed on the surface of the tyre itself.

Tyres can be mounted the same way as an ordinary bicycle tyre. Before installing a new inner tube, you should always make sure that the base of the rim and the interior of the tyre are free of foreign objects and that the rim-strip covers all holes. Check the pressure after mounting or repairing a tyre.

It is critical to your safety and to the wheelchair's performance that regulation air pressure be maintained and that tyres are in good condition.

6.0 Maintenance and care

- Check the tyre pressure every 4 weeks. Check all tyres for wear and damage.
- Check the brakes approximately every 4 weeks to make sure that they are working properly and are easy to use.
- Change tyres as you would an ordinary bicycle tyre.
- All of the joints that are critical to using your wheelchair safely are self-locking nuts. Please check every three months to make sure that all bolts are secure (see the section on torque). Safety nuts should only be used once and should be replaced after use.
- Please use only mild household cleansers when your wheelchair is dirty. Use only soap and water when cleaning the seat upholstery.
- You should only use genuine parts approved by Sunrise Medical. Do not use parts from other manufacturers, that have not been by authorised by Sunrise Medical.
- If your wheelchair should ever get wet, please dry it afterwards.
- A small amount of sewing-machine oil should be applied to quick-release axles approximately every 8 weeks. Depending on the frequency and type of use, we recommend taking your wheelchair to your authorised dealer every 6 months to have it inspected by trained personnel.
- If you want to store the wheelchair for a long period of time, then no further measures are required. Make sure that the wheelchair is stored at room temperature in a dry place which is protected from strong sunlight. Before using it again, the wheelchair should be checked by an authorised dealer.

CAUTION!

Sand and sea water (or salt in the winter) can damage the bearings of the front and rear wheels. Clean the wheelchair thoroughly after exposure.

The following parts can be removed and sent back to the manufacturer/dealer for repair:

- Rear wheels
- Armrest
- Anti-Tip tubes

These components are available as spare parts. For further information, please see the spare parts catalogue.

Hygiene measures when being re-used:

Prior to the wheelchair being re-used, it must be carefully prepared. All surfaces which come into contact with the user must be treated with a disinfection spray.

To do this, you must use a disinfectant as authorised/recommended in your country, for rapid alcohol-based disinfection for medical products and medical devices, which must be disinfected quickly.

Please be aware of the manufacturer's instructions for the disinfectant you are using.

In general, a complete disinfection cannot be guaranteed on seams. We therefore recommend that you dispose of seat and back slings to avoid micro-bacterial contamination with active agents according to your local infection protection law.

CAUTION!

- Excessive use of chemical or use of incorrect chemicals can lead to corrosion or degradation of materials used
- Body-fluids can lead to corrosion or degradation of materials used. Make sure to clean and disinfect all parts of the wheelchair after contact with body-fluids.

7.0 Disposal / Recycling of Materials

If the wheelchair has been made available to you free of charge, then it does not belong to you. If it is no longer required, then follow the instructions to return it as given by the organisation that made the wheelchair available to you. In the following section, there is a description of the materials used on the wheelchair, in view of the disposal or recycling of the wheelchair and its packaging.

Particular regulations with regard to disposal or recycling may be in force locally and these must be taken into account when performing disposal. (This can include the cleaning or decontamination of the wheelchair prior to disposal).

Aluminium: Castor forks, wheels, sideguards for the chassis, armrest frame, footrest, push handles

Steel: Fixing points, quick-release axle

Plastic: Handgrips, tube plugs, castor wheels, footplates, armpads and 12" wheel/tyre

Packaging: Plastic bags made of soft polyethylene, cardboard

Upholstery: Woven polyester with PVC coatings and expanded combustion modified foam.

Disposal or recycling should be done through a licensed agent or authorised place of disposal. Alternatively your wheelchair may be returned to your dealer for disposal.

Battery for LED Lights: Lithium Ion battery (hazardous product)

Electrical and electronic equipment need to be disposed of separately to general household waste at specific state-provided locations. The correct disposal and separate collection of used appliances serves to prevent potential damage to health and the environment. It is a requirement for the re-utilisation and recycling of used electrical and electronic equipment. Detailed information on the disposal of your used equipment can be obtained from your local authority, your waste disposal service, the specialist dealer from which you purchased the product, or your sales contact.



8.0 Trouble-shooting

Wheelchair pulls to one side

- Check tyre pressure
- Check to make sure wheel turns easily (bearings, axle)
- Check the castor angle
- Check to make sure both castors are making proper contact with the ground.

Castors begin to wobble

- Check the castor angle
- Check to make sure all bolts are secure; tighten if necessary (see the section on torque)
- Check to make sure both castors are making proper contact with the ground.

Wheelchair / Cross-tube assembly does not snap into position in the seat saddle

- Chair is still new, i.e., the seat or backrest upholstery is still very stiff. This will improve with time.

Wheelchair is difficult to fold up:

- Adjustable backrest upholstery is too stiff. Loosen it accordingly.

Wheelchair squeaks and rattles

- Check to make sure all bolts are secure; tighten if necessary (see the section on torque)
- Apply small amount of lubrication to spots where movable parts come into contact with one another

Wheelchair begins to wobble

- Check angle at which castors are set
- Check tyre pressure
- Check to see if rear wheels are adjusted differently.

9.0 Transportation

DANGER!

There is a risk of serious injury or death if this advice is ignored!

Transportation of your wheelchair within a vehicle:

A wheelchair secured in a vehicle will not provide the equivalent level of safety and security as a vehicle seating system. We recommend that the user transfers to the vehicle seating. It is recognised that this is not always practical for the user to be transferred and in these circumstances where the user must be transported whilst in the wheelchair the following advice should be followed:

DANGER!

- Confirm that your chair is crashtest suitable (see nameplate or crashtest bracket at the rear of the chair (Fig. I))
- Confirm that the vehicle is suitably equipped to transport a passenger in a wheelchair, and ensure the method of access/egress is suitable for your wheelchair type. The vehicle should have the floor strength to take the combined weight of the user, the wheelchair and accessories.
- Sufficient space should be available around the wheelchair to enable clear access to attach, tighten and release the wheelchair and occupant tie down restraints and safety belts.
- The occupied wheelchair must be located in a forward facing position and secured by the wheelchair tie down and occupant restraint straps (WTORS tie downs meeting the requirements of ISO 10542 Part 2 or SAE J2249) in accordance with the WTORS manufacturer's instructions.
- The wheelchair's use in other positions within a vehicle has not been tested e.g. transportation in a side facing position must not be carried out under any circumstances (Fig. A).
- The wheelchair should be secured by a Tie Down Restraint system, conforming to ISO 10542 or SAE J2249 with non-adjustable front straps and adjustable rear straps, which typically use Karabiner clips/S hooks and tongue and buckle fittings. These restraints generally comprise of 4 individual straps that are attached to each corner of the wheelchair.

- The tie-down restraints should be fitted to the main frame of the wheelchair as indicated in the diagram on the following page, and not to any attachments or accessories, e.g. not around the spokes of wheels, brakes or footrests.
- The tie-down restraints should be attached as close as possible at an angle of 45 degrees and tightened securely in accordance with the manufacturer's instructions.
- Alterations or substitutions must not be made to the wheelchair tie down points or to structural and frame or components without consulting the manufacturer. Failure to do so will invalidate the ability of a Sunrise Medical wheelchair to be transported within a vehicle.
- Both pelvic and upper torso restraint belts must be used to restrain the occupant to reduce the possibility of head and chest impacts with the vehicle components and serious risk of injury to the user and other vehicle occupants. (Fig. B) The upper torso restraint belt should be mounted to the vehicle "B" pillar - failure to do so will increase the risk of serious abdominal injuries to the user.
- A head restraint suitable for transportation (see label on headrest) must be fitted and suitably positioned at all times during transportation.
- Postural supports (lap straps, lap belts) should not be used or relied on for occupant restraint in a moving vehicle unless they are labelled as meeting the requirements specified in ISO 7176-19 or SAE J2249.
- The safety of the user during transportation depends upon the diligence of the person securing the tie-down restraints and they should have received appropriate instructions and/or training in their use.
- Wherever possible remove and stow safely away from the wheelchair all auxiliary equipment, for example:
 - Crutches, Loose cushions and Tray Tables.
 - Articulating/elevating legrest should not be used in the elevated position when the wheelchair and user are being transported and the wheelchair is restrained using Wheelchair Transport and Occupant Restraints.
 - Reclining backrests should be returned to an upright position.
 - The manual brakes must be firmly applied.
- Restraints should be mounted to the vehicle "B" pillar and should not be held away from the body by wheelchair components such as armrest or wheels.

Fig. A

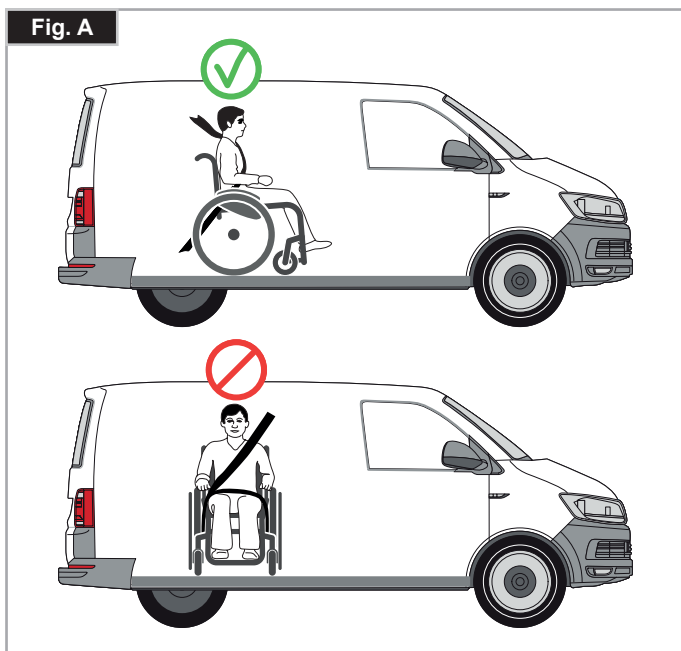


Fig. B



Occupant Restraints Instruction:

1. The pelvic restraint belt must be worn low across the front of the pelvis so that the angle of the pelvic belt is within the preferred zone of 30 to 75 degrees to the horizontal. A steeper (greater) angle within the preferred zone is desirable i.e. closer to, but never exceeding 75°. (Fig. C)

2. The upper torso restraint belt must fit over the shoulder and across the chest as illustrated Fig. D and E.

Restraint belts must be adjusted as tightly as possible consistent with user comfort.

Restraint belt webbing must not be twisted when in use.

The upper torso restraint belt must fit over the shoulder and across the shoulder as illustrated in Fig. D and E.

3. The attachment points to the chair are the inner front side frame just above the castor, and the rear side frame. The straps are fitted around the side frames at the intersection of the horizontal and vertical frame tubes. (See Figs G-H-I)

4. The tie down symbol (Fig. F) on the wheelchair frame indicates the position of the wheelchair restraint straps. The straps are then tensioned after the front straps have been fitted to secure the wheelchair.

USER WEIGHT LESS THAN 22 kg

When the user being transported is a child, less than 22 kg mass and the vehicle involved has less than eight (8) seated passengers it is recommended that they be transferred to an UNCE Regulation 44 compliant child restraint system (CRS).

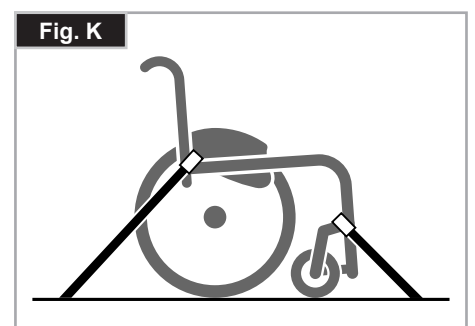
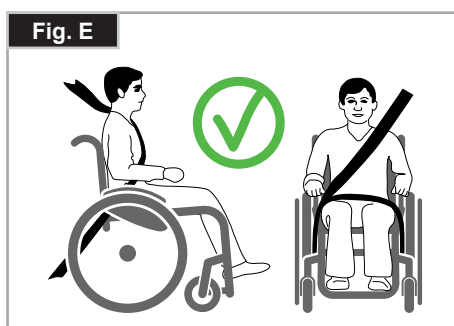
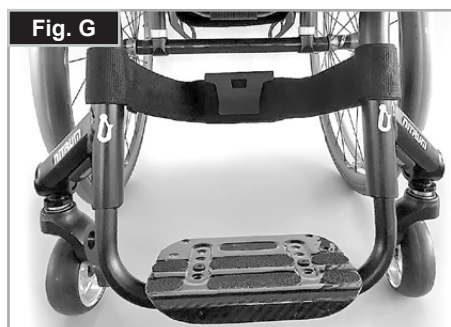
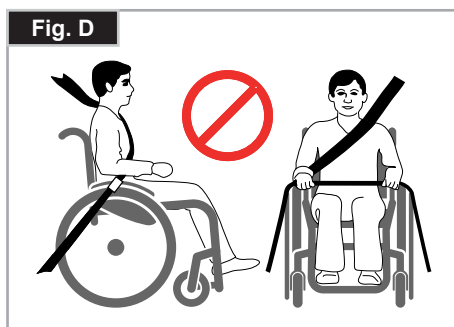
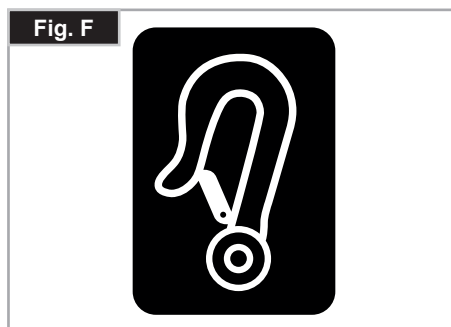
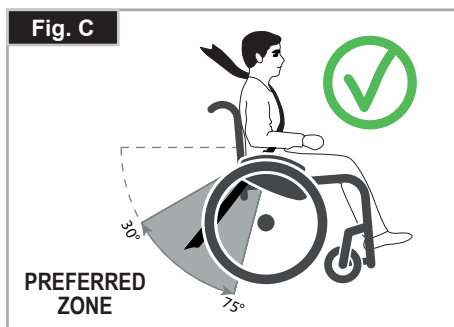
This type of restraint system provides a more effective occupant restraint system than the conventional 3 point occupant restraint system and some CRS systems also include additional postural supports to assist in maintaining the position of the child when seated.

Parents or care providers may consider the option, in some circumstances, for their child is to remain in their wheelchair whilst in transport due to the level of posture control and comfort provided by the set up in the wheelchair.

We would recommend in such circumstances that a risk assessment be carried out by your attendant and relevant competent persons.

Positioning of wheelchair tie down restraints on wheelchair:

1. Location of the front and rear tie down labels (Fig. G - H).
2. Position of the front, (Fig. I) and rear, (Fig. J), wheelchair tie down restraint and the tie down label.
3. Side view of tie down straps, (Fig. K).



10.0 Nameplate

Name Plate

The nameplate is located on either the cross-tube assembly or the transverse frame tube, as well as on a label in the owner's manual. The nameplate indicates the exact model designation and other technical specifications. Please provide the following pieces of information whenever you have to order replacement parts or to file a claim:

- Serial number
- Order number
- Month/Year

SAMPLE

	Sunrise Medical GmbH Kahlbachring 2-4 D-69254 Malsch / Germany		2021-05-03
TYPE:	Rollstuhl	SN	203211733451915
Nitrum	ISO 7176-19:2008		
125 kg	max 10°	420 mm	460 mm
			MD

	Sunrise Medical GmbH Kahlbachring 2-4 D-69254 Malsch / Germany		2021-05-03
TYPE:	Rollstuhl	SN	203211733451912
Nitrum Hybrid	ISO 7176-19:2008		
140 kg	max 10°	420 mm	440 mm
			MD

		Sunrise Medical Limited Thorns Road, Brierley Hill West Midlands, DY5 2LD UNITED KINGDOM
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TYPE:	Product Name/SKU Number.
	Maximum safe slope with anti-tip tubes fitted, Depends on wheelchair setting, posture and physical capabilities of the user.
	Seat width.
	Seat depth.
	Load Maximum.
	UKCA Mark.
	CE Mark.
	Consult instructions for use.
	xxxx-xx-xx Date of manufacture.
	Serial number.
	This symbol means Medical Device.
	Manufacturer's address.
	Crash tested according to ISO 7176-19:2008.
	Importer's address
	UK Responsible Person
	Swiss Representative's address



ISO 7010-M002
Instruction manual/booklet must be read! (Blue Icon)

11.0 Warranty

THIS GUARANTEE DOES NOT AFFECT YOUR LEGAL RIGHTS IN ANY WAY.

Sunrise Medical* provides a guarantee, as set out in the warranty conditions, for wheelchairs to its customers covering the following.

Warranty conditions:

1. Should a part or parts of the wheelchair require repair or replacement as a result of a manufacturing and/or material fault within 24 months or for frame and cross-braces within 5 years after delivery to the customer, then the affected part or parts will be repaired or replaced free of charge. The warranty will only cover manufacturing defects
2. To enforce the warranty, please contact the supplier of your wheelchair – e.g. the Sunrise Medical Approved dealership or Healthcare provider with the exact details of the nature of the difficulty. Should you be using the wheelchair outside the area covered by the Sunrise Medical customer service agent, repairs or replacement will be carried out by another agency as designated by the manufacturer. The wheelchair must be repaired by a Sunrise Medical designated Customer Service agent, (dealer).
3. For parts, which have been repaired or exchanged within the scope of this warranty, we provide a warranty in accordance with these warranty conditions for the remaining warranty period for the wheelchair in accordance with point 1).
4. For original spare parts which have been fitted at the customer's expense, these will have a 12 months guarantee, (following the fitting), in accordance with these warranty conditions.
5. Claims from this warranty shall not arise, if a repair or replacement of a wheelchair or a part is required for the following reasons:
 - a. Normal wear and tear, which include batteries, armrest pads, upholstery, tyres, brakes shoes, etc.
 - b. Any overloading of the product, please check the EC label for maximum user weight.
 - c. The product or part has not been maintained or serviced in accordance with the manufacturer's recommendations as shown in the user instructions and/or the service instructions.
 - d. Accessories have been used which are not specified as original accessories.
 - e. The wheelchair or part having been damaged by neglect, accident or improper use.
 - f. Changes/modifications have been made to the wheelchair or parts, which deviate from the manufacturer's specifications.
 - g. Repairs have been carried out, before our Customer Service has been informed of the circumstances.
6. This guarantee is subject to the law of the country in which the product was purchased from Sunrise Medical*

* Means the Sunrise Medical facility from which the product was purchased.

Additional Notes For Australia Only:

- i. For goods provided by Sunrise medical Pty Ltd in Australia, our goods come with a guarantee by Sunrise Medical that cannot be excluded under Australian Consumer Law.
- ii. You are entitled to a replacement or refund for a major failure and for compensation for any foreseeable loss or damage.
- iii. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
- iv. The benefits to you given by this warranty are in addition to your other rights and remedies under a law in relation to the goods to which the warranty relates.

12.0 Technical Data

Total width:

With 25" standard wheels, incl. handrims with 6° camber: SW + 300 mm

Overall length: 930 mm with SD 500

Total height: 950 mm with BH 450

Weight in kg: from 6.5 kg

Maximum load:

Nitrum 125 kg (140kg with optional Hybrid frame).

Seat heights:

The choice of frames, forks and castors, as well as the rear wheel size (24", 25") determines the seat heights which can be achieved.

Norm		Min.	Max.	Norm		Min.	Max.
	Overall length with footrest	770 mm	930 mm		Seat surface angle	0°	16°
	Overall Width	490 mm	860 mm		Effective seat depth	340 mm	500 mm
	Folded length	N/A	N/A		Effective seat width	320 mm	500 mm
	Folded width	N/A	N/A		Seat surface height at front edge	430 mm	570 mm
	Folded Height	N/A	N/A		Backrest angle	59°	105°
	Total Mass	6.5 kg	13.0 kg		Backrest height	250 mm	450 mm
	Slope for the use of the wheel locks	0°	7°		Turning radius		700 mm
	Mass of the heaviest part	-	2.1 kg with 24" rear wheel *		Distance from the footrest to the seat	220 mm	520 mm
	Static stability downhill	10°	10°		Angle from leg to seat	88°	100°
	Static stability uphill with anti-tip tubes	10°	10°		Distance from the armrest to the seat	N/A	N/A
	Static stability sideways	10°	10°		Front location of armrest structure	N/A	N/A
	Dynamic stability - uphill power consumption	N/A	N/A		Handrim diameter	540 mm	567 mm
	Overcoming obstacles	N/A	N/A		Horizontal location of axle	+ 104 mm	+ 20 mm

*Standard wheel with stainless steel handrim

The wheelchair conforms to the following standards:

a) Requirements and tests for static strength, impact resistance and fatigue strength (ISO 7176-8)	Yes.
b) Drive and control systems for power wheelchairs, requirements and test (ISO 7176-14)	n.a.
c) Environmental test in accordance with ISO 7176-9	n.a.
d) Flammability resistance of upholstered parts in accordance with ISO 7176-16 (EN 1021-1/2)	Yes.

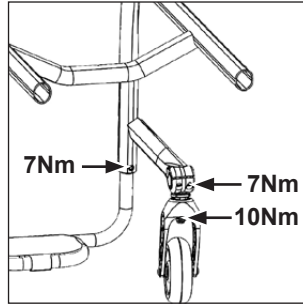
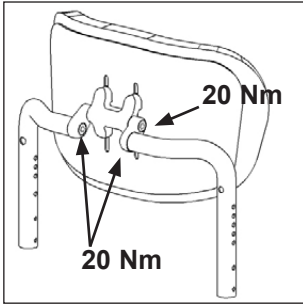
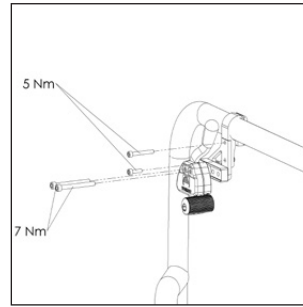
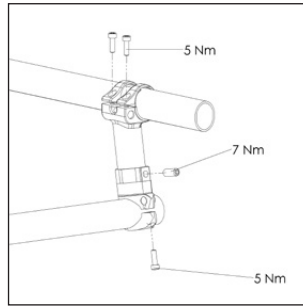
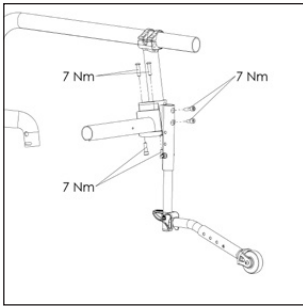
Technical Data >>>

Castor	Fork	Frame Type	Front seat height in mm	Rear seat height in mm
3" (76.2 mm)	98 mm x 32 mm	low	430	430 - 300
			440	440 - 310
			450	450 - 320
		high	470	470 - 340
			480	480 - 350
			490	490 - 360
	111 mm x 32 mm	low	440	440 - 310
			450	450 - 320
			460	460 - 330
		high	480	480 - 350
			490	490 - 360
			500	500 - 370
4" (101.6 mm)	98 mm x 32 mm	low	440	440 - 310
			450	450 - 320
			460	460 - 330
		high	480	480 - 350
			490	490 - 360
			500	500 - 370
	111 mm x 32 mm	low	450	450 - 320
			460	460 - 330
			470	470 - 340
		high	490	490 - 360
			500	500 - 370
			510	510 - 380
	111 mm x 45 mm	low	450	450 - 320
			460	460 - 330
			470	470 - 340
		high	490	490 - 360
			500	500 - 370
			510	510 - 380
	123 mm x 45 mm	low	450	450 - 320
			460	460 - 330
			470	470 - 340
			480	480 - 350
		high	490	490 - 360
			500	500 - 370
510			510 - 380	
520			520 - 370	

Technical Data ...

Castor	Fork	Frame Type	Front seat height in mm	Rear seat height in mm
5" (127 mm)	98 mm x 32 mm	low	460	460 - 330
			470	470 - 340
		high	500	500 - 370
			510	510 - 380
	111 mm x 32 mm	low	460	460 - 330
			470	470 - 340
			480	480 - 350
		high	500	500 - 370
			510	510 - 380
			520	520 - 390
	111 mm x 45 mm	low	470	470 - 340
			480	480 - 350
		high	510	510 - 380
			520	520 - 390
	123 mm x 45 mm	low	470	470 - 340
			480	480 - 350
			490	490 - 360
			500	500 - 370
		high	510	510 - 380
			520	520 - 390
530			530 - 400	
540			540 - 410	
6" (152.4 mm)	123 mm x 45 mm	low	500	500 - 370
			510	510 - 380
		high	540	540 - 410
			550	550 - 420

13.0 Torque



Torque.

NOTE: Wherever torque settings are specified, it is strongly recommended that a torque meter (not included), is used to verify correct torque specification is achieved.

If no other information is given, the generic torque for M6 screws is 7 Nm.

CAUTION: Some of the screws that are used during manufacture are fitted with threadlock, (blue dot on the thread) and can be undone and re-tightened up to three times before they must be replaced with new screws and threadlock. Alternatively, you can put Loctite™ 243 threadlock on the screws and re-fit them.

Sunrise Medical S.r.l.
Via Riva, 20 – Montale
29122 Piacenza
Italia
Tel.: +39 0523 573111
Fax: +39 0523 570060
www.SunriseMedical.it

Sunrise Medical AG
Erlenauweg 17
CH-3110 Münsingen
Schweiz/Suisse/Svizzera
Fon +41 (0)31 958 3838
Fax +41 (0)31 958 3848
www.SunriseMedical.ch

Sunrise Medical AS
Delitoppen 3
1540 Vestby
Norge
Telefon: +47 66 96 38 00
post@sunrisemedical.no
www.SunriseMedical.no

Sunrise Medical AB
Neogatan 5
431 53 Mölndal
Sweden
Tel.: +46 (0)31 748 37 00
post@sunrisemedical.se
www.SunriseMedical.se

MEDICCO s.r.o.
H – Park, Heršpická 1013/11d,
639 00 Brno
Czech Republic
Tel.: (+420) 547 250 955
Fax: (+420) 547 250 956
www.medicco.cz
info@medicco.cz
Bezplatná linka 800 900 809

Sunrise Medical Aps
Mårkærvej 5-9
2630 Taastrup
Denmark
+45 70 22 43 49
info@sunrisemedical.dk
Sunrisemedical.dk

Sunrise Medical Australia
11 Daniel Street
Wetherill Park NSW 2164
Australia
Ph: +61 2 9678 6600
E: enquiries@sunrisemedical.com.au
www.SunriseMedical.com.au

Sunrise Medical
North American Headquarters
2842 Business Park Avenue
Fresno, CA, 93727, USA
(800) 333-4000
(800) 300-7502
www.SunriseMedical.com



Sunrise Medical GmbH
Kahlbachring 2-4
69254 Malsch/Heidelberg
Deutschland
Tel.: +49 (0) 7253/980-0
Fax: +49 (0) 7253/980-222
www.SunriseMedical.de

Sunrise Medical
Thorns Road
Brierley Hill
West Midlands
DY5 2LD
England
Phone: 0845 605 66 88
Fax: 0845 605 66 89
www.SunriseMedical.co.uk

Sunrise Medical S.L.
Polígono Bakiola, 41
48498 Arrankudiaga – Vizcaya
España
Tel.: +34 (0) 902142434
Fax: +34 (0) 946481575
www.SunriseMedical.es

Sunrise Medical Poland
Sp. z o.o.
ul. Elektronowa 6,
94-103 Łódź
Polska
Telefon: + 48 42 275 83 38
Fax: + 48 42 209 35 23
E-mail: pl@sunrisemedical.de
www.Sunrise-Medical.pl

Sunrise Medical HCM B.V.
Vossenbeemd 104
5705 CL Helmond
The Netherlands
T: +31 (0)492 593 888
E: customerservice@sunrisemedical.nl
www.SunriseMedical.nl
www.SunriseMedical.eu
(International)

Sunrise Medical SAS
ZAC de la Vrillonnerie
17 Rue Michaël Faraday
37170 Chambray-Lès-Tours
Tel : +33 (0) 2 47 55 44 00
Email: info@sunrisemedical.fr
www.sunrisemedical.fr

