

## Invacare<sup>®</sup> Ultra Low Maxx by Motion Concepts

Supplement to power wheelchair user manual

en **Modular Power Positioning System** User Manual

This manual MUST be given to the user of the product. BEFORE using this product, read this manual and save for future reference.

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## I General

## I.I Introduction

Thank you for choosing an Invacare product.

This user manual contains important information about the handling of the product. In order to ensure safety when using the product, read the user manual carefully and follow the safety instructions. Also carefully read the user manual of your power wheelchair.

Note that there may be sections in this user manual, which are not relevant to your product, since this manual applies to all existing modules (on the date of printing).

If you find that the font size in the print version of the user manual is difficult to read, you can download it as a pdf from the Invacare website (see back page of this manual). The pdf can then be scaled on screen to a font size that is more comfortable for you.

This product has been constructed for a large circle of users with different requirements.

The decision whether the model is suitable for the user may only be taken by medical specialists with appropriate expertise.

Invacare or their statutory representatives can accept no liability in cases in which the product has not been adapted to suit the users' handicaps.

Some maintenance and settings can be performed by the user or his/hers attendants. Certain adjustments do however require technical training and may only be carried out by your Invacare specialist dealer. Damages and errors caused by nonobservance of the user manual or as a result of incorrect maintenance are excluded from all guarantees.

## I.2 Symbols in this manual

In this manual warnings are indicated by symbols. The warning symbols are accompanied by a heading that indicates the severity of the danger.



### WARNING

Indicates a hazardous situation that could result in serious injury or death if it is not avoided.



#### CAUTION

Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.

#### IMPORTANT



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Indicates a hazardous situation that could result in damage to property if it is not avoided.

Gives useful tips, recommendations and information for efficient, trouble-free use.

# This product complies with Directive 93/42/EEC concerning medical devices. The launch date of this product is stated in the CE declaration of conformity.

Tools:



This symbol identifies a list of various tools, components and items which you will need in order to carry out certain work. Please do not attempt to carry out the work if you do not have the listed tools available.

## I.3 Warranty

The terms and conditions of the warranty are part of the general terms and conditions particular to the individual countries in which this product is sold.

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## 2 Safety

## 2.1 Safety information on using the seating system

Your Ultra Low Maxx seating system has been specially configured and assembled to the wheelchair base prior to delivery. Note that the final configuration and purchasing decision regarding the complete wheelchair system is the responsibility of the power wheelchair user, who is capable of making such a decision, and his/her healthcare professional. The contents of this manual are based on the expectation that a mobility device expert has fitted the power wheelchair to the user and has assisted the prescribing healthcare professional in the instruction and use of this device.

The user manual of the power wheelchair contains all relevant safety information about the use of the power wheelchair including the seating system. Be certain to read and follow these safety information.



#### WARNING!

#### **Risk of tipping**

The power wheelchair may tip over when you change its stability characteristics by changing your seating position.

- Determine and establish your personal safety limits by practicing bending, reaching and transferring activities in the presence of a qualified healthcare professional before attempting active use of the wheelchair.
- Your Ultra Low Maxx seating system can be mounted onto the base in various forward and aft positions.
   Make certain that the position selected provides you with maximum stability over the full range of seating positions.



## WARNING!

#### Risk of tipping (continued)

- Consider all personal gear and accessories (backpacks, vent systems, extra batteries, etc.) that will be carried on the wheelchair. For example, a loaded backpack, attached to the back of the seating system, can significantly reduce the rearward stability of your wheelchair.
- Consider the backrest being used. For example, a recessed back can shift your center of gravity backward and significantly reduce the rearward stability of the wheelchair. Conversely, a thick back cushion will shift you forward and reduce the wheelchairs forward stability.
- Always shift your weight in the direction you are turning. Shifting weight in the opposite direction of the turn may compromise stability of the wheelchair base, causing it to tip over.
- Consider the seat cushion being used. A thick seat cushion will raise your center of gravity and reduce the wheelchairs stability in all directions.
- All Ultra Low Maxx systems are equipped with drive lockouts. Make certain this is set so as not to compromise your stability while driving (refer to 3.2 Safety Lockout and Limit Switches, page 8).
- The wheelchair has a programmable controller which allows adjustment of the maximum acceleration and deceleration of the wheelchair. Make sure that these are set to an appropriate level for the system and for you, the user.
- When operating in reduced speed drive or anti-tipper lockout, always travel on a smooth level surface to ensure the wheelchair's stability is not compromised.



#### WARNING! Risk of tipping (continued)

- Ensure all medical conditions are considered when setting up your wheelchair. Involuntary muscle movement such as spasms may affect the stability of the wheelchair, especially when the seating system is in a tilted or reclined position.
- When a system is fully tilted or reclined, the front wheels of the wheelchair should never come off the ground. If this occurs, please contact your authorized Invacare dealer immediately to resolve the issue.

## **3 Components**

## 3.1 Power positioning functions

The seating system offers the following functions:

## CG-TILT

The CG (center of gravity) tilt function compensates for weight shift by sliding the pivot axis and entire seat assembly forward as the seat tilts back. Typical tilt range is  $0^{\circ}$ -  $45^{\circ}$  (with lifter) or  $0^{\circ}$ -  $50^{\circ}$  (without lifter).

## RECLINE

The recline function enables users to infinitely change the seat to back angle of their system within a set range. Typical recline angle range is  $90^{\circ}$ -170°.

## ESR

ESR (extended shear reduction) is synchronized with recline to reduce the amount of shear between the client and the backrest. This is accomplished using a linkage that slides the backrest on the backposts as the back reclines.

#### PRECLINE

Available as an option with recline systems, precline adjusts the back angle of the seating system into a forward position, closing the seat to back angle to less than 90°. (Note: the range of recline is decreased approximately by the number of degrees of precline).

## SCISSOR LIFT/ LIFT MODULE

The scissor lift module allows users to raise their power positioning system up to 300 mm above the lowest seat-to-floor height of their system. The scissor lift is combined with a tilt/recline function.

## LEGRESTS

Our wide range of power and manual legrests are available in an array of sizes and styles including individual legrests and center-mounted foot platforms to help secure and position clients' legs. In addition, we offer a multitude of legrest hangers to accommodate your legrest choice. Power legrests may be programmed to operate in one of the two following configurations:

- Individual (legrests operate independently),
- Combined (legrests operate in unison)

## 3.2 Safety Lockout and Limit Switches



#### DANGER!

#### Risk of severe injury or death

The angle at which the limit switches/lockouts are set is critical to the safe operation of the seating system.

- Invacare will not be liable for any injuries or damage sustained when adjustments are made beyond the factory recommended settings.
- To ensure proper set-up, adjustments to safety lockouts and limits should only be performed by a qualified technician.
- Never exceed the maximum recommended limits.
   Safety lockouts and limit switches should be set up to best meet the needs of the user without compromising the overall stability of the wheelchair.
- Following any limit or lockout adjustments, always test the seating system over the full range of motion (i.e. tilt, recline, elevate) to verify the revised set-up is functioning properly and ensure that there are no resulting stability or interference issues.

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Additional safety limits and lockout switches may be required for more complicated/specialized seating systems. For information on limits/lockouts that are not identified in this manual, please contact our Technical Service Department for assistance.

## Tilt/Recline Drive Lockout (DLO) Limit

All tilt and recline seating systems are equipped with a drive lockout (DLO) limit to prevent the wheelchair from being driven when the seating system is tilted or reclined beyond a pre-determined safe total angle. The total angle can be any combination of seat angle, backrest angle and/or surface angle. Drive lockout only responds when you adjust angles in standstill.

The DLO limit is set to a maximum of 60°.



(Angle measured from vertical)

## Elevate Reduced Drive Speed (RDS) Limit

Seating systems that are configured with a scissor lift module are configured/programmed with a Reduced Drive Speed limit. The limit utilizes a microswitch to trigger the seating system into reduced speed drive as soon as the seating system is elevated to a pre-determined height beyond the home (fully retracted) position.

## Tilt/Recline/Elevate (T/R/E)RDS limit = max. 4" (100systems:mm)



Home position

T/R/E RDS (4" limit)

### Max. Back Angle Limit

The maximum tilt limit switch established the maximum back angle for the seating system at tilt/recline combined. The function of this switch is to prevent the back angle from extending beyond a maximum pre-set angle. Ultra Low Maxx seating systems are typically preset at the factory to the maximum allowable angle and do not require any further adjustment unless the maximum angle needs to be decreased (see hazard statement below).

Tilt/Recline: Max. Tilt/Recline Limit = 170°

#### Risk of damage to the wheelchair

 When establishing the maximum back limit, always consider the size and location of any personal gear that may be carried on the wheelchair, as it could cause interference between the backrest and the wheelchair base when fully tilted/reclined, and damage the actuator and/or wheelchair.



Max. 60°

>60°

Max. Tilt/Recline Limit (max. back angle)

#### **Elevating Seat Lockout Switch**

Elevating seat systems are equipped with an elevating seat lockout switch to prevent the elevating actuator from elevating up when the system is tilted or reclined more than 60°.

## 4 Setup

## 4.1 General information on adjusting Ultra Low Maxx



#### CAUTION!

**Damage to mobility device and accident hazard** It is possible that collisions can occur between mobility device components due to various combinations of adjustment options and their individual settings

 The mobility device is fitted with an individual, multiply adjustable seating system including adjustable legrests, armrests, a headrest or other options. These adjustment options are described in the following chapters. They are used to adapt the seat to the physical requirements and the condition of the user. When adapting the seating system and the seat functions to the user, ensure that no mobility device components collide.

## 4.2 Adjustment possibility for remote

The following information is valid for all seating systems.



## CAUTION!

Risk of the remote being pushed backwards during an accidental collision with an obstacle, such as a doorframe or table, and the joystick being jammed against the armpad if the position of the remote is adjusted and all screws are not completely tightened

This will cause the mobility device to drive forward uncontrollably and potentially injure the mobility device user and any person standing in the way.

- When adjusting the position of the remote, always make sure to tighten all screws securely.
- If this should accidentally happen, immediately switch the mobility device electronics OFF at the remote.

## 4.2.1 Adjusting the remote for the length of the user's arm



- I. Loosen wing bolt (A).
- 2. Shift the remote forwards or backwards to the desired distance.
- 3. Retighten the bolt.

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## 4.2.2 Adjusting the height of the remote (only for swing-away remote supports)

Tools:

6 mm Allen key



- I. Loosen Allen screw A.
- 2. Adjust remote to desired height.
- 3. Re-tighten Allen screw.

## 4.2.3 Adjusting remote width

The remote can be adjusted 20 mm widthwise.

Tools:

3 mm Allen key



- I. Loosen Allen screws A.
- 2. Adjust remote to desired width.
- 3. Re-tighten Allen screws.

#### 4.2.4 Swivelling the remote to the side



If your mobility device is fitted with a swing-away remote holder, then the remote can be moved away to the side, for example, to drive up close to a table.

## 4.3 Adjustment possibilities for Quad Link remote support

4.3.1 Adjusting remote height



- I. Loosen the two set screws (A) on the remote mount.
- 2. Push or pull the remote mounting tube up or down to the desired height.
- 3. Tighten the two set screws on the remote mount.

#### 4.3.2 Adjusting remote position

Perform this procedure to adjust the position of the remote on the quad link. The remote can be rotated in  $45^{\circ}$  increments.



- 1. Loosen the two cap screws (A) securing the adjustable remote tray (B) to the quad link.
- 2. Rotate the remote to the desired position.
- 3. Tighten the two cap screws to secure the adjustable remote tray to the quad link.
  - The two cap screws should be tightened flush against one of the sides of the adjustable remote tray mounting post (NOT SHOWN - located on the underside of the adjustable remote tray).

#### 4.3.3 Adjusting lock/release tension

Adjusting the lock/release tension changes the amount of force required to lock and release the quad link in extended or retracted position.

#### Adjusting the Linkage Bar Tension



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- 1. Examine the top of the quad link to locate the set screw (A) between the front and rear portions of the quad link.
- 2. Turn the set screw to adjust the linkage bar tension:
  - Clockwise Loosens the linkage bar tension and makes the quad link easier to operate.
  - Counterclockwise Tightens the linkage bar tension and makes the quad link harder to operate.

## Adjusting the Spring Tab Tension

- 1. Push outward on the inside surface of the joystick until the quad link is free.
- 2. If necessary, refer to Repositioning the Joystick in the service manual to remove the remote from the quad link.
- 3. Move the front portion of the quad link to be able to locate both of the set screws.
- 4.



- 5. Turn the set screw to adjust the spring tab tension:
  - Clockwise Decreases the spring tab tension and makes the quad link easier to operate.
  - Counterclockwise Increases the spring tab tension and makes the quad link harder to operate.

#### 4.3.4 Swivelling the remote to the side



#### WARNING!

 Make sure fingers are not between the linkage bars when locking the quad link retractable remote mount into position. Pinch points will occur between the linkage bars when locking the quad link retractable remote mount into position.



#### Swivel remote to the side

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To retract the remote from the normal extended position, push outward on the inside surface of the remote until the quad link is free.

- <sup>o</sup> The quad link works the best when the remote is pushed outward on the inside surface of the remote, near the armrest pad.
- 2. Push the remote outward and rearward until the quad link moves through its complete range and clicks into its fully retracted position.

#### Return remote to extended position



To return the remote to the normal extended position, push outward on the inside surface of the remote until the quad link clicks free.

 Push the remote forward and inward until the quad link moves through its complete range and clicks into its fully extended position.

## 4.4 The hip support

#### **R**emoving hip support

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I. Pull lever (A) upwards.

## Inserting hip support

- I. Insert hip support in holder.
- 2. Push lever A downwards. Ensure that hip support locks with an audible click.

## Adjusting position of hip support

- 🖌 Tools
- 5 mm Allen key



- I. Loosen screw A.
  - Do not remove it.
- 2. Adjust hip support to desired position.
- 3. Tighten screw.

## Adjusting width of hip support

Tools
2 x 5 mm Allen key

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- ١. Loosen screws (A).
- Adjust hip support to desired width. 2.
  - You can adjust the width only smaller than the seat ĵ
  - width but not wider.
- 3. Tighten screws.

## Adjusting angle of hip support

Tools ľĭ 5 mm Allen key •



- Loosen screws A. 1.
- 2. Adjust hip support to desired angle.
- 3. Tighten screws.

## Adjusting hip pad depth

- lĭ Tools
  - 10 mm wrench ٠



- I. Loosen the two screws (A).
- 2. Adjust hip pad to desired depth.
- 3. Tighten screws.

## Adjusting hip pad height

You can adjust the hip pad height in two ways:

- Via its mounting slots.
- Via its bracket.

#### Via mounting slots

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I0 mm wrench



Loosen the two screws A.

2.

Ι.



Remove hip pad bracket from mounting slot via cut-out <sup>(B)</sup>.

- 3. Insert hip pad bracket in other mounting slot.
- 4. Tighten screws.

#### Via bracket

- Tools
  - 5 mm Allen key



- Remove upper screw and friction cap  $\triangle$ .
- 2. Remove small friction link B.
- 3.



Remove hip pad with bracket, turn upside down and reinstall.

4. Insert friction link, friction cap, screw and tighten.

## 4.5 Lateral Trunk Support Adjustments

- Tools:
  - 4 mm Allen key
    - I0 mm open-ended wrench

#### Angle adjustment

The angle can be adjusted infinitely.



I. Loosen nuts/screws (x2) (A) to adjust pad angle.

#### Width adjustment

When adjusting both laterals, the width can be adjusted to total of 89 mm (3.5").



I. Loosen screws (x2) (A) to adjust bracket width.

#### Pad depth adjustment

The pad depth can be adjusted in a range of 63.5 mm (2.5") in total.



I. Loosen screws (x2) (A) to adjust pad depth.

#### Swing-away feature



- I. Lift bracket (A) up to release.
- 2. Swing lateral rearward.

#### Height adjustment



I. Loosen screws (x2) A to adjust lateral height (or remove).

## 4.6 Adjusting the headrest

The headrest clamp hardware is designed to install into existing mounting holes in the backrest pan.

#### CAUTION!

#### Injury hazard during use of the mobility device as a vehicle seat if a headrest is wrongly adjusted or not installed

This can cause the neck to be hyperextended during collisions.

- A headrest must be installed. The headrest optionally supplied for this mobility device by Invacare is perfectly suitable for use during transport.
- The headrest must be adjusted to the user's ear height.



Risk of damage to the wheelchair

 For systems equipped with power recline and ESR, always inspect/test the headrest (down tube) for possible interference over the full range of recline. If interference occurs, the length of the down tube must be modified as necessary.

- It may be necessary to remove and modify the back cushion cover in order to access the headrest mounting holes on the back pan.
- An optional shim plate is available and may be installed between the clamp assembly and the back pan to provide addtional spacing/clearance when required.

## 4.6.1 Auto-style headrest set-up and installation

Tools:

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- 2.5 mm Allen key
- 4 mm Allen key
- 5 mm Allen key
- 10 mm wrench



- 1. Using the hardware provided, align and install the headrest clamp assembly into the existing mounting holes in the back pan B.
- 2. Secure the headrest pad to the headrest rod via the mounting hardware provided <sup>(B)</sup>.
  - The headrest pad can be adjusted to any desired angle
  - via the pivot ball at the end of the headrest rod by loosening and tightening the mounting hardware.
- 3. Adjust the overall height of the headrest pad/mounting post via the knob  $\mathbb{D}.$

For proper set-up the headrest should be adjusted to the user's ear height.

 Once the final height position is set, adjust the D-Ring (with set-screw) so that it rests flush with the top of the clamp assembly (to prevent slipping) C.

### 4.6.2 Adjustable headrest set-up and installation





**Comfort Plus** 

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All-Position

## Installing

## Tools:

- 2.5 mm Allen key
  - 4 mm Allen key
- 5 mm Allen key
- 10 mm wrench

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Using the hardware provided, align and install the headrest clamp assembly into the existing mounting holes in the back pan B.

2. Secure the headrest pad to the headrest rod via the mounting hardware provided <sup>®</sup>.

<sup>o</sup> The headrest pad can be adjusted to any desired angle via the pivot ball at the end of the headrest rod by loosening and tightening the mounting hardware.



Adjust the overall height of the headrest pad/mounting post via the clamping lever  $\mathbb{C}.$ 

For proper set-up the headrest should be adjusted to the user's ear height.

4. Once the final height position is set, adjust the D-Ring (with set-screw) so that it rests flush with the top of the clamp assembly (to prevent slipping) <sup>(D)</sup>.

### Adjusting depth and angle

The headrest can be further adjusted for depth and angle via the articulating hardware.

Tools:

- 4 mm Allen key
  - 5 mm Allen key



- I. Loosen screws (A).
- 2. Set headrest to desired position.
- 3. Re-tighten screws.

## 4.7 Center-mounted legrests — manually adjustable

#### Electric

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 Please consult the user manual for your remote for information about electrical adjustment.

## 4.7.1 Removing the leg rest

You can remove the central, manually adjustable leg rest completely.



Remove the removable axle (1).

2.



Hold the leg rest securely and pull the lever (1).

3. Remove the leg rest from the holder (2).

#### 4.7.2 Setting the angle of the leg rest



## CAUTION!

**Risk of injury** 

If the leg rest is not secured and the lever (1) is removed, the leg rest will drop suddenly, which could cause an injury.

- Secure the leg rest before you remove the lever to adjust the angle of the leg rest.



- I. Hold the leg rest securely.
- 2. Pull the lever (1).
- 3. Push the leg rest into the required position.

#### 4.7.3 Setting the length of the leg rest

- Tools:
  - 3/16" (4.8 mm) Allen key

You can adjust the length of the leg rests independently of one another.



- 1. Release the bolts (1) on the rear of the leg rest using the Allen key.
- 2. Set the desired length.
- 3. Retighten the bolts.

## 4.7.4 Setting the angle of the footplate

• 5/32" (4 mm) Allen key



- I. Fold the footplates up in order to access the adjusting screws (1).
- 2. Set the adjusting screws using the Allen key.
- 3. Fold the footplate down again.

## 4.7.5 Setting the angle and height of the calf pad

#### Tools:

• 3/16" (4.8 mm) Allen key



- I. Fold the calf pad forward in order to access the bolt (1).
- 2. Loosen the bolt using the Allen key and adjust the calf pad to the required angle and height.
- 3. Retighten the bolt.
- 4. Fold the calf pad back.

## 4.8 LNX legrest

## 4.8.1 Setting the length of the legrest

If needed, the legrest can be pre-set to  $83^\circ$  or  $97^\circ$  instead of  $90^\circ.$  Contact your Invacare dealer.

- Tools:
  - 4 mm Allen key
    - 10 mm open-ended wrench

You can adjust the length of the legrests independently of one another.



- I. Remove screws  $\ensuremath{\mathbb{A}}$  at the front of legrest.
- 2. Remove cover together with calf pads.

- Loosen nuts 
   B at the side of legrest.
   It may be necessary to remove the nuts and move them from
   one slot to the other.
- 4. Set desired length.
- 5. Retighten nuts.
- 6. Refit calf pads and cover and retighten screws.

#### 4.8.2 Setting the angle of the footplate

Tools:

5/32" (4 mm) Allen key



- I. Fold the footplates up in order to access the adjusting screws (1).
- 2. Set the adjusting screws using the Allen key.
- 3. Fold the footplate down again.

#### 4.8.3 Setting the height and width of the calf pad

Calf pads may be adjusted independently on their respective mounting bracket using the mounting screws at the rear of the calf pads. Calf pads may be adjusted (for depth, height & angle) to achieve a variety of different configurations. The independent pad adjustments provide optimal positioning and comfort for end users - sample configurations are illustrated below.

Calf pad ac	ljustment —	sample con	figurations	
Centered	Extended Position (maxi- mum)	Lowered Offset	Raised Offset	Angled

Tools:

- 3/16" (4 mm) Allen key
- I. Fold the calf pad forward in order to access the bolts.
- 2. Loosen the bolts and remove them if necessary.
- 3. Adjust the calf pad to the required height and width.
- 4. Retighten the bolts.
- 5. Fold the calf pad back.

## 4.9 Vari-F footrest

## 4.9.1 Swivelling the footrest/legrest outward and/or removing

The small unlocking button is located on the upper section of the footrest/legrest. When the footrest/legrest is unlocked, it can be swivelled inward or outward when getting into the wheelchair as well as being removed completely.

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- 1. Press the unlocking button (1) and swivel the footrest/legrest outward.
- 2. Remove the footrest/legrest in an upward direction.

#### 4.9.2 Setting the angle



#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

Tools:

6 mm Allen key



Loosen the screw (I) using the Allen key.

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2. If the footrest cannot be moved after loosening the screw, position a metal pin in the designated borehole (2) and use a hammer to knock on this lightly. The clamping mechanism in the interior of the footrest will be released by this. Repeat the procedure from the other side of the footrest if necessary.



Loosen the screw (1) using the Allen key.

- 4. Set the desired angle.
- 5. Re-tighten the screw.

#### 4.9.3 Setting the end stop of the footrest

- Tools:
  - 6 mm Allen key
  - 10 mm open-ended spanner



The end position of the footrest is determined by means of a rubber stop (1).

2.

Ι.



The rubber stop can be screwed in or out (A) or pushed up or down (B).



Use the Allen key to loosen the screw (1) and swivel the footrest upward in order to access the rubber stop.

4.



Use the open-ended spanner to loosen the counternut (1).



Move the rubber stop to the desired position.
Re-tighten the counternut.

7.



Move the footrest to the desired position.

8. Re-tighten the screw.

#### 4.9.4 Adjusting the length of the footrest

## À

#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

Tools:

5 mm Allen key



- I. Use the spanner to loosen the screw (I).
- 2. Adjust to the desired length.
- 3. Re-tighten the screw.

## 4.10 Vari-A legrests

## 4.10.1 Swivelling the footrest/legrest outward and/or removing

The small unlocking button is located on the upper section of the footrest/legrest. When the footrest/legrest is unlocked, it can be 1585725-A

swivelled inward or outward when getting into the wheelchair as well as being removed completely.



- Press the unlocking button (1) and swivel the footrest/legrest outward.
- 2. Remove the footrest/legrest in an upward direction.
- 4.10.2 Setting the angle



#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground Invacare<sup>®</sup> Ultra Low Maxx by Motion Concepts

2.



Loosen the locking knob (1) counter-clockwise at least one turn.

Hit the knob to release the locking mechanism.

Set the desired angle.

4.

3.



Turn the knob clockwise to tighten it.

### 4.10.3 Setting the end stop of the legrest

## Tools:

• 10 mm open-ended spanner



The end position of the legrest is determined by means of a rubber stop (1).

2.

١.



The rubber stop can be screwed in or out  $\textcircled{\sc a}$  or pushed up or down  $\textcircled{\sc b}.$ 



Loosen the locking knob (1) counter-clockwise at least one turn.

4.



Hit the knob to release the locking mechanism.



Swivel the legrest upward in order to access the rubber stop.

6.



Use the open-ended spanner to loosen the counternut (1).



Move the rubber stop to the desired position. Re-tighten the counternut.

8. 9.



Move the legrest to the desired position.

10. Re-tighten the locking knob.

#### 4.10.4 Adjusting the length of the legrest



#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

Tools:

5 mm Allen key



- I. Use the spanner to loosen the screw (I).
- 2. Adjust to the desired length.
- 3. Re-tighten the screw.

## 4.10.5 Adjusting the depth of the calf pad

The depth of the calf pad can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

## Tools:

• 10 mm open-ended spanner



- I. Use the open-ended spanner to loosen the nut (I) and remove.
- 2. Adjust to the desired depth. Please observe that the round holes are intended for the calf pad retaining screw and the oblong holes for the aglet without thread.
- 3. Screw the nut back on and tighten.

## 4.10.6 Adjusting the height of the calf pad

- Tools:
  - 4 mm Allen key

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- I. Use the Allen key to loosen the screws (I).
- 2. Adjust to the desired position.
- 3. Re-tighten the screws.
- 4.10.7 Unlocking and swivelling the calf pad backward when alighting

١.



Press the calf pad straight down.

2.



Unlock the legrest and swivel outward. The calf pad swivels backward on its own.

3.



Lift leg over the heel strap and place on the ground.

## 4.10.8 Adjusting the angle-adjustable foot plate

Tools:

5 mm Allen key



- I. Use the Allen key to loosen both set screws on the foot plate.
- 2. Adjust to the desired angle.
- 3. Re-tighten the screws.
- 4.10.9 Adjusting the angle- and depth-adjustable foot plate

₽ Tools:

5 mm Allen key



- I. Use the Allen key to loosen the set screw on the foot plate (I).
- 2. Adjust the foot plate to the desired angle or depth.
- 3. Re-tighten the screw.

## 4.11 ADM legrests

## 4.11.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.



- I. Press the unlocking button (I) and swivel the legrest outward.
- 2. Remove the legrest in an upward direction.
- 4.11.2 Setting the angle



## CAUTION!

Risk of crushing

- Do not reach inside the swivelling range of the legrest.

#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

- Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

## Raising



1. Pull the legrest upward until the desired angle has been achieved.

#### Lowering



1. Keep the legrest in the foot plate area, pull the lateral adjusting lever (1) and lower the legrest slowly.

## 4.11.3 Adjusting the length of the legrest



#### CAUTION! Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

#### Tools:

5 mm Allen key



- I. Use the spanner to loosen the screw (I).
- 2. Adjust to the desired length.
- 3. Re-tighten the screw.

### 4.11.4 Adjusting the depth of the calf pad

The depth of the calf pad can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

Tools:

I0 mm open-ended spanner



- I. Use the open-ended spanner to loosen the nut (I) and remove.
- 2. Adjust to the desired depth. Please observe that the round holes are intended for the calf pad retaining screw and the oblong holes for the aglet without thread.
- 3. Screw the nut back on and tighten.

### 4.11.5 Adjusting the height of the calf pad

- **I**₽ Tools:
  - 4 mm Allen key

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- I. Use the Allen key to loosen the screws (I).
- 2. Adjust to the desired position.
- 3. Re-tighten the screws.
- 4.11.6 Unlocking and swivelling the calf pad backward when alighting

١.



Press the calf pad straight down.

2.



Unlock the legrest and swivel outward. The calf pad swivels backward on its own.

3.



Lift leg over the heel strap and place on the ground.

## 4.11.7 Adjusting the angle-adjustable foot plate

Tools:

5 mm Allen key



- I. Use the Allen key to loosen both set screws on the foot plate.
- 2. Adjust to the desired angle.
- 3. Re-tighten the screws.
- 4.11.8 Adjusting the angle- and depth-adjustable foot plate

₽ Tools:

5 mm Allen key



- I. Use the Allen key to loosen the set screw on the foot plate (I).
- 2. Adjust the foot plate to the desired angle or depth.
- 3. Re-tighten the screw.

## 4.12 Powered elevating legrests (ADE legrests)

## 4.12.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.



- I. Press the unlocking button (I) and swivel the legrest outward.
- 2. Remove the legrest in an upward direction.
- 4.12.2 Setting the angle



## CAUTION!

Risk of crushing

- Do not reach inside the swivelling range of the legrest.

#### CAUTION! Risk of injur

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

The electrically height-adjustable legrests are operated using the remote. Refer to the separate user manual for your remote for more information.

## 4.12.3 Adjusting the length of the legrest



#### CAUTION!

Risk of injury due to incorrect adjustment of the footrests and legrests

 Before and during every journey it is imperative to ensure that the legrests contact neither the caster wheels nor the ground

#### Tools:

• 10 mm open-ended spanner



- I. Use the spanner to loosen the screw (I).
- 2. Adjust to the desired length.
- 3. Re-tighten the screw.

## 4.12.4 Adjusting the depth of the calf pad

The depth of the calf pad can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

#### Tools:

• 10 mm open-ended spanner



- I. Use the open-ended spanner to loosen the nut (I) and remove.
- 2. Adjust to the desired depth. Please observe that the round holes are intended for the calf pad retaining screw and the oblong holes for the aglet without thread.
- 3. Screw the nut back on and tighten.

#### 4.12.5 Adjusting the height of the calf pad

Tools:

4 mm Allen key



- I. Use the Allen key to loosen the screws (I).
- 2. Adjust to the desired position.
- 3. Re-tighten the screws.
- 4.12.6 Unlocking and swivelling the calf pad backward when alighting

١.



Press the calf pad straight down.

2.



Unlock the legrest and swivel outward. The calf pad swivels backward on its own.

3.



Lift leg over the heel strap and place on the ground.

## 4.12.7 Adjusting the angle-adjustable foot plate

Tools:

5 mm Allen key

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- I. Use the Allen key to loosen both set screws on the foot plate.
- 2. Adjust to the desired angle.
- 3. Re-tighten the screws.
- 4.12.8 Adjusting the angle- and depth-adjustable foot plate

₽ Tools:

5 mm Allen key



- I. Use the Allen key to loosen the set screw on the foot plate (1).
- 2. Adjust the foot plate to the desired angle or depth.
- 3. Re-tighten the screw.

## 4.13 Pivot Plus legrests

#### 4.13.1 Swing away Pivot Plus legrests

The Pivot Plus legrests utilize a user friendly lever handle that locks and unlocks the legrest, allowing the legrest pin to pivot/rotate about the legrest receiver.

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Place the lever handle (A) in the unlocked position.

2.



Swivel the legrest outward.

## 4.13.2 Removing Pivot Plus legrests

When necessary, the Pivot Plus legrests may also be completely removed from the power wheelchair.

## Removing

١.



Place the lever handle A in the unlocked position.

2.



Lift the entire legrest assembly upward.

#### Reinstalling

- I. Insert the legrest pin inside the legrest receiver.
- 2. Return the lever handle to the locked position. I585725-A

## 4.13.3 Adjusting angle of Pivot Plus legrests

The angle of the Pivot Plus legrest is adjusted by manually elevating or lowering it.

### **Elevating Pivot Plus legrest**



I. Pull legrest upward to desired angle.

## Lowering Pivot Plus legrest



- I. Unlock manual legrest lever A.
- 2. Lower legrest to desired angle.
- 3. Lock manual legrest lever.

## 4.13.4 Adjusting width- and angle-adjustable footplate

- Tools:
  - 6 mm Allen key
  - I0 mm wrench

## Adjusting the width



I. Loosen the clamping block (A) to adjust the entire footplate position (width) in and out along the pivot post (B).

## Adjusting the angle

The footplate angle can also be adjusted via the setscrew on the inside of the footplate bracket.



1. Tighten or loosen the set screw (A) to increase or decrease the footplate angle accordingly.

#### 4.14 Legrest Depth Adjustment

Tools:

• 1/4" (6.5 mm) Allen key



Loosen the legrest receiver screws (x2) at the front of the left and right extruded side rails  $\otimes$ .

2.

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١.



Adjust the legrest depth by sliding the legrest to the desired position inside the slotted channel of the receiver assembly.

- The legrest receivers can be adjusted in a range of 1.5" (38 mm).
  - Each legrest receiver (left and right) can be adjusted independently if desired.
- 3. Once the final legrest depth is set, re-tighten the receiver screws to secure the legrests into position.

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## 5 Usage

## 5.1 Rotating/Removing recline armrest Rotating armrest

For side transfers, the recline armrest can be rotated backwards around the pivot pin in the armrest receiver.



- I. Unlock the lever lock (A) at the front of the armrest.
- 2. Lift up on the armrest so that it pivots back around the armrest receiver/pin.

#### **R**emoving armrest



- I. Unlock the lever lock (A) at the front of the armrest and disengage the pivot arm.
- 2. Pull outward on the plunger (B) at the rear pivot of the armrest.
- 3. Remove the armrest assembly.

### 5.2 Rotating cantilever armrest

For side transfers, the cantilever armrest can be rotated backwards around the pivot pin in the armrest receiver.



1. Lift up on the armrest so that it pivots back around the armrest receiver/pin.

Invacare® Ultra Low Maxx by Motion Concepts

## 6 Maintenance

## 6.1 Maintenance schedule

To ensure the optimal safety and reliability of your power positioning system, adhere to the maintenance schedule/table below. In addition to the maintenance schedule, note the following maintenance tasks and safety warnings that should be incorporated into your daily routine.

## $\triangle$

#### WARNING!

Any sudden or gradual deterioration in the function/performance of your power positioning system (i.e. increased actuator motor/gearbox noise, rattling, sloppiness, etc.) must be reported to your dealer immediately

 A complete wheelchair inspection by a qualified technician is recommended to ensure there is no unusual wear and tear, or physical damage that requires servicing and/or repair.

Densure your power positioning system is operating properly and safely, Invacare recommends a complete dealer inspection be performed on your power positioning system every six (6) months by a qualified technician.

Be certain to read and follow all maintenance and safety information specific to your wheelchair power base. Refer to your wheelchair's user manual (provided separately).

#### Daily maintenance:

• Check that all switches (push buttons/toggles) that operate your power positioning system are functioning properly.

 Charge batteries (refer to your wheelchair's user manual for important information on battery charging and proper battery care).

#### Monthly inspection checklist:

- Electrical / Wiring harnesses:
  - Check for pinches or pulls in wiring (over full range of seating system)
  - Inspect for wear & tear damage to wires
  - Ensure connections are secure
- Hardware and components:
  - Inspect mounting hardware (seating system to base)
- Limit switches:
  - Check limit switch settings
  - Ensure DLO functions correctly

## 7 Troubleshooting

## 7.1 Performance Troubleshooting

 $\frac{1}{2}$  For additional troubleshooting information regarding the power wheelchair & electronics, refer to the Troubleshooting section of the power wheelchair and remote user manuals (provided separately).

Symptom	Probable cause	Solutions
Wheelchair power is ON, but system does not drive	System tilted and/or elevated beyond the drive lockout (DLO) angle	Return seating system to neutral (home) position.
	Drive motors not engaged	Engage drive motors.
Seating system not functioning	Low batteries	Check/charge/replace batteries.
		Contact your dealer.
	Loose/faulty electrical connection	Check cable connections/check cable ties (too tight/too loose).
		Contact your dealer.
	Blown fuse	Inspect/replace fuse.
		Contact your dealer.
	Interference/obstructions, pinched wires	Check for sources of interference or obstructions/inspect cables for pinch points.
		Contact your dealer.

Symptom	Probable cause	Solutions
Intermittent seating system functions (day to day, during tilt, during recline)	Loose/faulty electrical connection	Check cable connections/check cable ties (too tight/too loose).
	Faulty power harness	Check/replace power harness.
		Contact your dealer.
	Faulty limit switch	Check/replace limit switch.
		Contact your dealer.
	Nearly exhausted battery (fluctuating charge)	Check/replace battery.
		Contact your dealer.
Drive lockout (DLO) is not functioning	Loose/faulty electrical connection	Check connections.
		Contact your dealer.
	DLO limit switch/mechanical switch is not set properly	Contact your dealer.
	Faulty DLO limit switch	Contact your dealer.
Limit switch not functioning properly	Loose/faulty electrical connection	Check connections.
		Contact your dealer.
	Faulty limit switch	Check/replace limit switch.
		Contact your dealer.
	Limit switch is not set-up properly	Contact your dealer.

#### Troubleshooting

Symptom	Probable cause	Solutions
System only operates in one direction	Limit is exceeded (DLO, RDS, , back angle, elevating seat lockout)	Come within limit ranges.
	Faulty limit switch	Check/replace limit switch.
		Contact your dealer.
	Limit switch is not set-up properly	Contact your dealer.
	Low voltage	Contact your dealer.
	Battery not charged	Charge batteries.
Remote will not function	Remote not plugged in	Inspect cable connection.
	Remote not turned on	Turn on power to the remote via the keypad.
	Blown base fuse	Inspect/replace fuse.
		Contact your dealer.
Actuator keeps running	Pinched switch harness	Inspect/adjust harness position to prevent pinching.
		Contact your dealer.

## 8 Technical data

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## 8.1 Technical specifications

The technical information provided hereafter applies to a standard configuration or represents maximum achievable values. These can change if accessories are added. The precise changes to these values are detailed in the sections for the respective accessories.

For more technical data of the power wheelchair see the user manual of your wheelchair.

#### **Dimensions Ultra Low Maxx seating system**

Dimensions according to ISO 7176-15	
Seat width	<ul> <li>405 mm</li> <li>430 mm</li> <li>455 mm</li> <li>480 mm</li> <li>505 mm</li> <li>530 mm</li> <li>555 mm</li> <li>580 mm</li> <li>610 mm</li> </ul>
Seat depth	<ul> <li>380 mm</li> <li>405 mm</li> <li>430 mm</li> <li>455 mm</li> <li>480 mm</li> <li>505 mm</li> <li>530 mm</li> <li>555 mm</li> <li>585 mm</li> </ul>
Seat cushion thickness	• 75/100/120 mm

Dimensions according to ISO 7176-15	
Backrest height <sup>1</sup>	<ul> <li>560 mm (400 and 410 mm backrest plate with 150 to 160 mm gap)</li> <li>585 mm (400 mm backrest plate with 185 mm gap)</li> <li>610 mm (460 mm backrest plate with 150 mm gap)</li> <li>635 mm (460 and 500 mm backrest plate with 135 to 175 mm gap)</li> <li>660 mm (460 and 500 mm backrest plate with 160 to 200 mm gap)</li> </ul>
Backrest angle	<ul> <li>90° 170°</li> <li>82° 162° (8° precline mount)</li> <li>60° 140° (30° precline mount)</li> </ul>
Armrest height	<ul> <li>240 - 330 mm/320 - 405 mm (cantilever armrest)</li> <li>240 - 330 mm/330 - 405 mm (reclining armrest)</li> </ul>
Armrest angle	• -10° 10°
Armrest depth <sup>2</sup>	• 250 mm - 370 mm
Seat angle, electrical adjustment	<ul> <li>0° 50° (standard mount)</li> <li>-5° 45° (with 5° fixed anterior mount)</li> <li>-10° 40° (with 10° fixed anterior mount)</li> <li>5° 55° (with 5° fixed posterior mount)</li> </ul>
Seat angle, electrical adjustment with lifter	<ul> <li>0° 45° (standard mount)</li> <li>-5° 40° (with 5° fixed anterior mount)</li> <li>-10° 35° (with 10° fixed anterior mount)</li> </ul>

Footrests and legrests		
Vari F	Length	• 290 - 460 mm
	Angle	• 70° - 0°
Vari A	Length	• 290 - 460 mm
	Angle	• 70° – 0°

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5° ... 50° (with 5° fixed posterior mount)

Footrests and legrests		
ADE (electric)	Length	• 290 - 460 mm
	Angle	• 80° – 0°
ADM (manual)	Length	• 290 - 460 mm
	Angle	• 80° – 0°
Pivot Plus	Length	• 365 – 465 mm
	Angle	• 80° – 20°
Center-mounted (manual)	Length	• 280 – 385 mm
	Angle	• 90° – 0°
Center-mounted (electric)	Length	• 340 – 490 mm
	Angle	<ul> <li>97° - 7°</li> <li>90° - 0°</li> <li>83°7°</li> </ul>

approx. 60 kg
-

Max. payload	• 136 kg

I Measured without seat cushion

2 Distance between backrest reference plane and most forward part of armrest assembly

## Overall dimensions power wheelchairs with Ultra Low Maxx

Dimensions according to ISO 7176-15	Power wheelchair
	TDX SP2
Overall height	<ul> <li>1080 – 1210 mm (without headrest)</li> <li>1080 – 1535 mm (with headrest)</li> </ul>
Max. total width	<ul> <li>630 mm (seat width 405)</li> <li>650 mm (chassis TDX SP2)</li> <li>655 mm (seat width 430)</li> <li>680 mm (seat width 455)</li> <li>705 mm (seat width 480)</li> <li>735 mm (seat width 505)</li> <li>760 mm (seat width 530)</li> <li>785 mm (seat width 555)</li> <li>810 mm (seat width 580)</li> <li>835 mm (seat width 610)</li> </ul>
Total length	• 980 mm
Stowage length	• 920 mm
Stowage width	<ul> <li>630 mm (seat width 405)</li> <li>650 mm (chassis TDX SP2)</li> <li>655 mm (seat width 430)</li> <li>680 mm (seat width 455)</li> <li>705 mm (seat width 480)</li> <li>735 mm (seat width 505)</li> <li>760 mm (seat width 530)</li> <li>785 mm (seat width 555)</li> <li>810 mm (seat width 580)</li> <li>835 mm (seat width 610)</li> </ul>
Stowage height	<ul> <li>993 – 1143 mm</li> <li>670 – 803 mm (30° precline backrest)</li> </ul>

Dimensions according to ISO 7176-15	Power wheelchair	
	TDX SP2	
Seat-to-floor height <sup>1</sup> :		
with tilt module	<ul> <li>420 mm (only in combination with 8.5° anterior tilt)</li> <li>440 mm</li> <li>460 mm</li> <li>480 mm</li> </ul>	
with lifter/tilt module	<ul> <li>444 mm – 744 mm</li> <li>464 mm – 764 mm</li> <li>484 mm – 784 mm</li> </ul>	
with tilt module and 5° pre-tilt	<ul> <li>500 mm</li> <li>520 mm</li> <li>540 mm</li> </ul>	
with lifter/tilt module and 5° pre-tilt	<ul> <li>504 mm – 804 mm</li> <li>524 mm – 824 mm</li> <li>544 mm – 844 mm</li> </ul>	
with tilt module and 5° anterior tilt	<ul> <li>440 mm</li> <li>460 mm</li> <li>480 mm</li> </ul>	
with lifter/tilt module and 5° anterior tilt	<ul> <li>444 mm – 744 mm</li> <li>464 mm – 764 mm</li> <li>484 mm – 784 mm</li> </ul>	
with tilt module and 10° anterior tilt	<ul> <li>440 mm</li> <li>460 mm</li> <li>480 mm</li> </ul>	
with lifter/tilt module and 10° anterior tilt	<ul> <li>444 mm – 744 mm</li> <li>464 mm – 764 mm</li> <li>484 mm – 784 mm</li> </ul>	

Weight <sup>2</sup>	Power wheelchair
	TDX SP2
Curb weight	<ul> <li>I 56 kg (TDX SP2 NB with tilt module)</li> <li>I 69 kg (TDX SP2 NB with lifter/tilt module)</li> <li>I 79 kg (TDX SP2 with tilt module)</li> <li>I 92 kg (TDX SP2 with lifter/tilt module)</li> </ul>

- I Measured without seat cushion
- 2 The actual curb weight depends on the fittings your mobility device has been supplied with. Every Invacare mobility device is weighed when leaving the works. Refer to the nameplate for the curb weight (including batteries) measured.