

# Invacare® Ultra Low Maxx by Motion Concepts

Supplement to power wheelchair user manual

**en Modular Non-Powered and Powered  
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.



***Yes, you can.®***

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Invacare reserves the right to alter product specifications without further notice.

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# 1 General

## 1.1 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).

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

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

Some maintenance and settings can be performed by the user or his/her attendants. Certain adjustments do however require technical training and may only be carried out by your Invacare dealer. Refer to the Inspection checklists in *7 Maintenance, page 75*. Damages and errors caused by nonobservance of the user manual or as a result of incorrect maintenance are excluded from all guarantees.

For more information about the product, contact your local Invacare representative. For address and website see the end of this manual.

## 1.2 Symbols

Signal symbols and/or words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.



### **DANGER!**

– Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



### **WARNING!**

– Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### **CAUTION!**

– Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.



### **IMPORTANT**

– 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 symbol identifies a list of various tools, components and items which you will need in order to carry out certain work.

### Symbols in the Manual

	Battery Recycling Symbol — Lead Acid
	Recycle this product. Refer to Disposal and Recycling sections.
	Manufacturer

### Symbols on the Product

	Read Manual
	ISO 7176-19 Compliance — Refer to <i>6.2 Transport Ready Option (TRRO)</i> , page 67.
	ISO 7176-19 Non-Compliance — Refer to <i>6.1 Wheelchair Transport Brackets (TRBKTS)</i> , page 67.

## 1.3 Prescription Statement

Per 21 CFR 801.109(b)(1) the device is labeled for prescription use only.



### CAUTION!

Federal Law (USA) restricts this device to sale by or on the order of a licensed physician.

## 1.4 Indication for Use

The Modular Power Positioning system is appropriate for use by any individual who drives a power wheelchair and who desires or requires a change of position without having to utilize the services of an attendant. Needs for position changes include:

- **All positioning benefits associated with the tilt/recline product:**  
**Comfort**—As with any individual—able-bodied or disabled—changes in position are necessary to maintain a state of comfort.  
**Positioning**—Individuals without adequate upper-body stability can be tilted to allow gravity to hold them in position.  
**Pressure Relief or Reduction**—Individuals who wish, from time to time, to redistribute pressure from one area of the body to another, can do so by tilting and/or reclining. By changing the individual's orientation in space, pressures caused by gravity will shift.
- **Positioning/Versatility**—Individuals are able to reach higher elevations in a seated position, increasing their range of motion and accessibility.

## 1.5 Regulations

The vehicle was successfully tested according to international standards as to its safety. It satisfies the requirements according to RoHS 2011/65/EU, CAL117, ISO 7176-series.

It was also tested successfully according to EN 60529 IPX4 as to its resistance to spray water.

## 1.6 Service Life

The expected service life is five years, presuming that the product is used daily and in accordance with safety instructions, maintenance instructions and intended use, stated in this manual.

## 2 Safety

### 2.1 General Guidelines

The safety section contains important information for the safe operation and use of this product.



**WARNING!**

**Risk of Death, Injury or Damage**

Improper use of this product may cause injury or damage.

- If you are unable to understand the warnings, cautions or instructions, contact a health care professional or Provider before attempting to use this equipment.
- DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manual, service manuals or instruction sheets supplied with this product or optional equipment.



**WARNING!**

**Risk of Death, Injury or Damage**

Continued use of the product with damaged parts could lead to the product malfunctioning, causing injury to the user and/or caregiver.

- Check all product components and carton for damage and test components before use. In case of damage or if the product is not working properly, stop using the product and contact a qualified technician or Invacare for repair.



**WARNING!**

**Risk of Serious Injury or Damage**

Use of unapproved accessories may result in serious injury or damage.

- Invacare products are specifically designed and manufactured for use in conjunction with approved Invacare accessories. Unapproved accessories have not been tested by Invacare for use with Invacare products.
- DO NOT use unapproved accessories.
- To obtain approved Invacare accessories, contact Invacare by phone or at [www.invacare.com](http://www.invacare.com).



**DANGER!****Risk of Death, Serious Injury, or Damage**

Use of incorrect or improper replacement (service) parts may cause death, serious injury, or damage.

- Replacement parts **MUST** match original Invacare parts.
- **ALWAYS** provide the wheelchair serial number to assist in ordering the correct replacement parts.

**DANGER!****Risk of Death, Serious Injury, or Damage**

Lighted cigarettes dropped onto an upholstered seating system can cause a fire resulting in death, serious injury, or damage.

- Wheelchair occupants are at particular risk of death or serious injury from these fires and resulting fumes because they may not have the ability to move away from the wheelchair.
- **DO NOT** smoke while using this wheelchair.

**WARNING!****Risk of Serious Injury or Damage**

Hardware that is loosely secured could cause loss of stability resulting in serious injury or damage.

- After **ANY** adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely.

**WARNING!****Risk of Injury, Damage or Death**

Improper monitoring or maintenance may cause injury, damage or death due to ingestion or choking on parts or materials.

- Closely supervise children, pets, or people with physical/mental disabilities.

**WARNING!****Risk of Serious Injury or Damage**

Loss of power due to loose electrical connections could cause the wheelchair to suddenly stop resulting in serious injury or damage.

- **ALWAYS** ensure that all electrical connections are tightly connected so they don't vibrate loose.



**WARNING!**

**Risk of Injury or Damage**

Improper mounting or maintenance of the Sip-n-Puff control including the mouthpiece and breath tube may cause injury or damage.

Water inside the Sip-n-Puff interface module may cause damage to the unit.

Excessive saliva residue in the mouthpiece/straw can reduce performance.

Blockages, a clogged saliva trap or air leaks in the system may cause Sip-n-Puff not to function properly.

- Ensure moving parts of the wheelchair, including the operation of powered seating, DO NOT pinch or damage the Sip-n-Puff tubing.
- Saliva trap MUST be installed to reduce risk of water or saliva entering the Sip-n-Puff interface module.
- Occasionally flush the mouthpiece to remove saliva residue.
- The mouthpiece/straw MUST be completely dry before installation.
- If Sip-n-Puff does not function properly, inspect system for blockages, clogged saliva trap or air leaks. As necessary, replace mouthpiece, breath tube and saliva trap.



Contact your Invacare provider for more information about maintaining and troubleshooting the Sip-n-Puff system.



**WARNING!**

**Risk of Injury, Damage or Death**

Exposure to liquids may cause injury, damage or death.

- DO NOT expose electrical connections to sources of liquid or dampness. This includes, but is not limited to, water, body fluids or cleaning agents.
- DO NOT expose battery charger or other accessories to sources of liquid or dampness.
- Wheelchairs that are used by incontinent users and/or are frequently exposed to water/liquids may require replacement and inspection of electrical components more frequently than normal schedule dictates.
- Electrical components damaged by corrosion MUST be replaced immediately.

**CAUTION!****Risk of Damage**

Operating the wheelchair in rain or dampness may cause the wheelchair to malfunction electrically and mechanically, may cause the wheelchair to prematurely rust or may damage the upholstery.

- DO NOT leave wheelchair in a rain storm of any kind.
- DO NOT use wheelchair in a shower.
- DO NOT leave wheelchair in a damp area for any length of time.
- Check to ensure that the battery covers are secured in place, joystick boot is NOT torn or cracked where water can enter and that all electrical connections are secure at all times. DO NOT use if the joystick boot is torn or cracked. If the joystick boot becomes torn or cracked, replace IMMEDIATELY.



THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.



As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection. Invacare recommends working with a qualified rehab technology provider, such as an ATP, (Assistive Technology Professional).

**WARNING!****Risk of Injury or Damage**

Use of the power wheelchair outside of specified operating conditions may cause unintended or erratic movement. This may include, but is not limited to impacts and sudden stops. To avoid injury or damage:

- Only use the power wheelchair in the operating conditions specified in the Technical Data chapter of this manual.

## 2.1.1 Set Up



### **DANGER!**

#### **Risk of Death, Serious Injury, or Damage**

Continued use of the wheelchair that is not set to the correct specifications may cause erratic behavior of the wheelchair resulting in death, serious injury, or damage.

- Performance adjustments should only be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities.
- After the wheelchair has been set up/adjusted, check to make sure that the wheelchair performs to the specifications entered during the set up procedure. If the wheelchair does not perform to specifications, turn the wheelchair Off immediately and reenter set up specifications. Contact Invacare, if wheelchair still does not perform to correct specifications.



### **WARNING!**

#### **Risk of Serious Injury or Damage**

Moving the seating system from the factory setting may reduce driver control, wheelchair stability, traction and increase caster wear resulting in serious injury or damage.

- Move the seating system **ONLY** when necessary to fit the wheelchair to the user.
- If the seating system must be moved, **ALWAYS** inspect the wheelchair to ensure the front rigging **DOES NOT** interfere with the front casters.
- If the seating system must be moved, **ALWAYS** inspect to ensure the wheelchair **DOES NOT** easily tip forward or backward.



### **WARNING!**

- **DO NOT** connect any medical devices such as ventilators, life support machines, etc. directly to the batteries used to power the wheelchair. This could cause unexpected failure of the device and the wheelchair.



### **DANGER!**

#### **Risk of Death, Serious Injury, or Damage**

Missing attaching hardware could cause instability resulting in death, serious injury or damage.

- Ensure all attaching hardware is present and tightened securely.

**WARNING!****Risk of Serious Injury**

Sharp edges can cause serious injury.

- Be mindful that some parts may have sharp edges. Use caution when encountering these sharp edges.

**WARNING!****Risk of Serious Injury**

Hot surfaces can cause severe burns.

- Be mindful of potential hot surfaces and avoid touching.

**WARNING!****Risk of Injury, Damage or Death**

Improper routing of cable(s) may cause a tripping, entanglement or strangulation hazard that may result in injury, damage or death.

- Ensure all cable(s) are routed and secured properly.
- Ensure there are no loops of excess cable extending away from the chair.
- Close supervision and attention is needed when operating the wheelchair near children, pets or people with physical/mental disabilities.

**WARNING!****Risk of Injury, Damage or Death**

Pinched or severed cable(s) may be a shock or fire hazard and may cause injury, damage or death.

- Ensure all cable(s) are routed and secured properly.
- Inspect cable(s) periodically for proper routing, pinching, chafing or other similar wear.
- Replace any damaged cables immediately.

**2.1.2 Safety Information on Using the Seating System**

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!**

- This seating system has been custom designed and will be assembled to the wheelchair base before delivery to the user. The information contained in this manual is for maintaining and adjusting the seating system. There are very few adjustments that can safely be made by the user. If there is a procedure or adjustment that needs to be performed on the seating system that is not in this manual, DO NOT perform that procedure. Have the seating system serviced by a qualified technician.
- Use caution when driving in a tilted position.
- DO NOT operate the seating system while on an incline.



### **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.
- 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.



### **WARNING!**

#### **Risk of Tipping (Continued)**

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

- 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 *3.3 Safety Lockout and Limit Switches, page 29*).
- 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.

**WARNING!****Risk of Tipping (Continued)**

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

- 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.
- 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 Invacare provider immediately to resolve the issue.

**WARNING!****Risk of Death or Serious Injury**

Operating the wheelchair with the seat tilted/reclined/back angle position beyond 30° can cause instability resulting in death or serious injury from the wheelchair tipping over.

- NEVER operate the wheelchair or elevate/lower the seat while in any tilted/reclined/back angle position over 30° relative to the vertical position. If the drive lock-out does not stop the wheelchair from operating or the seat from elevating/lowering in a tilt/recline/back angle position over 30° relative to vertical, DO NOT operate the wheelchair or elevate/lower the seat. DO NOT attempt to adjust the drive lock-out. Have the wheelchair serviced by a qualified technician.
- The wheelchair user MUST have a clear line of sight to drive safely. On initial chair delivery and after adjusting the back angle, drive lock-out switch tilt system or recline system, tilt and recline the seat back to the farthest driving position IMMEDIATELY before drive lock-out engages and ensure there is a clear line of sight present in which to drive the wheelchair. If a clear line of sight is not present, have the back angle repositioned or readjust the lockout angle such that safe driving with a clear line of sight is achieved.



**WARNING!**

- Use only the controls listed in the remote manual to activate the tilt functions. Specific actuator controls are noted for each function or combination throughout the remote manual. **DO NOT USE** any other actuator controls. Such devices may result in excess heating and cause damage to the actuator and associated wiring and could cause a fire, death, physical injury or property damage. If such devices are used, Invacare shall not be liable and the limited warranty is void.
- Specific actuator controls are noted for each function or combination throughout the remote manual. Refer to the remote manual for proper use.
- **DO NOT** operate tilt seat around children.
- **ALWAYS** keep hands and feet out from underneath tilt seat - otherwise serious injury may result.
- **DO NOT** tip the seating system/wheelchair without assistance.
- **DO NOT** store items under seat.
- Cables must be routed and secured properly to ensure that cables **DO NOT** become entangled and damaged during normal operation of seating system.



**WARNING!**

- Systems equipped with power legrests only - Never allow items to become trapped between the legrest assemblies. Otherwise, damage to the power legrest could occur.

**2.1.3 Repair or Service Information (Dealers and/or Qualified Technicians)**



**WARNING!**

**Risk of Injury, Damage or Death**

- Improper setup, service, adjustment or programming may cause injury, damage or death.
- Qualified technician **MUST** setup, service and program the wheelchair.
  - **DO NOT** allow non-qualified individuals to perform any work or adjustments on the wheelchair.
  - **DO NOT** setup or service the wheelchair while occupied except for programming or unless otherwise noted.
  - Turn off power **BEFORE** adjusting or servicing the wheelchair. Note that some safety features will be disabled.
  - Ensure all hardware is securely tightened after setup, service or adjustments.
  - Warranty is void if non-qualified individuals perform any work on this product.



**DANGER!****Risk of Death, Serious Injury, or Damage**

Corroded electrical components due to water and/or liquid exposure, or incontinent users can result in death, serious injury, or damage.

- Minimize exposure of electrical components to water and/or liquids. Electrical components damaged by corrosion **MUST** be replaced immediately.
- Wheelchairs that are used by incontinent users and/or are frequently exposed to water/liquids may require replacement of electrical components more frequently.

**DANGER!****Risk of Death, Serious Injury, or Damage**

Misuse of the wheelchair may cause component failure and/or the wheelchair to start smoking, sparking, or burning. Death, serious injury, or damage may occur due to fire.

- **DO NOT** use the wheelchair other than its intended purpose. If the wheelchair starts smoking, sparking, or burning, discontinue using the wheelchair and seek service **IMMEDIATELY**.

**WARNING!****Risk of Injury, Damage or Death**

Improper installation or service may result in injury, damage or death.

- Transport ready packages are not retrofittable to existing models and are not field serviceable.
- **DO NOT** overtighten hardware.

**DANGER!****Risk of Death or Serious Injury**

Not wearing your seat positioning strap could result in death or serious injury.

- **ALWAYS** wear your seat positioning strap. Your seat positioning strap helps reduce the possibility of a fall from the wheelchair. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap **MUST** be replaced **IMMEDIATELY**.

## 2.2 Safety and Handling



Refer to wheelchair base user manual for additional safety and operation information.



**WARNING!**

**Risk of Injury, Damage or Death**

Use of the wheelchair while judgement or ability is impaired may result in injury, damage or death.

- DO NOT operate the wheelchair under the influence of alcohol, medications or other substances that impair judgement or function.
- Changing medications may affect your ability to operate the wheelchair. Discuss the impact on your ability to operate the wheelchair with a health care professional when changing medications.
- DO NOT operate the wheelchair under conditions where judgement or function may be impaired. This may include but is not limited to lack of sleep or poor sight.
- Always be aware of your surroundings.



**WARNING!**

**Risk of Injury, Damage or Death**

Misuse of wheelchair may result in injury, damage or death.

- Use care when operating the wheelchair on roads, streets or other roadways.
- Use care when operating the wheelchair when vision is impaired by poor lighting such as unlit rooms, during the night or similar situations.
- ALWAYS be aware of motor vehicles and your surroundings.



**WARNING!**

**Risk of Injury, Damage or Death**

Conditions such as restlessness, mental deterioration, dementia, seizure disorders (uncontrolled body movement) or sleeping problems may cause injury, damage or death.

- Monitor patients with these conditions frequently.
- Close supervision and attention is needed when operating the wheelchair near children, pets or people with physical/mental disabilities.



**WARNING!**

**Risk of Injury or Damage**

To avoid injury or damage from moving parts:

- ALWAYS keep hands and fingers clear of moving parts.
- Closely supervise children, pets, or people with physical/mental disabilities.

**WARNING!****Risk of Injury or Damage**

Improper operation may change the normal balance, center of gravity or weight distribution of the wheelchair causing injury or damage.

- Determine and establish your particular safety limits. Practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.
- ALWAYS shift your weight in the direction you are turning. Shifting your weight in the opposite direction of the turn may cause the inside drive wheel to lose traction.

**WARNING!****Risk of Serious Injury**

Impacting objects in the surrounding environment can cause serious injury.

- When maneuvering the wheelchair around, ALWAYS have assured cleared distance with all objects in environment.

**WARNING!**

- Always check grips for looseness before using the wheelchair. If loose, contact a qualified technician for instructions.

**WARNING!****Risk of Injury or Damage**

Unintended movement or operation of wheelchair may cause injury or damage.

- Turn power OFF BEFORE entering or exiting the wheelchair.
- Close supervision and attention is needed when operating the wheelchair near children pets or people with physical/mental disabilities. Turn power off.
- Turn power off when near children, pets or people with physical/mental disabilities.

**WARNING!****Risk of Injury, Damage or Death**

Damaged parts due to collision or impact may result in injury, damage or death.

- Seek immediate attention and service if wheelchair is involved in a collision or impact event. This includes, but is not limited to, vehicle accidents, mishandling and impact events where the wheelchair strikes something or is struck by something that may cause damage.
- Ensure your wheelchair is working properly and is inspected by a qualified Invacare technician if the wheelchair is involved in a collision or impact event.

## 2.2.1 Stability and Balance



### **WARNING!**

#### **Risk of Injury, Damage or Death**

Improper use of wheelchair may cause instability and may result in injury, damage or death. The stability of the wheelchair is adversely affected by additional weight that shifts the center of gravity.

- This wheelchair has been designed to accommodate one individual. DO NOT operate with additional person(s).
- DO NOT carry heavy objects on your lap while operating the wheelchair.



### **WARNING!**

#### **Risk of Injury or Damage**

Improper position and activity, such as reaching, bending or transferring may change the normal balance, center of gravity or weight distribution of the wheelchair causing injury or damage.

- Observe and follow all instructions and warnings regarding reach, weight, balance and positioning.
- Determine and establish your particular safety limits. Practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.
- DO NOT move beyond the center of gravity.
- DO NOT lean forward out of the wheelchair any further than the length of the armrests.
- DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.
- DO NOT shift your weight or sitting position toward the direction you are reaching.
- DO NOT stand on the frame of the wheelchair.
- DO NOT lean over the top of the back of the wheelchair.

## 2.2.2 Footplates and Front Rigging



### **WARNING!**

#### **Risk of Serious Injury or Damage**

Operating the wheelchair with a clearance of less than 75 mm (3 inches) between the footplates and the ground/floor may cause serious injury or property damage.

- ALWAYS maintain a minimum of 75 mm (3 inches) between the bottom of the footplates and ground/floor to ensure proper clearance while the wheelchair is in motion. If necessary, adjust the footplates height to achieve proper clearance. After footplates height adjustment, if the wheelchair dips forward and the footplates touch the ground while in motion, please contact your provider for an inspection and avoid use of the wheelchair if possible.



### **CAUTION!**

#### **Risk of Damage**

Interference between footrests and front casters may cause damage.

- When determining the depth of the telescoping front frame tubes, make sure the rear of the footrests do not interfere with the movement of the front casters. Otherwise damage to the wheelchair may result or may impede proper operation.

## 2.2.3 Reaching, Leaning and Bending—Forward



*Fig. 2-1*

Many activities require the wheelchair user to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, center of gravity, and weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.



Fig. 2-2

1. Engage motor locks.
2. Turn power off.
3. Position the casters so that they are parallel to the drive wheels to create the longest possible wheelbase.
4. Reach, lean or bend only as far as your arm will extend without changing your sitting position.

#### 2.2.4 Reaching, Bending—Backward



Fig. 2-3

1. Position wheelchair as close as possible to the desired object.
2. Position the casters so that they are parallel to the drive wheels to create the longest possible wheelbase.

3. Engage the motor locks.
4. Turn power off.
5. Reach back only as far as your arm will extend without changing your sitting position.

#### 2.2.5 Transferring To and From Other Seats



##### **WARNING!**

##### **Risk of Serious Injury or Damage**

Improper transfer techniques may cause serious injury or damage.

- Before attempting transfers, consult a health care professional to determine proper transfer techniques for the user and type of wheelchair.



##### **WARNING!**

##### **Risk of Injury or Damage**

Misuse of footplate may cause injury or damage.

- DO NOT stand on footplates.
- Ensure the footplates are in the upward position or swung outward when getting in or out of the wheelchair.



Fig. 2-4 Front View

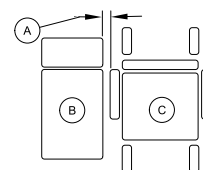




Fig. 2-5 Top View

 Adequate mobility and upper body strength is required to perform this activity independently.

1. Transfer to and from the wheelchair in the presence of a qualified healthcare professional to determine individual safety limits.
2. Turn power button OFF BEFORE entering or exiting the wheelchair.
3. Reduce gap **(A)** between transfer surface **(B)** and wheelchair seat **(C)** to the minimum distance necessary to perform transfer.
4. ALWAYS engage both motor locks and wheel hubs (if equipped) to prevent the wheels from moving before transferring into or from the wheelchair.
5. Align casters parallel to the drive wheels to improve stability during transfer.
6. Invacare strongly recommends ordering wheel locks as an additional safeguard if not present.
7. Flip up footplates or swing footrests outward.
8. Shift body weight into seat with transfer

 During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

### 2.2.6 Pinch Points



#### **WARNING!**

#### **Risk of Minor to Serious Injury**

Pinch points can cause minor to serious injury.

- Be mindful of potential pinch points and use caution when using this product.

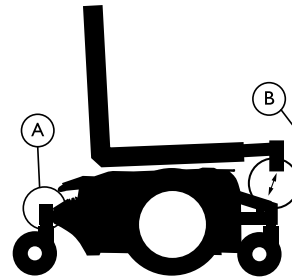


#### **WARNING!**

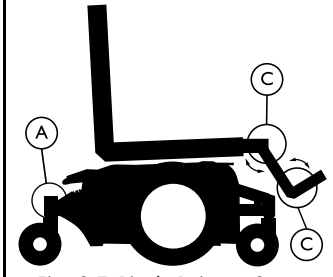
#### **Risk of Injury**

Pinch points can cause injury.

- Be aware that a pinch point **(A)** exists between the head tube cap and walking beam.
- Be aware that a pinch point **(B)** exists between the walking beam/head tube cap and telescoping tube when the wheelchair is at the lowest seat to floor height.
- Be aware that a pinch point **(C)** may occur when rotating the center mount front rigging assembly.



*Fig. 2-6 Pinch Points—Head Tube Cap/Walking Beam and Telescoping Tube*



*Fig. 2-7 Pinch Points—Center Mount Front Rigging*



**WARNING!**

**Risk of Injury**

Pinch points can cause injury.

A pinch point ① exists between the center mount footrest and casters.

There is limited clearance between center mount footrest and casters.

- The user's feet **MUST** remain on the center mount footrest while operating the wheelchair. If the user's feet are allowed to rest off the side of the center mount footrest they may come in contact with the caster possibly resulting in injury.

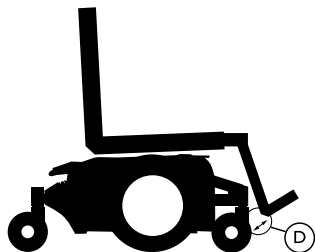


Fig. 2-8 Pinch Points—Center Mount Footrest



**WARNING!**

**Risk of Injury**

Pinch point may occur when returning the tilted seat to the full upright position or when lowering the elevating seat.

Pinch points can cause injury.

- Make sure the hands and body of the occupant, attendants and bystanders are clear of all pinch points before lowering seat or returning the tilted seat to the full upright position.
- **DO NOT** operate the tilt function near or under a fixed object such as a table or desk.



Fig. 2-9 Pinch Points—Full Tilt Position





Fig. 2-10 Pinch Points—Full Upright Position

### 2.2.7 Storage



#### **WARNING!**

#### **Risk of Injury, Damage or Death**

Storage or use near heat sources and combustible products may result in injury or damage.

- DO NOT store or use wheelchair near open flames or other heat sources.
- DO NOT store or use wheelchair near combustible products.

### 2.2.8 Weight Training and Other Activities



#### **WARNING!**

#### **Risk of Injury or Damage**

Invacare DOES NOT recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have NOT been designed or tested as a seat for any kind of weight training. Using said wheelchair for weight training could result in serious bodily injury to the user, damage to the wheelchair and surrounding property.

Also, if occupant uses said wheelchair as a weight training apparatus, Invacare shall NOT be liable for bodily injury and the warranty is void.

- DO NOT use the wheelchair as a weight training apparatus.



#### **WARNING!**

#### **Risk of Injury or Damage**

Misuse of the wheelchair may result in injury or damage.

- DO NOT use the wheelchair for stretching exercises.
- DO NOT use the wheelchair to perform wheelies.

## 3 Components

### 3.1 Labels on the Product



**DANGER!**

**Risk of Injury, Damage or Death**

Missing or damaged labels may contribute to injury, damage or death.

– Ensure ALL labels are present and legible.



Labels are subject to change without notice.

### All Systems

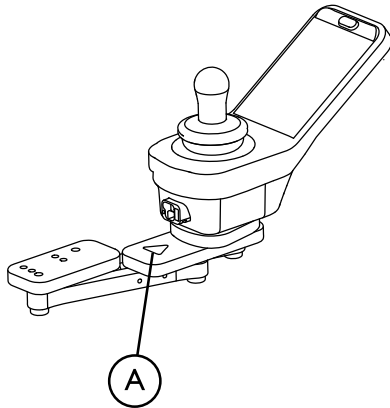



Fig. 3-1

ITEM	PART NUMBER	DESCRIPTION
A	1605279	 <i>Fig. 3-2 Pinch Point Label</i>

### All Powered Seating Systems

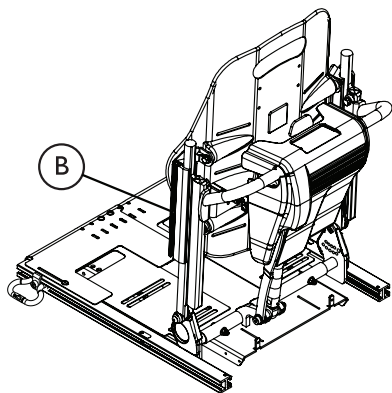
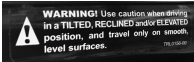



Fig. 3-3

ITEM	PART NUMBER	DESCRIPTION
B	TRL0156	 <p>Fig. 3-4 Powered Seating System Driving Label</p>

### Tilt and Elevate Systems



Fig. 3-5

ITEM	PART NUMBER	DESCRIPTION
C	1605279	 <p>Fig. 3-6 Pinch Point Label</p>

## Elevate Systems

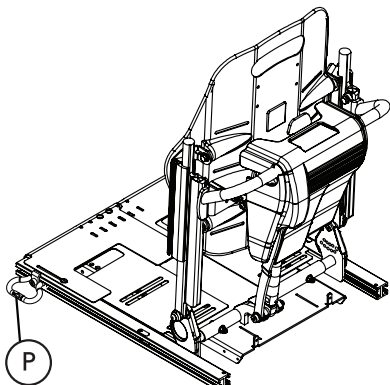



Fig. 3-7 Systems with Elevate and the Transport Ready Option

ITEM	PART NUMBER	DESCRIPTION
P	1554407	 <p data-bbox="1241 333 1369 356">ISO 7176-19</p> <p data-bbox="1121 359 1489 381">Fig. 3-8 ISO 7176-19 Compliance Label</p>

## 3.2 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°–45° (with elevating seat) or 0°–50° (without elevating seat).

### 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°–168°.

### 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 maximum recline angle is decreased approximately by the number of degrees of precline).

## ELEVATING SEAT/ELEVATING SEAT MODULE

The elevating seat module allows users to raise their power positioning system up to 12 in (300 mm) above the lowest seat-to-floor height of their system. The elevating seat is combined with a tilt 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)

## 3.3 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, elevating seat) to verify the revised set-up is functioning properly and ensure that there are no resulting stability or interference issues.



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 30° (120°-90°).

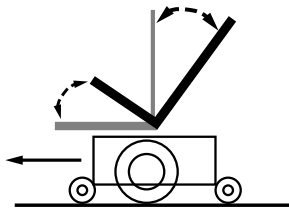


Fig. 3-9



Angle measured from vertical

### Reduced Drive Speed (RDS) Limit

Seating systems that are configured with a scissor lift module or the tilt 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 raised to a pre-determined height (4 in [100 mm]) beyond the home (fully retracted) position, or
- the seating system is tilted outside of the pre-determined angle range (110°-90°).

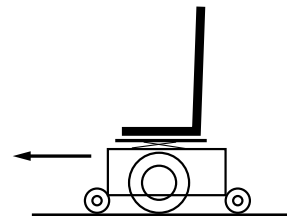


Fig. 3-10 Home Position

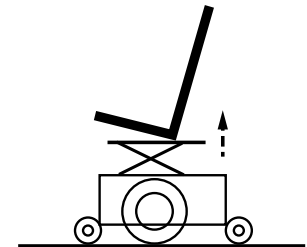


Fig. 3-11 RDS Limit

### Maximum Back Angle Limit

The maximum tilt limit establishes the maximum back angle for the seating system at tilt/recline combined. The function of this limit 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: Maximum Tilt/Recline Limit = 168°**



#### Risk of Damage to 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.

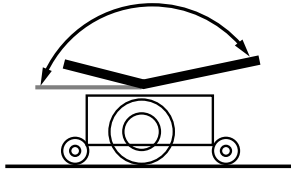


Fig. 3-12 Maximum Tilt/Recline Limit (Maximum Back Angle)

### Elevating Seat Lockout

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

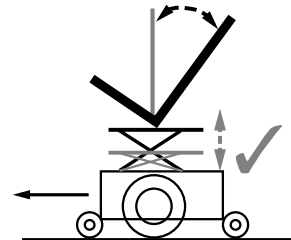


Fig. 3-13 Maximum 60°

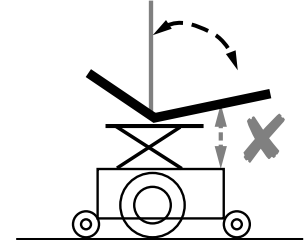


Fig. 3-14 >60°

## 4 Setup

### 4.1 Setup/Delivery Inspection



Setup/delivery inspection should be performed by provider at time of delivery/set up.

Initial adjustments should be made to suit your personal body structure needs and preference. Thereafter weekly, monthly and periodic inspections should be performed by user/attendant between the six month service inspections. Refer to 7 *Maintenance, page 75.*

- Check all parts for shipping damage. In case of damage, DO NOT use.
- Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- Ensure clothing guards are secure.
- Ensure arms are secure but easy to release and adjustment levers engage properly.
- Ensure adjustable height arms operate and lock securely.
- Ensure axle nut or bolt and wheel mounting nuts are secure on drive wheels.
- Ensure caster/anti-tipper wheels are free of debris, and all mounting hardware is secure and not damaged/missing.
- Check that cables are routed and secured properly to ensure that cables do NOT become entangled and damaged during normal operation of seating system.
- Ensure proper operation of powered functions (Example: drive, seating and legrests).

### 4.2 Adjusting Ultra Low Maxx Systems—General Information



#### 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 equipped 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.



## 4.3 Adjusting the Remote

The following information is valid for all seating systems.



### CAUTION!

#### Risk of injury or damage

If screws are not completely tightened during adjustments, there is a 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. This may cause the mobility device to drive forward uncontrollably and potentially lead to injury to the user and bystanders or damage to the wheelchair and surrounding objects.

- 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.



### CAUTION!

#### Risk of injury

When leaning on the remote, for example, when transferring into or out of the wheelchair, the remote holder may break and the user may fall out of the chair.

- Never lean on the remote as a support, for example, transfer.

### 4.3.1 Adjusting Remote Width

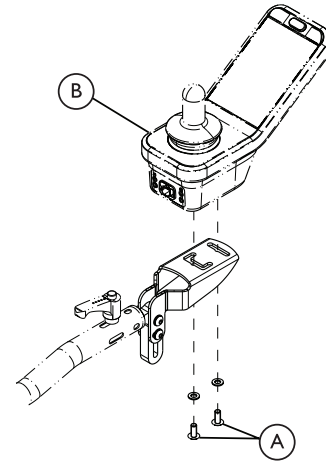


Fig. 4-1

1. Loosen the screws **A**.
2. Adjust remote **B** to desired width.
3. Re-tighten the screws.

## 4.4 Adjusting the Quad Link Remote Support

### 4.4.1 Adjusting Remote Height

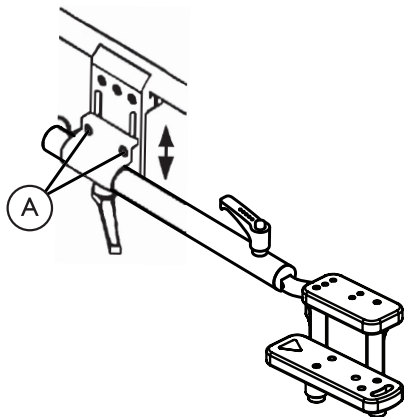


Fig. 4-2

1. 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.

### 4.4.2 Adjusting Remote Position

Perform this procedure to adjust the position of the remote on the Quad Link.

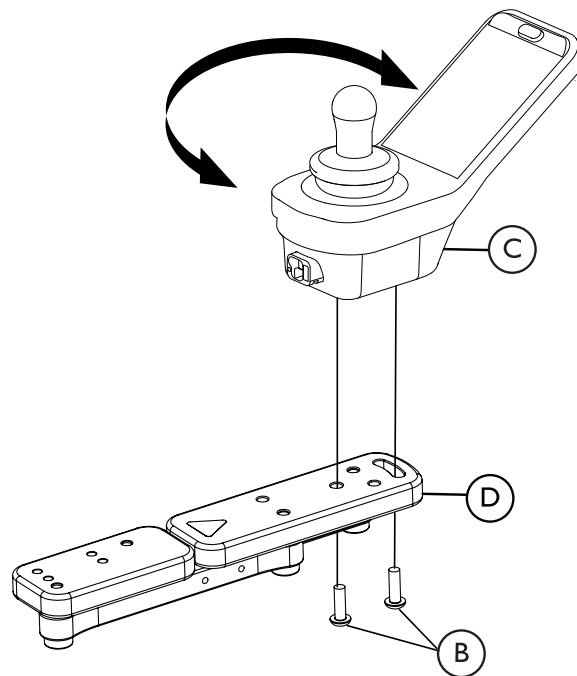


Fig. 4-3

1. Loosen screws (B) securing the remote (C) to the Quad Link (D).
2. Rotate remote to desired position.
3. Tighten screws to secure the remote to the Quad Link.

### 4.4.3 Adjusting Lock Tension

By default, the Quad Link is equipped with two magnets locking the Quad Link in extended position. Removing a

magnet reduces the tension and makes it easier to release the Quad Link.



### CAUTION!

#### Risk of Injury or Damage to Wheelchair

Removing both magnets leaves Quad Link without lock. Quad link could retract unintentionally.  
– Always leave at least one magnet.



- Small pointed tool such as paper clip

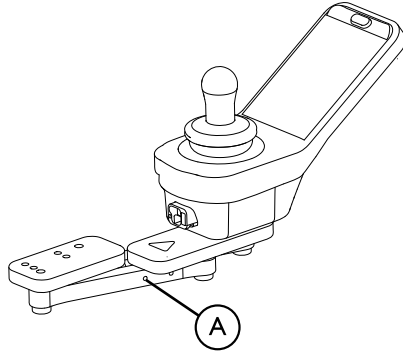


Fig. 4-4

1. Swivel Quad Link to side to access magnets.
2. Insert tool in hole (A) and push out magnet on other side.

#### 4.4.4 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.

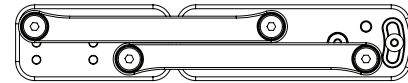


Fig. 4-5

#### About the Quad Link

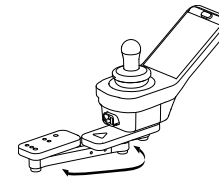


Fig. 4-6

If your mobility device is equipped with a Quad Link, then the remote can be moved away to the side, for example, to drive up close to a table.

## Swivel Remote to the Side

1.

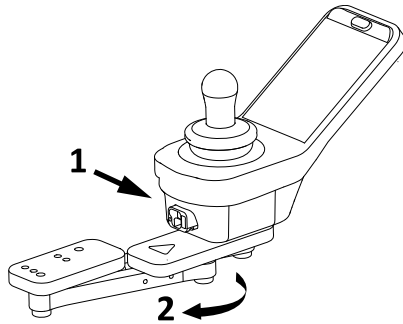


Fig. 4-7

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



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 into its fully retracted position.

## Return Remote to Extended Position

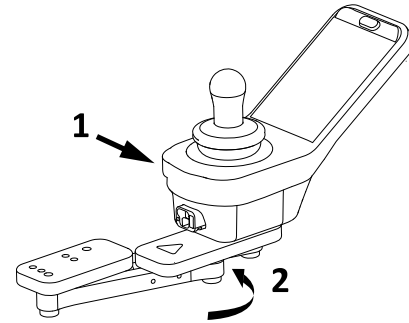


Fig. 4-8

1. To return the remote to the normal extended position, push outward on the inside surface of the remote.
2. Push forward and inward until the Quad Link moves through its complete range and clicks into its fully extended position.

## 4.5 Ultra Rail Mounted Maxx Cantilever Armrest

### Adjusting Position

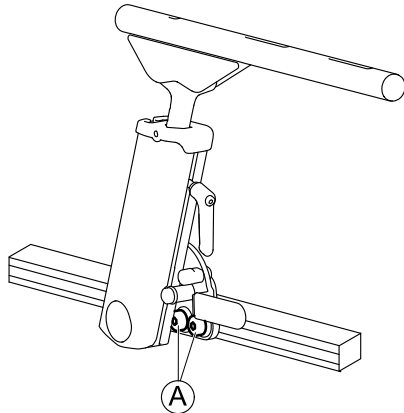


Fig. 4-9

1. Loosen screws (A).  
Do not remove them.
2. Adjust armrest to desired position.
3. Tighten screws.

### Adjusting Height

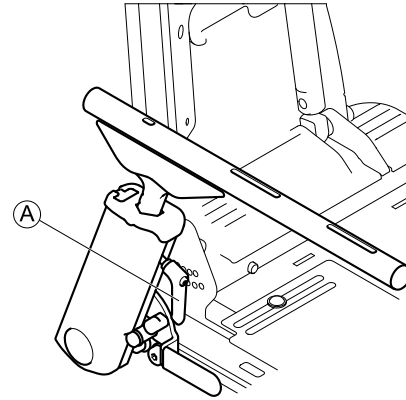


Fig. 4-10

1. Loosen clamping lever (A).
2. Adjust armrest to desired height.
3. Tighten clamping lever.

## Adjusting Angle

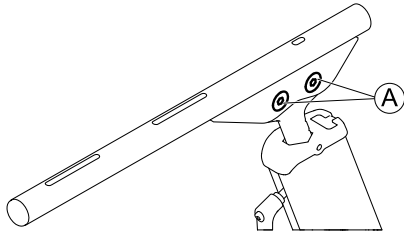


Fig. 4-11

1. Loosen screws (A).  
Do not remove them.
2. Adjust armrest to desired angle.
3. Tighten screws.

## 4.6 Dual Post Recline Armrest

### Adjusting Height

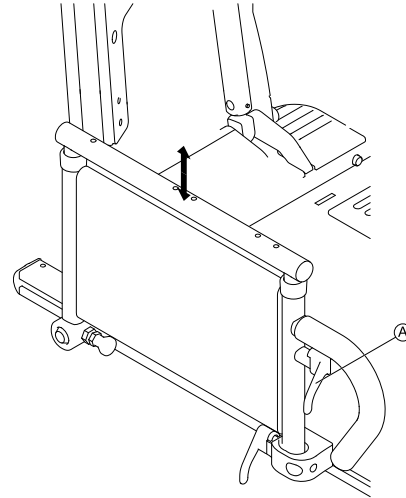


Fig. 4-12

1. Unlock lever lock (A).
2. Adjust armrest to desired height.
3. Lock lever lock. Push or pull on armrest to make sure it engages.

## 4.7 Adjust Armpad with Multi Axis Upper Extremity Support (MACES)

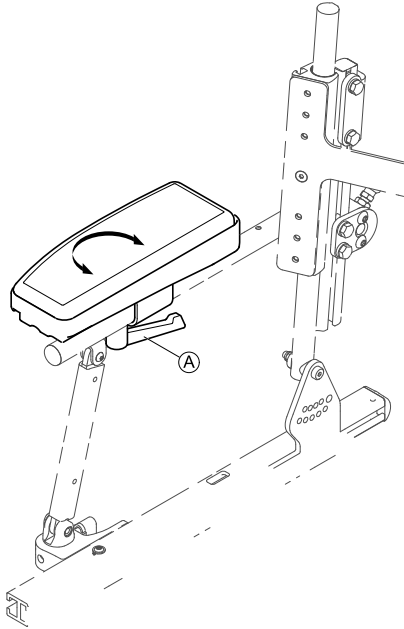


Fig. 4-13

1. Loosen clamp lever **A**.
2. Adjust armpad position.
3. Tighten clamp lever.

## 4.8 The Elbow Block

### Adjusting Depth of Elbow Block

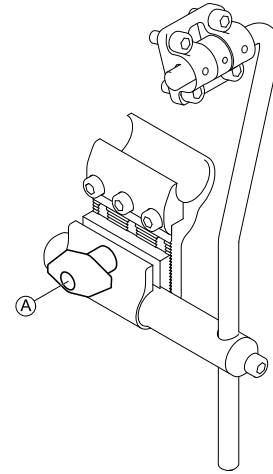


Fig. 4-14

1. Loosen knob **A**.  
Do not remove it.
2. Adjust elbow block to desired depth.
3. Tighten knob.

## Adjust Height of Elbow Block

---



- 5 mm Allen key
- 

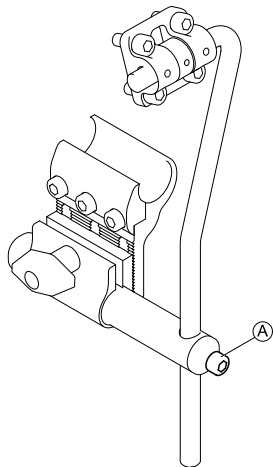


Fig. 4-15

1. Loosen screw **A**.  
Do not remove it.
2. Adjust elbow block to the desired height.
3. Tighten screw.

## Adjust Width of Elbow Block

---



- 3 mm Allen key
  - 4 mm Allen key
- 

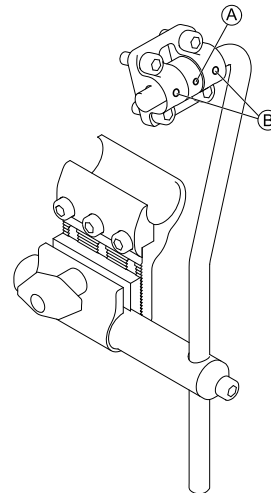


Fig. 4-16

1. Loosen screws **A** and **B**.  
Do not remove them.
2. Adjust elbow block to desired width.
3. Tighten screws.

## Adjust Angle of Elbow Block

---



- 4 mm Allen key
-



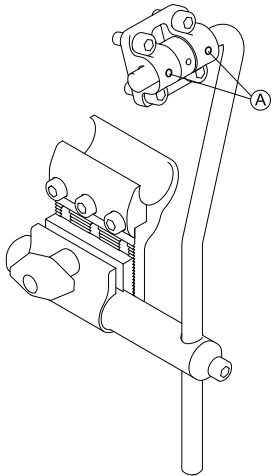


Fig. 4-17

1. Loosen screws Ⓐ.  
Do not remove them.
2. Adjust elbow block to desired angle.
3. Tighten screws.

## 4.9 The Hip Support

### 4.9.1 Hip Support with Quick Release

#### Adjusting Position of Hip Support



- 5 mm Allen key

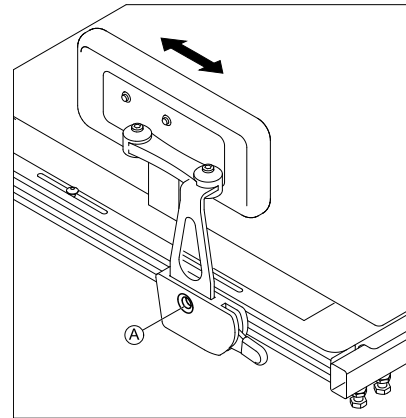


Fig. 4-18

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

#### Adjusting Width of Hip Support



- 2 x 5 mm Allen key

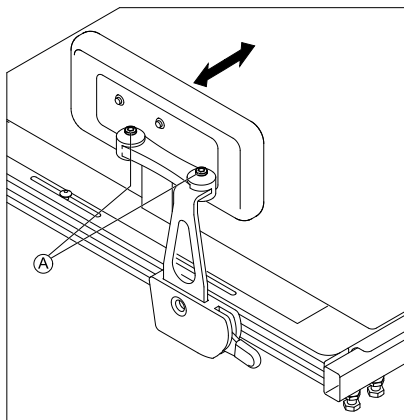




Fig. 4-19

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

### Adjusting Angle of Hip Support

- 
- 
- 5 mm Allen key
- 

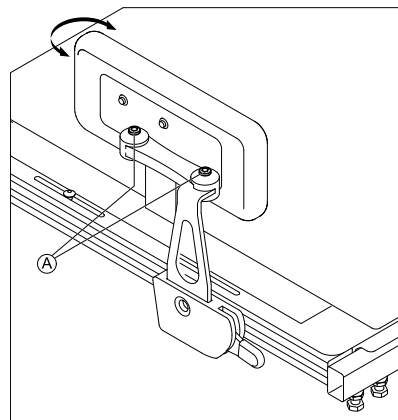



Fig. 4-20

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

### Adjusting Hip Pad Depth

- 
- 
- 10 mm wrench
-

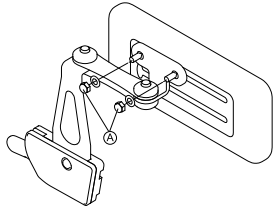


Fig. 4-21

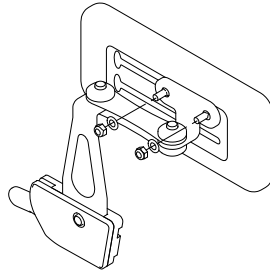


Fig. 4-22

1. Loosen the two nuts (A).
2. Adjust hip pad to desired depth.
3. Tighten nuts.

### Adjusting Hip Pad Height

You can adjust the hip pad height in two ways:

- Via its mounting slots.
- Via its bracket.

#### Via mounting slots



- 10 mm wrench

1.

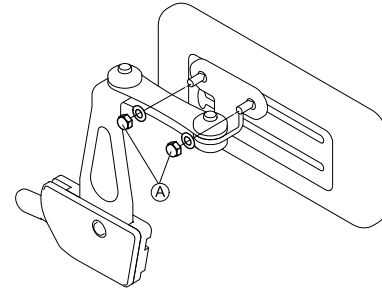


Fig. 4-23

Loosen the two nuts (A).

2.

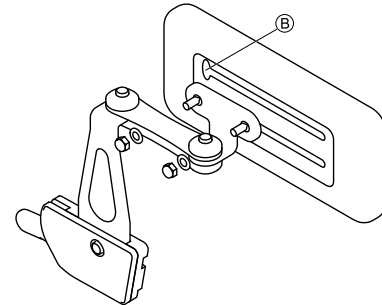


Fig. 4-24

Remove hip pad bracket from mounting slot via cut-out (B).

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

#### Via bracket



- 5 mm Allen key

1.

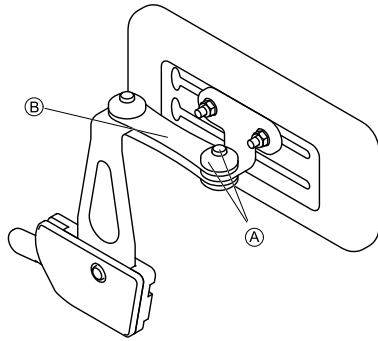


Fig. 4-25

Remove upper screw and friction cap (A).

2. Remove small friction link (B).
- 3.

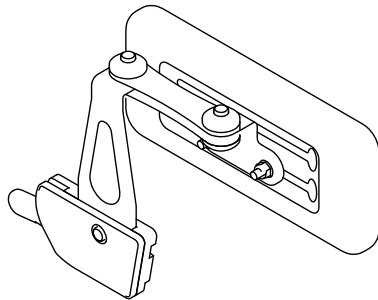


Fig. 4-26

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

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

## 4.9.2 Fixed Hip Support

### Adjusting Position of Hip Support



- 4 mm Allen key

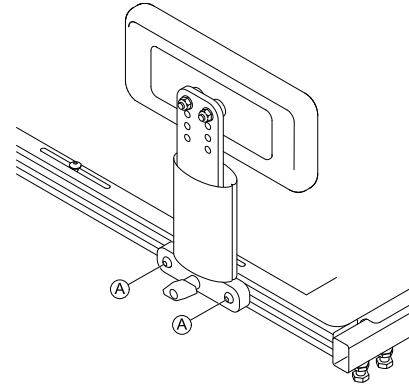


Fig. 4-27

1. Loosen screws (A).  
Do not remove them.
2. Adjust hip support to desired position.
3. Tighten screws.

### Adjusting Height of Hip Support

The height of the fixed hip support can be adjusted at two points.



- 4 mm Allen key
- 10 mm wrench

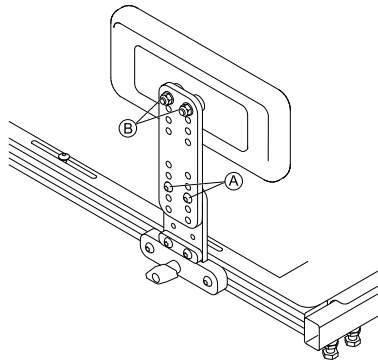




Fig. 4-28

1. Remove screws (A).
2. Adjust hip support bracket to desired height.
3. Tighten screws.
4. Remove nuts (B).
5. Adjust hip support pad to desired height.
6. Tighten nuts hand tight.

#### Adjusting Hip Pad Depth

The hip pad depth of the fixed hip support is adjusted the same way as for the hip support with quick release. See section in 4.9.1 *Hip Support with Quick Release*, page 41.

### 4.10 Lateral Trunk Support Adjustments

- 
- |  |                  |
|--|------------------|
|  | • 4 mm Allen key |
|  | • 10 mm wrench   |
- 

#### Swing-Away Feature

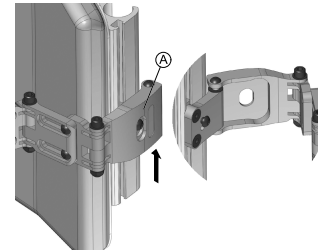


Fig. 4-29

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

#### Angle Adjustment

The angle can be adjusted infinitely.

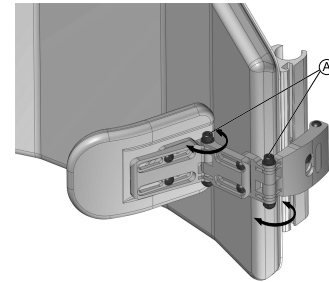


Fig. 4-30

1. 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").

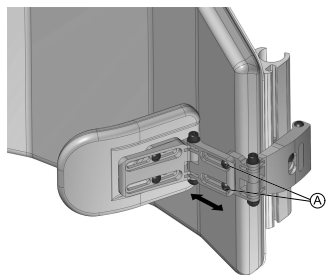


Fig. 4-31

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

### Pad Depth Adjustment

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

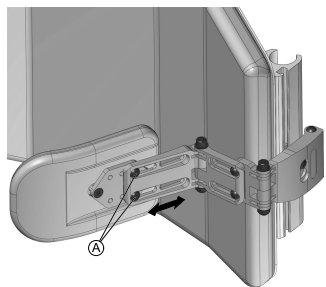


Fig. 4-32

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

### Height Adjustment

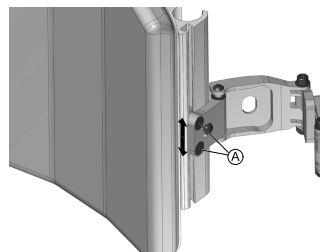


Fig. 4-33

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

### Height Adjustment Offset Fixed Trunk Support



- 8 mm wrench

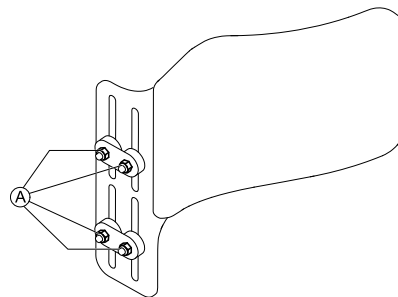


Fig. 4-34

1. Loosen nuts Ⓐ.  
Do not remove them.
2. Adjust trunk support to desired height.
3. Tighten nuts.

## 4.11 Adjusting the Headrest

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



### CAUTION!

**Risk of injury during use of the mobility device as a vehicle seat if a headrest is improperly 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.

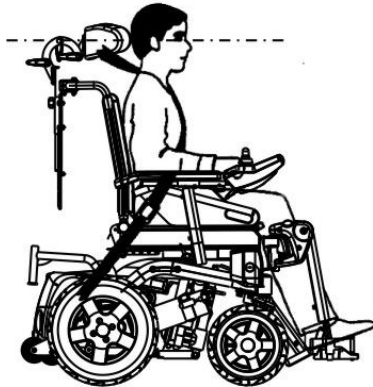


Fig. 4-35



### 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. It may be installed between the clamp assembly and the back pan to provide additional spacing/clearance on Posture Back and Deep Back.

### 4.11.1 Installing Headrest Adapter for Elite and High Backs

When installing a headrest on a High Back or Elite Back, you need to use an adapter.



- Phillips screwdriver
- 8 mm wrench

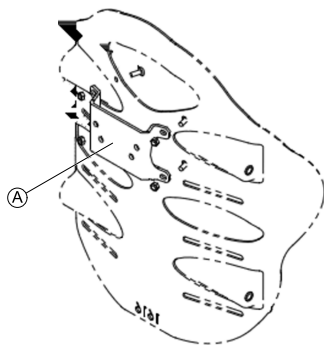


Fig. 4-36

1. Using the hardware provided, align and install the headrest adapter **A** into the existing mounting holes in the back pan.

#### 4.11.2 Adjusting Elan Headrest Hardware

Elan headrest hardware is highly adjustable. The illustration below shows the possible adjustment ranges of the joints.

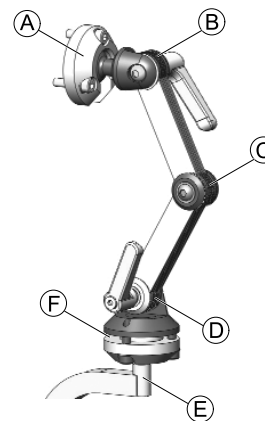





Fig. 4-37

<b>A</b>	Upper multi-angle rotational pivot	<ul style="list-style-type: none"> <li>• 360° rotation</li> <li>• 80° tilt</li> </ul>
<b>B</b>	Upper linkage	<ul style="list-style-type: none"> <li>• 180° rotation</li> </ul>
<b>C</b>	Middle linkage	<ul style="list-style-type: none"> <li>• 100° rotation</li> </ul>
<b>D</b>	Lower linkage	<ul style="list-style-type: none"> <li>• 180° rotation</li> </ul>
<b>E</b>	Mounting post	<ul style="list-style-type: none"> <li>• 360° rotation in 90° increments</li> </ul>
<b>F</b>	Lower multi-angle rotational pivot	<ul style="list-style-type: none"> <li>• 360° rotation</li> <li>• 50° tilt</li> </ul>



## Installing

-  • 2.5 mm Allen key
-  • 4 mm Allen key
-  • 5 mm Allen key

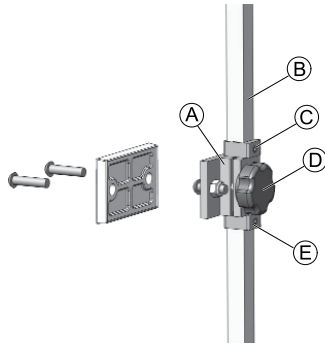





Fig. 4-38

1. Using hardware provided, align and install headrest clamp assembly into existing mounting holes in backrest pan **A**.
2. Install headrest pad (not shown) to headrest rod using mounting hardware provided.
  -  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. Loosen and remove lower D-Ring **E** from hardware.

4. Slide vertical mounting post **B** into clamp assembly and adjust overall height of headrest pad to desired position. Tighten knob **D**.  
For proper set-up headrest should be adjusted to user's ear height.
5. Adjust upper D-Ring **C** as required.
6. Once final height position is set, adjust lower D-Ring **E** so that it rests flush with bottom of clamp assembly (to prevent slipping).

## Adjusting Depth and Angle

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

-  • 4 mm Allen key
-  • 5 mm Allen key

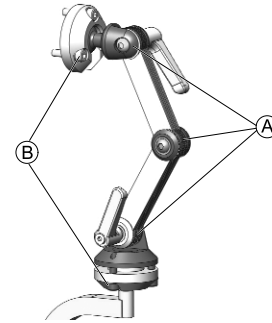



Fig. 4-39

1. Loosen screws and clamping levers of dual link adjustment assembly (A) and screws of upper and lower rotational pivots (B).
2. Set headrest to desired position.
3. Re-tighten screws and clamping levers.

### 4.11.3 Adjusting Multi-Axis Headrest Hardware

#### Installing

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

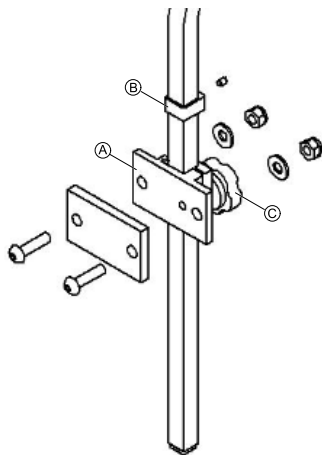



Fig. 4-40

1. Using hardware provided, align and install headrest clamp assembly into existing mounting holes in backrest pan (A).
2. Install headrest pad (not shown) to headrest rod using mounting hardware provided.
  -  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 overall height of headrest pad to desired position. Tighten knob (C).  
 For proper set-up headrest should be adjusted to user's ear height.
4. Once final height position is set, adjust D-Ring (B) so that it rests flush with top of clamp assembly (to prevent slipping).

#### Adjusting Depth and Angle

The headrest and horizontal rod can be further adjusted for depth and angle via the triangular multi-offset bracket.

- 
-  • 4 mm Allen key (5/32")
- 

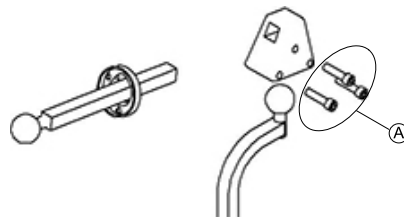



Fig. 4-41

1. Loosen hardware in multi-offset bracket (A).
2. Adjust headrest to desired position.
3. Re-tighten hardware.

## 4.12 LNX Legrest

### 4.12.1 Setting the Length of the Legrest

If needed, the legrest can be pre-set to 83° or 97° instead of 90°. Contact your Invacare provider.

- 
- |  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• 4 mm Allen key</li> <li>• 10 mm open-ended wrench</li> </ul> |
|--|---|
- 

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

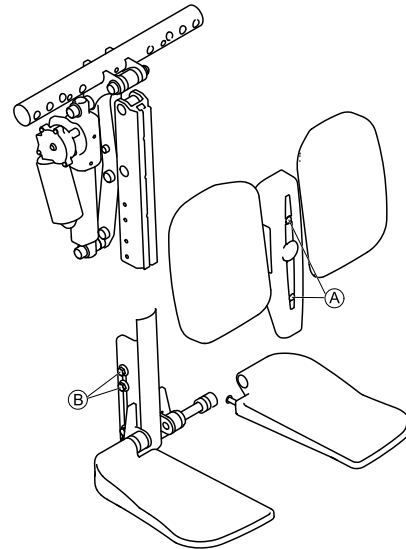



Fig. 4-42

1. Remove screws (A) at the front of legrest.
2. Remove cover together with calf pads.
3. 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 the calf pads and cover and retighten screws.

 The legrest with foot platform is adjusted the same way.

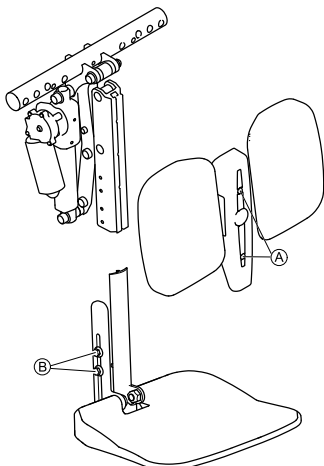


Fig. 4-43

#### 4.12.2 Setting the Angle of the Footplate



 • 4 mm Allen key



Fig. 4-44

1. 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.

#### 4.12.3 Setting the Angle of the Foot Platform

 • 4 mm Allen key

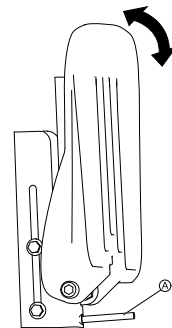


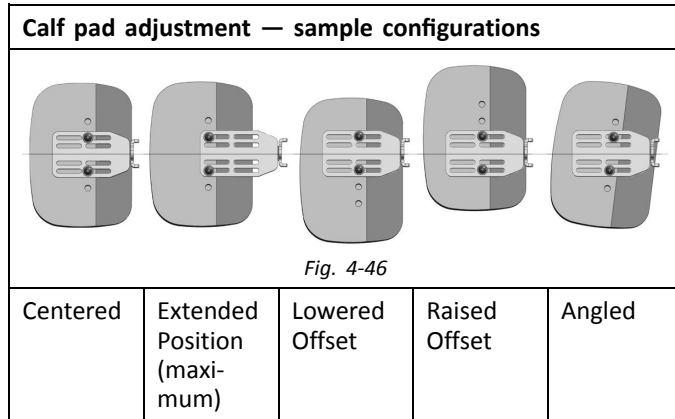
Fig. 4-45

1. Fold the foot platform up in order to access the adjusting screw (A).
2. Set the adjusting screw using the Allen key.
3. Fold the foot platform down again.

#### 4.12.4 Setting the Height and Width of the Calf Pad

**!** **Risk of damage to the mobility device**  
 – After changing the configuration of the calf pads make sure that the calf pads contact neither the casters nor the seat plate when adjusting the legrest angle.

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.



- 4 mm Allen key

1. 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.

## 4.13 Manual Center Mount Footrests



### WARNING!

#### Risk of Serious Injury or Damage

Operating the wheelchair with a clearance of less than 75 mm (3 inches) between the footplates and the ground/floor may cause serious injury or property damage.


- ALWAYS maintain a minimum of 75 mm (3 inches) between the bottom of the footplates and ground/floor to ensure proper clearance while the wheelchair is in motion. If necessary, adjust the footplates height to achieve proper clearance. After footplates height adjustment, if the wheelchair dips forward and the footplates touch the ground while in motion, please contact your provider for an inspection and avoid use of the wheelchair if possible.



### WARNING!

#### Risk of Injury

Pinch points can cause injury.

A pinch point  exists between the center mount footrest and casters.

There is limited clearance between center mount footrest and casters.

- The user's feet MUST remain on the center mount footrest while operating the wheelchair. If the user's feet are allowed to rest off the side of the center mount footrest they may come in contact with the caster possibly resulting in injury.

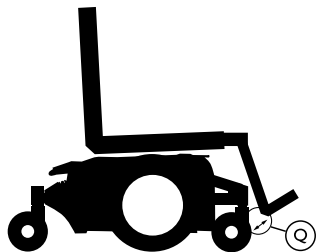


Fig. 4-47 Pinch Points—Center Mount Footrest

The manual center mount footrests have the following features:

- Adjustable knee angle
- Adjustable height
- Flip up footplates (adjustable width and angle) or footboard

#### 4.13.1 Removing/Installing the Manual Center Mount Footrest

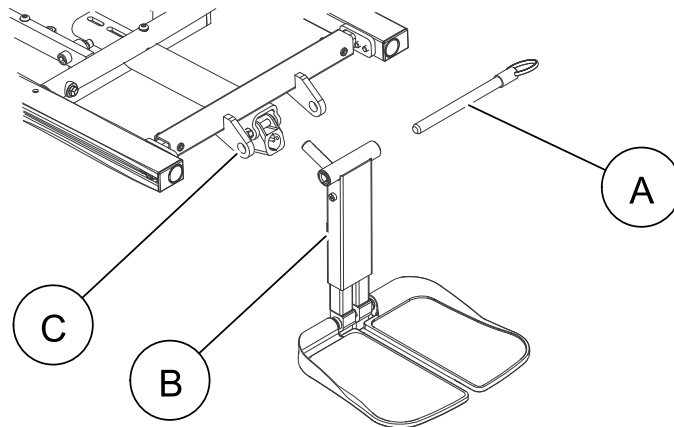


Fig. 4-48



Release lever is not shown. It is located towards the front or center of seat frame.

#### Removing

1. Remove the rigging pivot pin (A) that secures the footrest (B) to the mounting bracket (C) of the seat frame.
2. Hold the footrest with one hand and engage the release lever with the other while simultaneously pulling the center mount footrest out of the mounting bracket of the seat frame.

#### Installing

1. Engage the release lever (not shown) with one hand, hold the center mount footrest **B** with the other, and insert the center mount footrest into the mounting bracket **C** of the seat frame.
2. Reinstall the rigging pivot pin **A** to secure the center mount footrest to the mounting bracket of the seat frame.
3. Review the safety information in *4.13 Manual Center Mount Footrests, page 53* and ensure the footrest is adjusted properly.

#### 4.13.2 Adjusting the Height of the Manual Center Mount Footrest

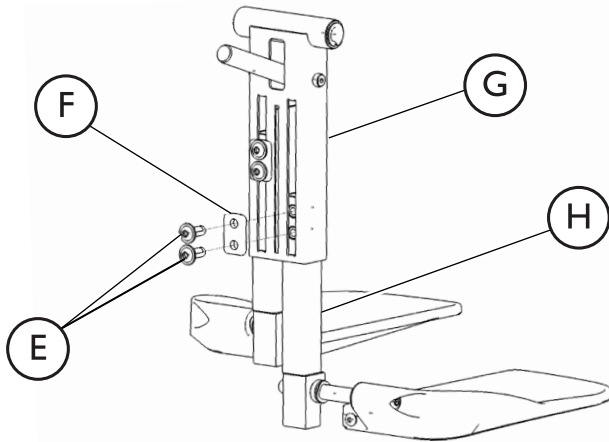


Fig. 4-49

1. Review the safety information in *4.13 Manual Center Mount Footrests, page 53*.
2. Remove the two mounting screws **E** that secure the button head cleat **F** to the extension housing **G**.
3. Adjust the footrest extension tube **H** to the desired height.
4. Secure the extension tube to the desired height with the button head cleat and mounting screws. Securely tighten.
5. Repeat steps 2-4 for the other extension tube.

#### 4.13.3 Adjusting the Angle of the Manual Center Mount Footrest

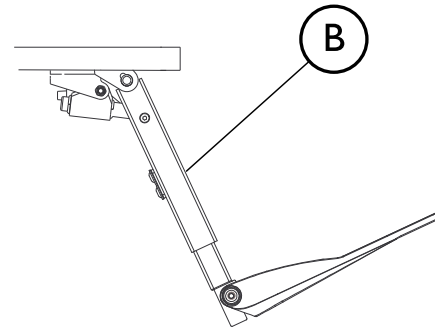


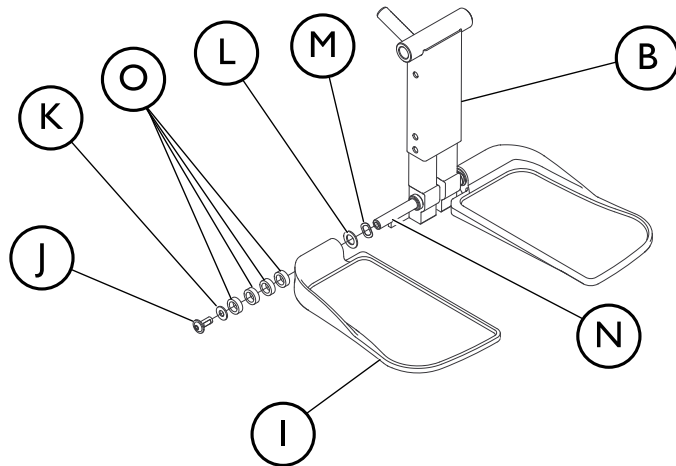
Fig. 4-50



Release lever located towards the front or center of seat frame.

1. Review the safety information in *4.13 Manual Center Mount Footrests, page 53.*
2. Engage the release lever with one hand (not shown) and move the center mount footrest **B** to the desired angle with the other hand.
3. Disengage the release lever (not shown) to lock the center mount footrest in the new position.

#### 4.13.4 Adjusting the Footplate Width of the Center Mount Footrest



**i** Narrow configuration shown (No Spacers)

Fig. 4-51

1. Flip footplate **I** down
2. Remove the mounting screw **I**, nylon washer **J**, washer **L** and wave washer **M** securing the footplate to the extension tube **N** of the center mount footrest **B**.
3. Reposition the four 1/4 inch spacers **O** between the footplate and washer as necessary to achieve the desired footplate width
4. Using the mounting screw, nylon washer, washer and wave washer, secure the footplate to the extension tube.
5. Repeat STEPS 1 and 4 for the other footplate.

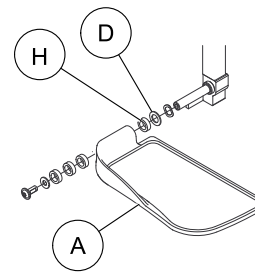


Fig. 4-52 Medium Narrow (One Spacer)

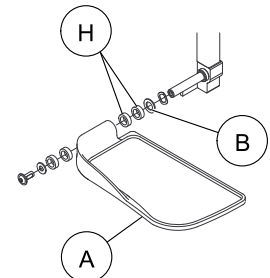


Fig. 4-53 Medium (Two Spacers)



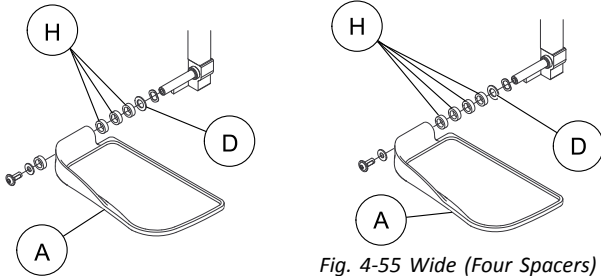
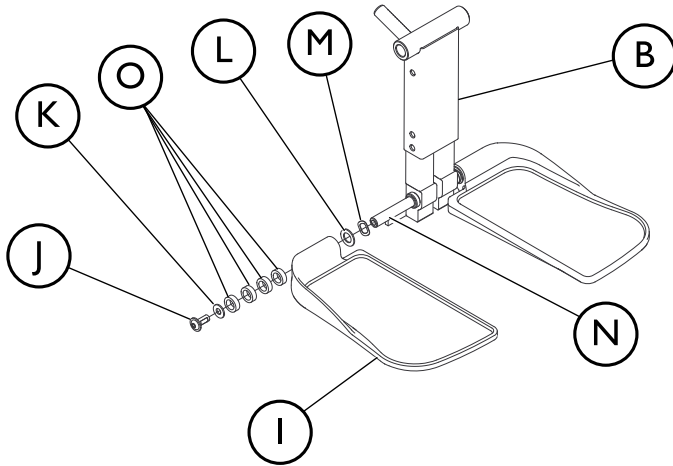



Fig. 4-54 Medium Wide (Three Spacers)

Fig. 4-55 Wide (Four Spacers)

#### 4.13.5 Adjusting the Footplate Angle



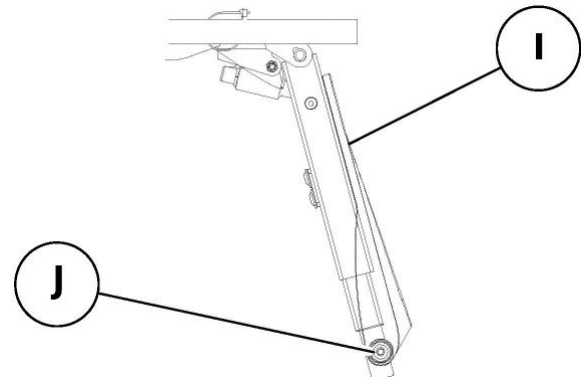
 Manual Center Mount Footrest is shown for reference **B**.

Rear view of footplate **I** is shown for clarity.

Fig. 4-56

1. Flip footplate up.
2. Rotate the adjustment screw **P** in or out until the desired angle is achieved.
3. Repeat STEPS 1 and 2 for the other footplate.

#### 4.13.6 Adjusting the Tension of the Flip Up Footplate





 The tension can be adjusted to increase or decrease the rotation effort of the flip up footplates **I**.

Fig. 4-57

1. Loosen the mounting screw ① on the front rigging angle hinge to decrease the rotation effort.

 DO NOT remove the footplate mounting screw.

2. Tighten the front rigging angle hinge mounting screw to increase the rotation effort.
3. Repeat STEPS 1 and 2 for the other footplate.

## 4.14 Pivot Plus Legrests

### 4.14.1 Swing Away Pivot Plus Legrests

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

1.

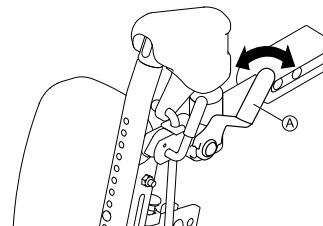


Fig. 4-58

Place the lever handle ① in the unlocked position.

2.



Fig. 4-59

Swivel the legrest outward.

### 4.14.2 Removing Pivot Plus Legrests

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

## Removing

1. Powered Pivot Plus only: Disconnect actuator.
- 2.

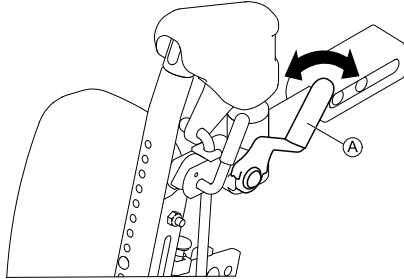


Fig. 4-60

Place lever handle **A** in unlocked position.

- 3.

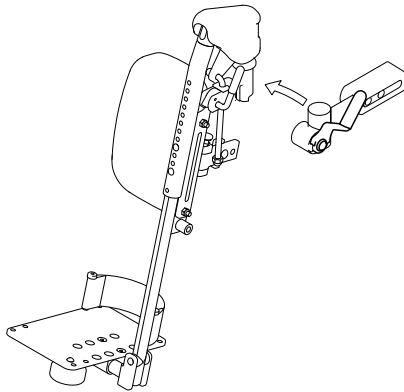


Fig. 4-61

Lift entire legrest assembly upward.

## Reinstalling

1. Insert legrest pin inside legrest receiver.
2. Return lever handle to locked position.
3. Powered Pivot Plus only: Connect actuator.  
Make sure plug engages with audible click.

### 4.14.3 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

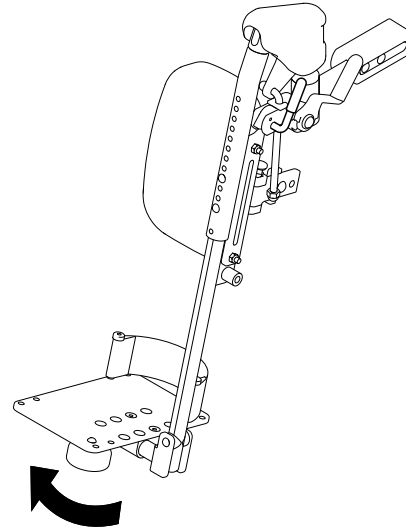


Fig. 4-62

1. Pull legrest upward to desired angle.

## Lowering Pivot Plus Legrest

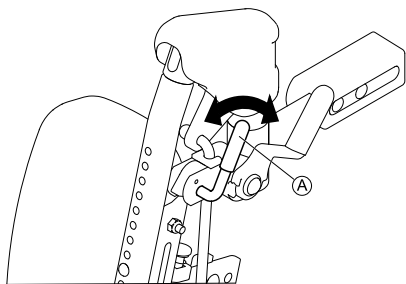


Fig. 4-63

1. Unlock manual legrest lever (A).
2. Lower legrest to desired angle.
3. Lock manual legrest lever.

### 4.14.4 Adjusting Width- and Angle-Adjustable Footplate



Tools:

- 6 mm Allen key
- 10 mm wrench

## Adjusting the Width

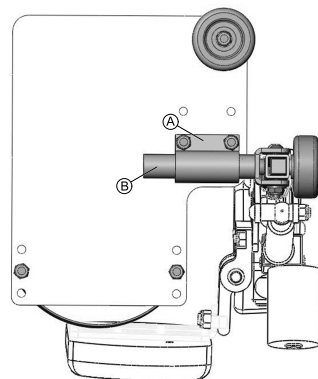


Fig. 4-64

1. 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.

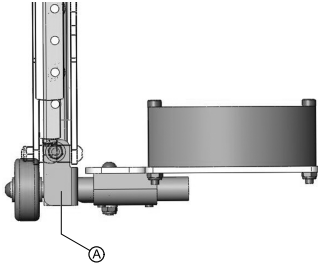


Fig. 4-65

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

## 4.15 Heavy Duty Legrests

### 4.15.1 Swing Away Heavy Duty Legrests

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

- 1.

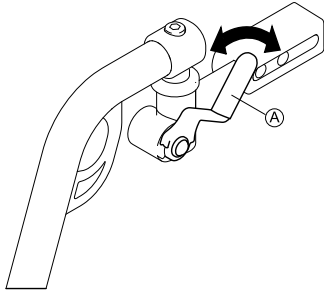


Fig. 4-66

- Place the lever handle (A) in the unlocked position.
2. Swivel the legrest outward.

60101832-B

### 4.15.2 Removing Heavy Duty Legrests

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

#### Removing

- 1.

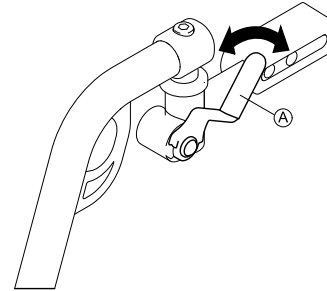


Fig. 4-67

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

- 2.

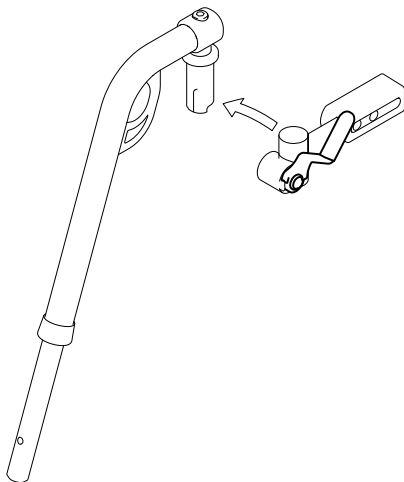


Fig. 4-68

Lift the entire legrest assembly upward.

### Reinstalling

1. Insert the legrest pin inside the legrest receiver.
2. Return the lever handle to the locked position.

### 4.15.3 Adjusting Width- and Angle-Adjustable Footplate



#### Tools:

- 6 mm Allen key
- 10 mm wrench

### Adjusting the Width

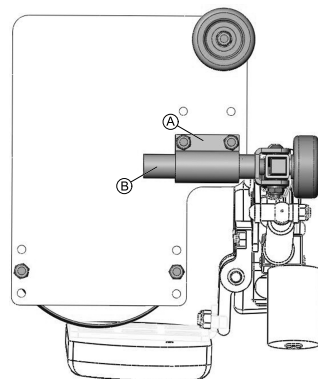


Fig. 4-69

1. 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.

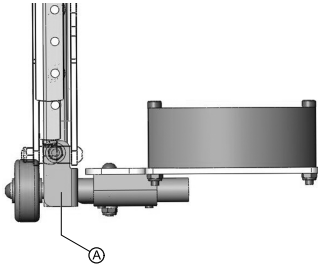


Fig. 4-70

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

#### 4.16 Legrest Depth Adjustment



- 1/4" (6.5 mm) Allen key

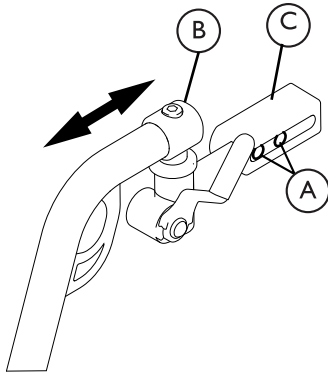


Fig. 4-71

1. Loosen the legrest receiver screws (x2) at the front of the left and right extruded side rails **A**.
2. Adjust the legrest depth by sliding the legrest **B** to the desired position inside the slotted channel of the receiver assembly **C**.



- 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.

## 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.

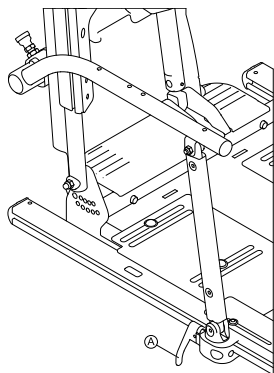


Fig. 5-1

1. 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.

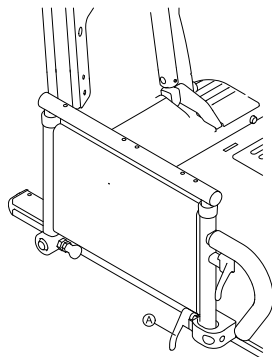


Fig. 5-2

#### Removing Armrest

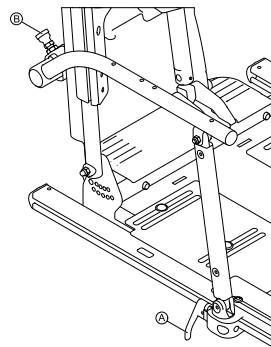


Fig. 5-3

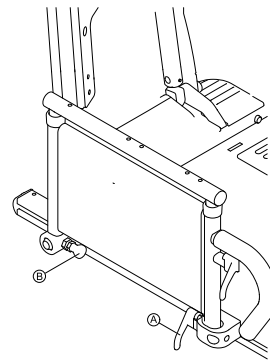


Fig. 5-4

1. 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, cantilever armrests can be rotated backwards around the pivot pin in the armrest receiver.



### Backpost Mounted Cantilever Armrest

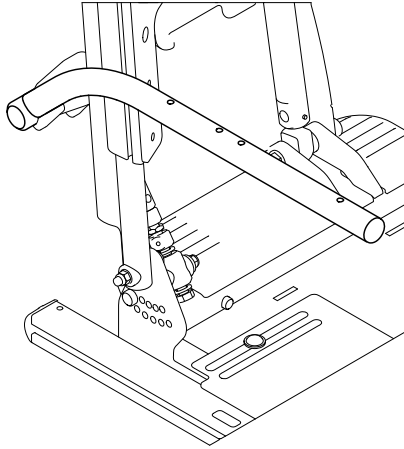


Fig. 5-5

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

### Ultra Rail Mounted Maxx Cantilever Armrest

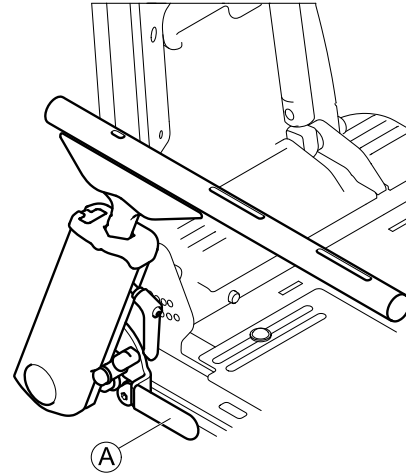


Fig. 5-6

1. Pull release lever **A** and lift up on armrest so that it pivots back.



When lowering armrest, make sure it engages with an audible click.

### 5.3 Removing/Inserting Hip Support with Quick Release

#### Removing Hip Support

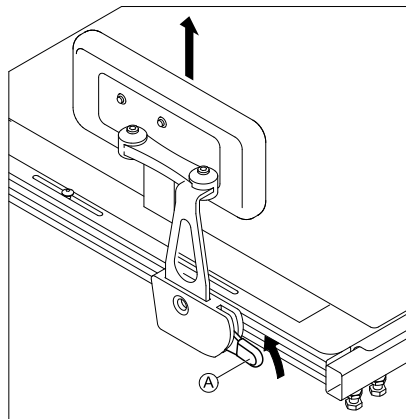


Fig. 5-7

1. Pull lever (A) upwards.
2. Remove hip support from holder.

#### Inserting Hip Support

1. Insert hip support in holder.
2. Push lever (A) downwards.  
Ensure that hip support locks with an audible click.

### 5.4 Removing/Inserting Fixed Hip Support

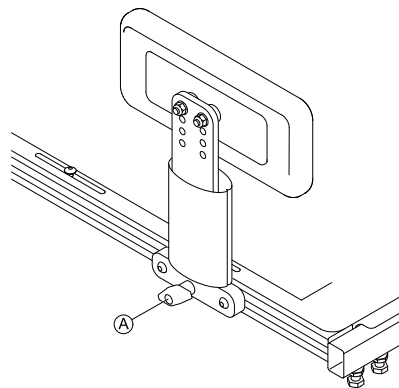


Fig. 5-8

#### Removing Fixed Hip Support

1. Loosen screw (A).
2. Remove hip support from bracket.

#### Inserting Fixed Hip Support

1. Insert hip support in bracket.
2. Tighten screw (A).

## 6 Transport

### 6.1 Wheelchair Transport Brackets (TRBKTS)

As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation system.

TRBKTS includes four factory-installed wheelchair transport brackets.

TRBKTS wheelchair models and configurations may not be used as a vehicle seat and are identified by the following label on the device:



Fig. 6-1



#### **WARNING!**

##### **Risk of Injury, Damage or Death**

Improper use of wheelchair transport brackets (TRBKTS) may result in injury, damage or death.

- Use these transport brackets only to secure an unoccupied wheelchair during transport.
- Ensure wheelchair is secured using proper restraint systems. Wheelchair transport brackets have not been crash-tested in accordance with ISO 7176–19.
- Only use the transport brackets for the purposes described in this manual.

### 6.2 Transport Ready Option (TRRO)

As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation system.



#### **WARNING!**

##### **Risk of Injury, Damage or Death**

Failure to observe and follow transport warnings and instructions may result in injury, damage or death.

- Only use the transport brackets included with TRRO for the purposes described in this manual.

There are two Transport Ready Options available:

- TRRO — For wheelchairs without the elevate option. TRRO includes four factory-installed transport brackets.
- TRRO-E — For wheelchairs with the elevate option. TRRO-E includes six factory-installed transport brackets.

Both Transport Ready Options rely on vehicle anchored pelvic and upper-torso belts.

- The wheelchair has been tested for seating in a motor vehicle with the factory installed seating system only.
- This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy restrained by BOTH pelvic and upper-torso belt(s) (shoulder belts), and that BOTH pelvic and upper torso belt(s) should be used to reduce the possibility of head and chest impacts with vehicle components.
- Transport Ready Options have been crash-tested in accordance with ISO 7176–19.
- The wheelchair is identified by the following label:



ISO 7176-19

*Fig. 6-2*

## 6.3 Transport—General information



### **WARNING!**

#### **Risk of Injury, Damage or Death**

Alteration or substitution may result in injury, damage or death.

- DO NOT alter or substitute product parts, components or systems.



### **CAUTION!**

#### **Risk of Injury or Damage**

Transporting a mobility device in a vehicle with a tray installed may cause injury or damage.

- If a tray is installed, always remove it before transporting the mobility device.

## 6.4 Transferring Mobility Device to Vehicle



### WARNING!

**The mobility device is at risk of tipping over if it is transferred to a vehicle while the user is still seated in the mobility device**

- Transfer the mobility device without the user whenever possible.
- If the mobility device with the user has to be transferred to a vehicle using a ramp, ensure that the ramp does not exceed the rated slope (refer to *9 Technical Data, page 83*).
- If the mobility device has to be transferred to a vehicle using a ramp that does exceed the rated slope (refer to *9 Technical Data, page 83*), a winch must then be used. An attendant can then safely monitor and assist the transfer process.
- Alternatively, a platform lift may be used.
- Ensure that the total weight of the mobility device including the user does not exceed the maximum permitted total weight for the ramp or platform lift.
- The mobility device should always be transferred to a vehicle with the backrest in an upright position, the seat lifter lowered and the seat tilt in the upright position.



### WARNING!

**Risk of injury and damage to the mobility device**  
If the mobility device is to be transferred to a vehicle via a lift, when the remote is turned on, there is a risk that the device may act erratically and fall off the lift.

- Before transferring the mobility device via a lift, turn off the product and disconnect either the bus cable from the remote or the batteries from the system.

1. Drive or push your mobility device into the transport vehicle using a suitable ramp.

## 6.5 Use of the Mobility Device as a Seat in a Vehicle



The following section does not apply to models or configurations which may not be used as a vehicle seat. These are identified by the following label on the mobility device:

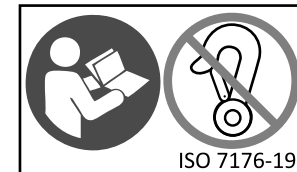


Fig. 6-3



**WARNING!**

**Risk of death or serious injury**

If a mobility device is secured using a 4-point (non-elevate systems) or 6-point (elevate systems) tie-down system available from a third party supplier and the curb weight of the mobility device exceeds the maximum weight for the system, death or serious injury to the user and potential nearby occupant.

- The actual weight of this mobility device can exceed 309 lb (140 kg). Make sure to use a 4-point or 6-point tie-down system checked and approved in accordance with ISO 10542 and certified for the actual weight of the mobility device. Consult the tie-down system manufacturer's documentation.



**WARNING!**

**Risk of injury**

Safety restraint devices must only be used when the wheelchair user's weight is 14 lb (22 kg) or more.

- When the user weight is lower than 14 lb (22 kg), do not use the wheelchair as a seat in a vehicle.



**CAUTION!**

**There is a risk of injury if the mobility device is not properly secured during use as a vehicle seat.**

- If possible, the user should always leave the mobility device to use a vehicle seat and the safety belts provided with the vehicle.
- The mobility device should always be anchored facing in the transport vehicle's intended direction of travel.
- The mobility device must always be secured in accordance with the mobility device and anchoring system manufacturers' user manual.
- Always remove and secure any accessory parts fixed to the mobility device such as chin controls or tables.
- If your mobility device is equipped with an angle adjustable backrest, then it must be placed in an upright position.
- Fully lower elevated legrests, if equipped.
- Fully lower the seat lifter, if equipped.



**CAUTION!**

**Risk of injury exists if a mobility device that is not equipped with leak-proof batteries is transported in a vehicle.**

- Only ever use leak-proof batteries.

**CAUTION!**

**Risk of injury or damage to the mobility device or to the transporting vehicle, if the legrests are in a raised position while the mobility device is used as a vehicle seat.**

- Always completely lower height-adjustable legrests, if equipped.

This mobility device complies with the requirements of ISO 7176-19 and may be used as a vehicle seat in connection with an anchoring system that has been checked and approved in accordance with ISO 10542. The transporting vehicle must be professionally converted to anchor the mobility device. Contact your vehicle's manufacturer for more information.

The mobility device has undergone a crash test in which it was anchored in the transporting vehicle's direction of travel. Other configurations were not tested. The crash test dummy was secured using pelvic and upper body safety belts. Both types of safety belt should be used in order to minimize the risk of injuries to head or upper body.

It is imperative that the mobility device is inspected by an Invacare provider before being used again after being involved in a crash. Alterations to the mobility device anchoring points may not be carried out without the manufacturer's permission.

### 6.5.1 How the Mobility Device is Anchored in a Vehicle

The mobility device is equipped with tie-down points. Snap hooks or belt loops can be used for fixation. If the wheelchair can be used as a vehicle seat, these tie-down points are labelled with the symbol shown on the right.



ISO 7176-19  
Fig. 6-4

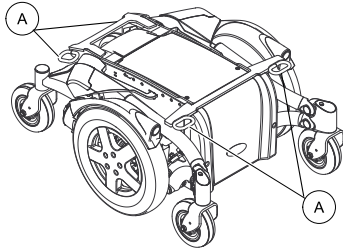


Fig. 6-5 Base Tie-Down Points—All Wheelchairs

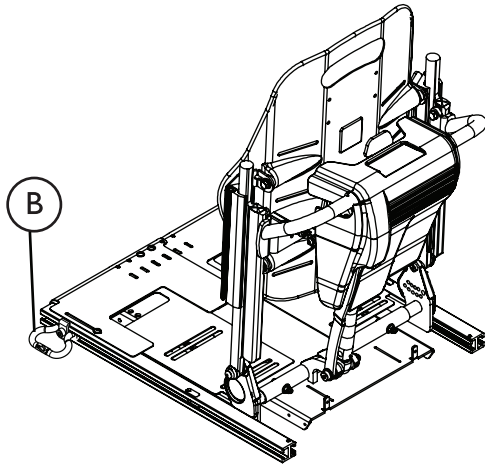


Fig. 6-6 Seat Tie-Down Points—Wheelchairs with Elevate

1. Secure the mobility device with the tie-down system belts at the following locations:
  - a. All Wheelchairs — four tie down points Ⓐ on the wheelchair base (two at the front and two at the rear).
  - b. Systems with Elevate (TRRO-E) — two additional tie down points Ⓑ on either side of the seat at the front of the seat rails.
2. Secure the mobility device by tensioning the belts in accordance with the tie-down system manufacturer's user manual.

### 6.5.2 How The User is Secured Within the Mobility Device



#### **CAUTION!**

**Risk of injury if the user is not properly secured within the mobility device**

- Even if the mobility device is equipped with a posture belt, this is no substitute for a proper safety belt which complies with ISO 10542 in the transport vehicle. Always use the safety belt installed in the transport vehicle.
- Safety belts must be in contact with the user's body. They must not be held at a distance from the user's body using parts of the mobility device such as armrests or wheels.
- Safety belts must be pulled as tightly as possible without causing the user discomfort.
- Safety belts must not be positioned while twisted.
- Ensure that the third seat belt anchorage point is not fixed directly to the vehicle floor, but to one of the vehicle uprights.



**CAUTION!**

**Risk of injury during use of the mobility device as a vehicle seat if a headrest is improperly 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.

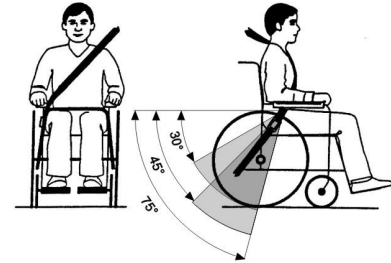


Fig. 6-9

The pelvic belt should be positioned in the area between the user's pelvis and thighs so that it is unobstructed and not too loose. The ideal angle of the pelvic belt to the horizontal is between 45° and 75°. The maximum permissible angle is between 30° and 75°. The angle should never be less than 30°!

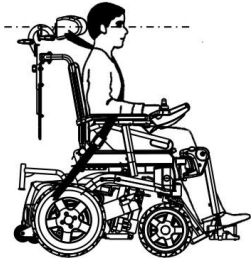


Fig. 6-7



Fig. 6-8

Seat belts may not be held at a distance from the user's body using parts of the mobility device such as armrests or wheels.

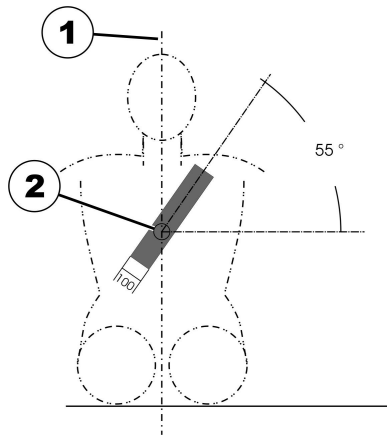


Fig. 6-10

The safety belt installed in the transporting vehicle should be applied as shown in the illustration above.

- 1) Center line of the body
- 2) Center of the sternum

## 6.6 Transporting the Mobility Device Without Occupant



### **CAUTION!** **Risk of injury**

- If you are unable to fasten your mobility device securely in a transport vehicle, Invacare recommends that you do not transport it.

Your mobility device may be transported without restrictions, whether by road, rail or by air. Individual transport

companies have, however, guidelines which can possibly restrict or forbid certain transport procedures. Please ask the transport company regarding each individual case.

- Before transporting your mobility device, make sure the motors are engaged and that the remote is switched off. Invacare strongly recommends that you disconnect or remove the batteries.
- Invacare strongly recommends securing the mobility device to the floor of the transporting vehicle.

## 7 Maintenance

### 7.1 Wear and Tear Information

#### General Information

Normal wear and tear items and components include but are not limited to: all upholstery items including seat and back upholstery, arm and calf pads, cushions, wheels, tires and casters, all types of batteries, joystick overlays and inductive rubberized protective boots.

Invacare reserves the right to ask for any item back that has an alleged defect in workmanship. Refer to the Warranty section in this manual for specific warranty information.

Refer to the Inspection Checklists for proper preventative maintenance schedule.

This is just a general guideline and does not include items damaged due to abuse and misuse.

Product Type	Product Wear and Tear
Wheelchairs	Wheels, Brake Assembly, Hand Grips
Mobility Hardware and Electronics	Rubber Urethane Tires and Casters, Handgrips, Joystick Inductive Tops, Joystick Overlays, Motors and Gearboxes (if exposed to prolonged moisture, urine, etc.), Stability Lock cylinders, Pneumatic Tires and Tubes

Upholstery and Seating	Arm pads, Seat Cushion Foam, Seat Cushion Covers, Back Cushion Foam, Back Cushion Covers, Headrest Foam, Headrest Covers, Footplate Covers, Calf Pad (if applicable) Foam and Cover
Batteries	Lead acid/Lithium, Coin cell (watch type), Gel (6 months)

### 7.2 User/Attendant Inspection Checklists



Every six months, and as necessary, take your wheelchair to a qualified technician for a thorough inspection and servicing.

Weekly, monthly, and periodic inspections should be performed by user/attendant between the six month service inspections.

Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair MUST be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

Refer to the wheelchair base user manual for additional safety inspection and troubleshooting information.

**DANGER!****Risk of Injury, Damage or Death**

Overinflation of tires may cause tires to explode.

- Inflate tire to the proper tire pressure (P.S.I. / kilopascals) listed on the side wall of the tire.
- Only use wheelchair with tires at proper pressure.
- The wheels and tires should be checked periodically for cracks and wear and should be replaced if necessary.

**7.2.1 Inspect/Adjust Daily**

- Check that all switches (push buttons/toggles) that operate your power positioning system are functioning properly.
- Check that batteries are charged. (refer to the base wheelchair user manual for battery charging and battery care information).

**7.2.2 Inspect/Adjust Weekly**

- Inspect all fasteners.
- Inspect TRRO fasteners and hardware.
- Ensure proper operation of powered functions (Example: drive, seating and legrests).

**7.2.3 Inspect/Adjust Monthly**

- Clean upholstery and armrests.
- Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.

- Check that cables are routed and secured properly to ensure that cables do NOT become entangled and damaged during normal operation of seating system.
- Check cables and wires for damage.
- Make sure all electrical connections are secure.
- Inspect mounting hardware (seating system to base).
- Check limit switch settings.
- Make sure drive lock-out operates properly.

**7.2.4 Inspect/Adjust Periodically**

- Inspect all operator (user/attendant) adjustable fasteners including the back pan, back cane and angle adjustment fasteners, and the arm support, flip back and height adjustment fasteners. Ensure fasteners are securely tightened.
- Inspect TRRO fasteners and hardware.
- Ensure clothing guards are secure.
- Ensure arms are secure but easy to release and adjustment levers engage properly.
- Ensure adjustable height arms operate and lock securely.
- Ensure upholstery does not have any rips or tears.
- Armrest pad sits flush against arm tube.
- Inspect foam handgrips for damage. If damaged, have them replaced by a qualified technician.
- Check center mount front riggings for loose fasteners. Replace /tighten if necessary.
- Check that all labels are present and legible. Replace if necessary.
- Make sure drive lock out operates properly.
- Make sure elevate systems drive with reduced speed when seat is in elevated position.
- Make sure tilt mechanism and tilt tracks are clean.

- Check back cane mounting fasteners and back mounting fasteners are tight.
- Check that spreader bar mounting fasteners are tight.

## 7.3 Service Inspection



Every six months take your wheelchair to a qualified technician for a thorough inspection and servicing.

Service inspections **MUST** be performed by a qualified technician.

Refer to the wheelchair base user manual for additional safety inspection and troubleshooting information.



### **DANGER!** **Risk of Injury, Damage or Death**

- Overinflation of tires may cause tires to explode.
- Inflate tire to the proper tire pressure (P.S.I. / kilopascals) listed on the side wall of the tire.
  - Only use wheelchair with tires at proper pressure.
  - The wheels and tires should be checked periodically for cracks and wear and should be replaced if necessary.



### **WARNING!**

#### **Risk of Serious Injury or Damage**

- Hardware that is loosely secured could cause loss of stability resulting in serious injury or damage.
- After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely.

The following are recommended items to inspect during regular service inspections performed by a qualified technician. Actual items to be inspected during the service inspection may vary according to the specific wheelchair:

### 7.3.1 Six Month Inspection



### **DANGER!**

#### **Risk of Death, Serious Injury, or Damage**

- Failure to complete the inspection of the critical components listed below could result in death or serious injury.
- Inspect stability control components which could include anti-dive spring, anti-dive cylinder, ratcheting gears, or end stops to ensure proper operation.
  - Inspect drive axle nut, locking tab, wheel fasteners or quick release to ensure drive wheel is secure

- Ensure adjustable height arms operate and lock securely.
- Ensure arms are secure but easy to release and adjustment levers engage properly.

- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Check center mount front riggings for loose fasteners. Replace /tighten if necessary.
- ❑ Cables shall be inspected periodically to ensure that they are routed and secured properly. Ensure that cables do NOT become entangled and damaged during normal operation of the seating system. Periodic inspection is recommended as it may reveal loose and/or damaged cables. Re-secure all loose cables and replace by following the recommendations outlined in the LiNX Controls System Service Manual.
- ❑ Ensure proper operation of powered functions (drive, seating, legrests, etc.).
- ❑ Inspect electrical components for signs of corrosion. Replace if corroded or damaged.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.
- ❑ Ensure clothing guards are secure.
- ❑ Ensure upholstery does not have any rips or tears.
- ❑ Ensure armrest pad sits flush against arm tube.
- ❑ Inspect all fasteners including the back pan, back cane and angle adjustment fasteners, and the arm support, flip back and height adjustment fasteners. Ensure fasteners are securely tightened.
- ❑ Inspect TRRO fasteners and hardware.
- ❑ Inspect foam handgrips for damage. If damaged, have them replaced by a qualified technician.

- ❑ Check power center mount front riggings for worn/frayed belts and/or loose fasteners. If found, replace these items.
- ❑ Make sure all electrical connections are secure.
- ❑ Make sure drive lock-out operates properly.
- ❑ Check limit switch position.
- ❑ Make sure seating systems with the recline function have the retaining pin in place at the top of each back cane.
- ❑ Make sure all systems have the retaining pin in place at the back of each seat rail.
- ❑ Check that spreader bar mounting fasteners are tight.

## 7.4 Cleaning



### **WARNING!**

#### **Risk of Injury, Damage or Death**

Electrical shock may cause injury, damage or death.

- Always unplug the product from the electrical outlet before cleaning.
- Always unplug accessories from the electrical outlet before cleaning.



### **CAUTION!**

#### **Risk of Damage**

Cleaning or maintenance may cause damage to carpeting or flooring.

- Place the wheelchair in a well ventilated area where cleaning or maintenance can be performed without risk of damage to carpeting or flooring.

**CAUTION!****Risk of Damage**

Exposure to liquids may damage components or accessories of wheelchair and electronics.

- DO NOT spray with any type of water or liquid.
- Electrical components damaged by corrosion MUST be replaced immediately.

**WARNING!****Risk of Injury, Damage or Death**

Excessive moisture or cleaning may reduce the flame retardancy of the upholstery and may result in injury, damage or death.

- Follow all cleaning instructions.
- Avoid excessive moisture or cleaning.



Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle.

For upholstery that is severely stained or surface finish that is badly damaged, contact Invacare for further information.

1. Use the following instructions to clean this product unless otherwise specified.
  - Upholstery — Warm water and mild non-abrasive soap.
  - Metal — Hot water and mild non-abrasive soap. Car polish and soft wax may be used to remove abrasions and restore gloss.
  - Plastic — Hot water and mild non-abrasive soap.
2. Dry the surface with dry cloth.
3. DO NOT use solvents or kitchen cleaners.

## 8 Troubleshooting

### 8.1 Performance Troubleshooting



For additional troubleshooting information regarding the power wheelchair and electronics, refer to the Troubleshooting section of the power wheelchair and remote user manuals (provided separately).

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



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

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

## 9 Technical Data

### 9.1 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	
Systems	<ul style="list-style-type: none"> <li>• CG Tilt (50°)</li> <li>• Power Recline (168°) with ESR</li> <li>• CG Tilt (45°) and integrated lift module (12 in)</li> <li>• CG Tilt (50°) and Power Recline (168°) with ESR</li> <li>• CG Tilt (45°) and Power Recline (168°) with ESR and integrated lift module (12 in)</li> <li>• Non-powered fixed mounting interface with settable angles and multiple seat-to-floor height settings</li> </ul>
Recline Modules	168° ESR
Recline Range	90°–168°
Pre-Cline Modules / Mounting Options	8° pre-cline modules
Tilt Modules Mounting	<ul style="list-style-type: none"> <li>• Standard</li> <li>• Fixed 5° anterior mount</li> <li>• Fixed 10° anterior mount</li> <li>• Fixed 5° posterior mount</li> </ul>

<b>Dimensions according to ISO 7176–15</b>	
Tilt Range	<ul style="list-style-type: none"> <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>
Tilt Range with Elevate	<ul style="list-style-type: none"> <li>• 0°–45° (standard mount)</li> <li>• -5°–40° (with 5° fixed anterior mount)</li> <li>• -10°–35° (with 10° fixed anterior mount)</li> <li>• 5°–50° (with 5° fixed posterior mount)</li> </ul>
Elevating Seat Range	12 in (305 mm)
Seat width	<ul style="list-style-type: none"> <li>• 16 in (405 mm)–22 in (610 mm)</li> </ul>
Seat depth	<ul style="list-style-type: none"> <li>• 16 in (405 mm)–23 in (585 mm)</li> </ul>
Back Cane Heights	Fixed angle setting only: <ul style="list-style-type: none"> <li>• 18–24 in (457–610 mm) (Standard back canes)</li> <li>• 20–24 in (508–610 mm) (Angled back canes)</li> </ul>
Back Heights	<ul style="list-style-type: none"> <li>• 18–25 in (457–635 mm) (Tilt Only)</li> <li>• 20–27 in (508–686 mm) (Tilt and Recline)</li> </ul>
Seat cushion thickness	<ul style="list-style-type: none"> <li>• 3 in (75 mm)/4 in (100 mm)</li> </ul>
Back Angle	<ul style="list-style-type: none"> <li>• 90°–168°</li> <li>• 82°–160° (8° precline mount)</li> </ul>
Back Cane Angles	<ul style="list-style-type: none"> <li>• 75°–116° (Standard)</li> <li>• 81°–121° (Angled Tilt)</li> </ul>
Armrest Height — Non-Powered Seat or Tilt Armrests	<ul style="list-style-type: none"> <li>• 9–12.5 in (230–318 mm) (Ultra Rail Mounted Flip-Back cantilever)</li> <li>• 9.75–18.75 in (248–476 mm) (Dual post, adjustable, including pouched)</li> </ul>

<b>Dimensions according to ISO 7176–15</b>	
Armrest Height — Recline Armrests	<ul style="list-style-type: none"> <li>• 9–13 in (230–330 mm) / 12.5–16 in (320–405 mm) (Cantilever Flip-Back armrest)</li> <li>• 9–13 in (230–330 mm) / 12.5–16 in (320–405 mm) (Two-post Flip-Back Recline armrest)</li> </ul>
Armrest depth <sup>2</sup>	<ul style="list-style-type: none"> <li>• 10–23 in (250–590 mm)</li> </ul>

<b>Footrests and legrests</b>		
Heavy duty	Length	<ul style="list-style-type: none"> <li>• 14 in (365 mm)–18 in (465 mm)</li> </ul>
	Angle	<ul style="list-style-type: none"> <li>• 70°–0°</li> </ul>
Pivot Plus	Length	<ul style="list-style-type: none"> <li>• 14 in (365 mm)–18 in (465 mm)</li> </ul>
	Angle	<ul style="list-style-type: none"> <li>• 80°–20°</li> </ul>
Center-mounted (fixed)	Length	<ul style="list-style-type: none"> <li>• 9 in (230 mm)–17 in (430 mm)</li> </ul>
	Angle	<ul style="list-style-type: none"> <li>• 97°, 90°, 83°</li> </ul>
Center-mounted (adjustable)	Length	<ul style="list-style-type: none"> <li>• 9.25 in ( mm)–12 in ( mm)</li> <li>• 12.25 in ( mm)–15 in ( mm)</li> </ul>
	Angle	<ul style="list-style-type: none"> <li>• 90°–0°</li> </ul>
Center-mounted powered LNX	Length	<ul style="list-style-type: none"> <li>• 13 in (340 mm)–16 in (410 mm)</li> </ul>
	Angle	<ul style="list-style-type: none"> <li>• 97°–7°</li> <li>• 90°–0°</li> <li>• 83°– -7°</li> </ul>

<b>Weight Capacity/Payload</b>	
Maximum weight capacity/payload	<ul style="list-style-type: none"> <li>• Non-Elevate—up to 300 lbs (136 kg)</li> <li>• Elevate—up to 250 lbs (113 kg)</li> </ul> <p> Weight limitation is total weight (user weight plus any additional items that the user may require [back pack, ventilator, etc.]). Example: If weight limitation of the wheelchair is 300 lbs and additional items equal 25 lbs, subtract 25 lbs from 300 lbs. This means the maximum weight limitation of the user is 275 lbs.</p>

- 1 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

<b>Dimensions according to ISO 7176-15</b>	
Overall height	<ul style="list-style-type: none"> <li>• 43 in (1080 mm)–48 in (1210 mm) (without headrest)</li> <li>• 43 in (1080 mm)–60 in (1535 mm) (with headrest)</li> </ul>
Maximum total width/Stowage width	<ul style="list-style-type: none"> <li>• 25–33 in (630–835 mm) (seat width 16–24 in [405 — 610 mm])</li> </ul>
Total length	<ul style="list-style-type: none"> <li>• 45.3 in (1160 mm) at 0° with center mounted front rigging</li> </ul>
Stowage length	<ul style="list-style-type: none"> <li>• min 31.5 in (800 mm)</li> </ul>
Stowage height	<ul style="list-style-type: none"> <li>• 44 in (1120 mm)–49 in (1250 mm)</li> </ul>
Seat-to-floor height <sup>1</sup> :	

<b>Dimensions according to ISO 7176-15</b>	
with powered seating	<ul style="list-style-type: none"> <li>• 17.25 in (438 mm)</li> <li>• 18.25 in (464 mm)</li> <li>• 19.25 in (489 mm)</li> </ul>
without powered seating	<ul style="list-style-type: none"> <li>• 16.5 in (419 mm)</li> <li>• 18.5 in (470 mm)</li> <li>• 20.5 in (521 mm)</li> </ul>

<b>Weight<sup>2</sup></b>	
Curb weight	<ul style="list-style-type: none"> <li>• 330–450 lb (150–204 kg)</li> </ul>

- 1 Measured without seat cushion
- 2 The actual curb weight depends on the options and accessories your mobility device has been supplied with. Every Invacare mobility device is weighed when leaving the factory. Refer to the invoice for the curb weight (including batteries) measured.

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## 10 Warranty

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### 10.1 Limited Warranty—US

Except as otherwise set forth below, Invacare warrants that the following components of the mobility device (“product”) will be free from defects in materials and workmanship for a period of one (1) year from the date Invacare ships the product to the original purchaser or provider: base frame, electronics and electrical components (excluding batteries), motors, powered seating actuators, gearboxes, bearings and bushings, seat frame, fixed seat post, upholstered materials, padded materials, casters, tires and tubes (excluding normal wear and tear). Invacare warrants all product batteries will be free from defects in materials and workmanship for a period of six (6) months from the date Invacare ships the product to the original purchaser or provider. The warranties described above are referred to as the “Warranty”. A copy of the original product invoice is required for coverage under the Warranty.

### 10.2 Limited Warranty—Canada

Except as otherwise set forth below, Invacare warrants the base frame of the mobility device (“product”) will be free from defects in materials and workmanship for a period of five (5) years from the date Invacare ships the product to the original purchaser or provider. Invacare warrants that the seat frame and fixed seat post will be free from defects in materials and workmanship for a period of three (3) years from the date Invacare ships the product to the original purchaser or provider. Invacare warrants that the following components of the product will be free from defects in materials and workmanship for a period of two

(2) years from the date Invacare ships the product to the original purchaser or provider: electronics and electrical components (excluding batteries), motors, powered seating actuators, gearboxes. Invacare warrants that the following components of the product will be free from defects in materials and workmanship for a period of one (1) year from the date Invacare ships the product to the original purchaser or provider: bearings and bushings, upholstered materials (excluding normal wear and tear), padded materials (excluding normal wear and tear), brake pads (excluding normal wear and tear), casters (excluding normal wear and tear), tires and tubes (excluding normal wear and tear). Invacare warrants all product batteries will be free from defects in materials and workmanship for a period of six (6) months from the date Invacare ships the product to the original purchaser or provider. The warranties described above are referred to as the “Warranty”. A copy of the original product invoice is required for coverage under the Warranty.

### 10.3 Repair or Replacement

Invacare's sole obligation and the original purchaser's exclusive remedy under the Warranty is limited to Invacare's repair and/or replacement, at Invacare's option, of defective components and batteries covered by the Warranty. Such repair or replacement does not include any labor or shipping charges incurred by Invacare in the replacement and/or repair of any such component or battery. For Warranty service, please contact the provider from whom you purchased your product. In the event you do not receive satisfactory Warranty service, please write directly to Invacare at the address on the bottom of the back cover. Provide provider's name address, date of purchase, indicate



nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to Invacare without Invacare's prior written authorization.

#### **10.4 Limitations and Exclusions**

The Warranty is extended only to the original purchaser who purchases the product new and unused from Invacare or a provider. The Warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under the Warranty will end upon any such subsequent sale or other transfer of title to any other person.

The Warranty does not apply to serial numbered products if the serial number has been removed or defaced, products subject to neglect, abuse, accident, improper operation, maintenance or storage, commercial or fleet use, products modified without Invacare's express written authorization (including, but not limited to, modification through the use of unauthorized parts or attachments), products damaged by reason of repairs made to any component without Invacare's express written authorization, or to a product damaged by circumstances beyond Invacare's control, and such evaluation will be solely determined by Invacare.

The Warranty does not apply to problems arising from normal wear and tear or failure to adhere to the product instructions. A change in operating noise, particularly relative to motors and gearboxes does not constitute a failure or defect and will not be repaired or replaced as all products are expected to exhibit changes in operating noise due to aging.

#### **10.5 Disclaimers**

The Warranty may not be modified or waived in any manner whatsoever without Invacare's express written authorization.

THE WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AND TO THE EXTENT AS MAY BE PROHIBITED BY STATE OR PROVINCIAL LAW, IN NO EVENT SHALL INVACARE BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM OR ARISING OUT OF OR RELATED TO A DEFECT IN ANY PRODUCT, OR INVACARE'S PERFORMANCE OR FAILURE TO PERFORM ANY OF ITS OBLIGATIONS UNDER THIS WARRANTY, WHETHER OR NOT INVACARE HAS BEEN ADVISED, KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS.





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