



MOTION CONCEPTS POWER POSITIONING SYSTEM

MODULAR POWER STANDING SYSTEM (MPSS)

for the ROVI A3 POWER BASE

OWNERS MANUAL

i DEALER: This manual contains important safety, maintenance and operating information specific to the operation of the Motion Concepts Modular Power Standing (MPS-Maxx) System. This manual MUST be given to the USER of the product.

END USER: BEFORE using this product, read this manual and save for future reference.



This manual may not be reproduced or reprinted either partly or completely without previous written consent from Motion Concepts or its statutory representatives.

This owner's manual is compiled from the latest specifications and product information available at the time of publication. We reserve the right to make any necessary as they become necessary. Any changes made to our products may cause slight variations between the illustrations and explanations in this manual and the product you have purchased. If you have any questions or concerns regarding the information provided in this manual, please contact our Customer Service Department for assistance.



POWER-POSITIONING SYSTEMS

Important Information

(Please complete this information for your records and for reference during any warranty claims.)

**Motion Concepts
Serial Number:**

S/N:

Dealer: _____

Address: _____

Phone #: _____

Purchase Date: _____

Power Base (Model): _____



1.0 INTRODUCTION

Dear User,

Congratulations on your decision to purchase a Motion Concepts power positioning system. Our goal at Motion Concepts is to provide you with the best possible seating system. Our close work with many health care professionals has given us an understanding of the challenges that you may confront, and has enabled us to design systems that will help to meet your individual positioning needs. We are confident that you will be delighted with your new positioning system and as you grow or your needs change, your new seating system will be able to grow and change with you.

IMPORTANT!

This user manual applies specifically to our Motion Concepts Modular Power Standing (MPS) System. It is important that you read and understand its contents. It is also equally important that you read and understand the Operating Manual/Instructions provided for your wheelchair power base.

Motion Concepts or their statutory representatives can accept no liability in cases in which the wheelchair has not been adapted to suit the users' disabilities.

Some maintenance and adjustments can be performed by the user or his/her attendants, however, due to the complexity of Motion Concepts Seating Systems, certain adjustments do require technical training and may only be carried out by your authorized Motion Concepts specialist dealer. Damages and errors caused by non-observance of the operating manual or as a result of incorrect maintenance are excluded from all warranties/guarantees.

Contact Information:

If you have any questions or require support concerning your wheelchair seating system, please contact your authorized Motion Concepts Dealer, who has the necessary training and equipment to meet your needs, or you may contact Motion Concepts directly for assistance. The more we are able to understand your needs, the better we will be able to meet them.

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PLEASE NOTE: This User Manual and other reference documents are available in PDF-format. The Adobe Reader program offers user-friendly tools (e.g. zoom in/ magnification tool) to assist individuals with reading difficulties. If an image or drawing size cannot be increased, please contact Motion Concepts and high-resolution documents will be provided.

1.0 INTRODUCTION

1.1 Important Symbols in this Manual

Operating your Motion Concepts Power Positioning System safely depends upon your diligence in following the warnings, cautions and information provided in this User Manual. Setting up and operating the system safely also depends on your own good judgement and common sense, as well as that of your provider, caregiver and/or health professional.

Safety Symbols:

Signal words and safety symbols are used throughout this manual and apply to hazards, unsafe practices or important information which, if not followed, could result in injury or property damage. Definitions of the signal words are provided below. It is very important for you to read and understand them completely.



DANGER!

Danger indicates an imminently hazardous situation which, if not avoided, could 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 important information regarding the operation of your power positioning system, or a hazardous situation that could result in damage to property if not avoided, or both.



NOTE:

This symbol identifies general information which is intended to simplify working with your product and/or recommendations for efficient trouble free use.



Requirements:

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



READ WELL BEFORE OPERATION!

This symbol advises you to read information carefully before proceeding

1.0 INTRODUCTION

1.2 Considerations For Use

i IMPORTANT! Prior to evaluation and use of the Motion Concepts Modular Power Standing System, all consumers must consult with a qualified physician and receive medical clearance and approval to use assisted standing devices. An experienced Occupational or Physical therapist should also be consulted and present during the evaluation and prescription process.

WARNINGS and CONTRAINDICATIONS:

Range of motion of the hips, knees & ankles (bilaterally) should be within functional limits for standing as determined by a clinician. Limitations of range of motion can result from many conditions (spasticity, heterotrophic ossification, hip dislocation, etc.) which can cause orthopedic changes and prevent an ergonomic standing posture.

Blood pressure – Decreased muscle tone can make it difficult for blood to circulate from the lower extremities back to the lungs and heart. It may be necessary for the consumer to wear compression stockings on their legs and possibly an abdominal binder to prevent light headedness and blacking out. Clinicians should monitor for orthostatic hypotension, elevated heart rate or other cardiovascular conditions.

Bone density – If the wheelchair user has not been ambulatory or fully weight-bearing for more than 6 months, it is recommended that a bone density study be performed to ensure that the long bones of the lower extremities will be able to physically support their weight in a standing position. Generally speaking, the longer the amount of time since a person has been ambulatory, the greater the risk for bone mineral loss and decreased bone density.

Other contraindications may exist; Medical Professionals must be consulted in determining each individual's indications and contraindications for use of an assisted standing device.

The Modular Power Standing System is appropriate for use by individuals who drive a power wheelchair and cannot stand up on their own. The Modular Power Standing System allows such users to change position including from seating to standing, standing to seating, or any position in between. The device is appropriate for indoor and outdoor use.

Motion Concepts makes no claims as to the therapeutic effectiveness of the products. Our only claims relate to the ability of the products to provide safe and reliable powered repositioning on the equipment onto which they are installed.

1.3 Limited Warranty

Limited Warranty

All structural components manufactured by Motion Concepts are warranted to be free from defects in materials and workmanship for the lifetime of the original owner. Actuators and electronic components are warranted to be free from defects in material and workmanship for a period of two years. If during the warranty period, any component is determined, at the sole discretion of Motion Concepts, to be defective, such component will be repaired or replaced at the option of Motion Concepts.

The sole obligation of Motion Concepts under this warranty shall be to repair or replace any component or components which are found to be defective. For warranty service, contact the dealer from which the system was purchased. The purchaser of the product is responsible for returning the product to the dealer. Any defective component, once replaced under warranty, shall become the property of Motion Concepts. If further service is required, please contact Motion Concepts: Canada 866-748-7943; USA 888-433-6818

1.0 INTRODUCTION

Limitations and Exclusions

The foregoing warranty shall apply only to the original purchase and shall not apply to product subjected to neglect, abuse, improper operation, accidental damage or improper storage. The warranty shall not apply to products which have been modified or fitted with improper parts or components without the written consent of Motion Concepts. The warranty shall also not apply to a product which has been damaged as a result of unauthorized repairs and/or by circumstances not under the control of Motion Concepts.

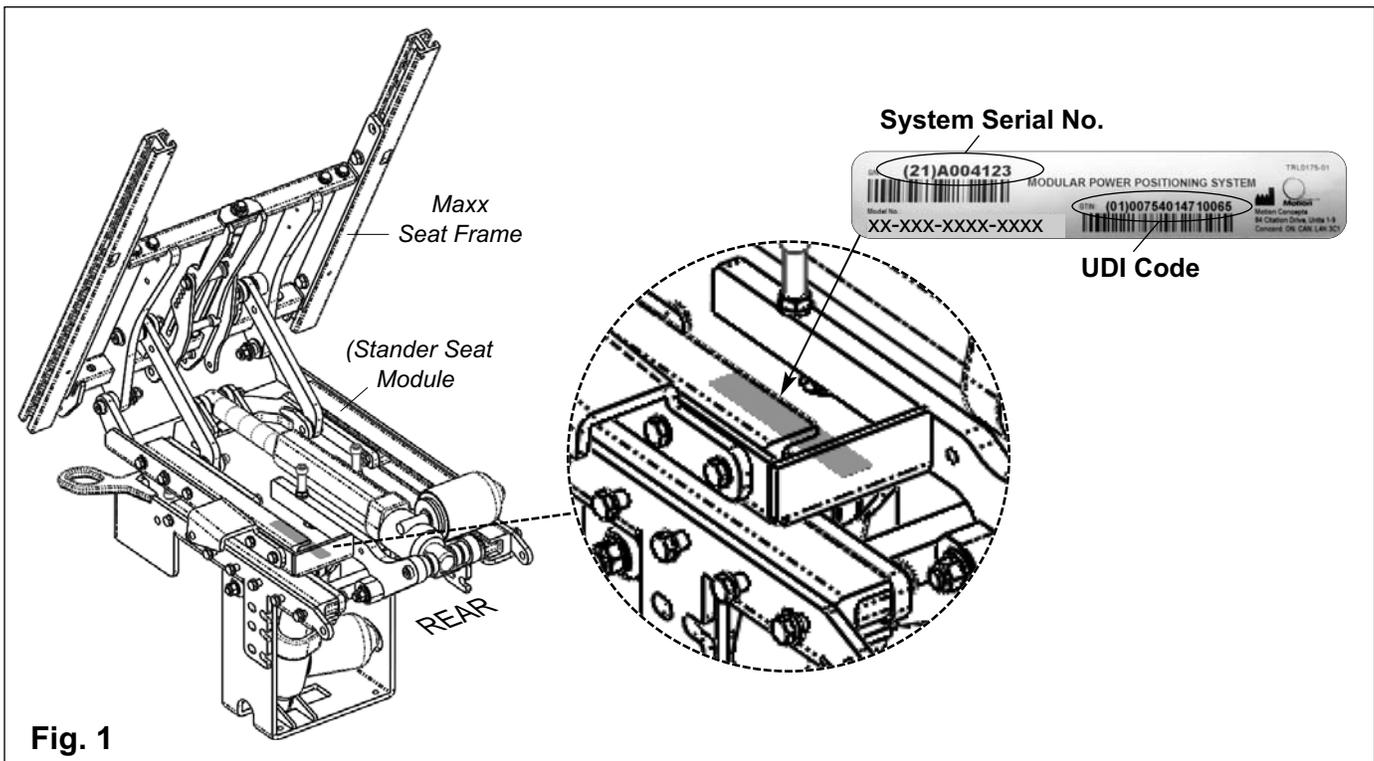
The foregoing is exclusive and in lieu of all other warranties, expressed or implied, including, without limitation, implied warranties of merchantability and fitness for a particular purpose. The warranty shall not be extended beyond the duration of the expressed warranty provided herein. Motion Concepts shall not be liable for any consequential or incidental damages whatsoever.

Some jurisdictions do not allow the exclusions or limitation of incidental or consequential damages, or limitation on the length of an implied warranty. Local laws should be reviewed to determine if the above exclusions and limitations apply.

1.4 System Identification

Motion Concepts power positioning systems are identified by a unique device identification (UDI) code and serial number, which allows us to trace the production history of the system and better equips us to address any service issues that may occur over the lifetime of the product.

The identification plate for your **Modular Power Standing System (MPS-Maxx)** is located on the inner base plate of the anterior tilt module (in the left rear corner of MPS System)- see **Fig.1**.



2.0 SAFETY INFORMATION



READ ALL SAFETY INFORMATION THOROUGHLY BEFORE OPERATION!

Your Motion Concepts MPS-Maxx System has been specially configured and installed onto the wheelchair base prior to delivery. Please note that the final configuration and purchasing decision regarding the complete wheelchair system is the responsibility of the powerchair user, who is capable of making such a decision, and his/her healthcare professional.

The contents of this manual are based on the expectation that a mobility device expert has fitted the power chair to the user and has assisted the prescribing healthcare professional in the instruction and safe use of this device



IMPORTANT! The most important link in the delivery chain is you, the **end user**. You must be satisfied with the product in terms of function, safety and aesthetics. No sale is complete until you have received thorough training in all aspects of the care and safe use of the system.



DANGER! Risk of Death, Injury or Damage.

Improper use of this product may cause damage, serious injury or death

- *DO NOT ignore unanswered questions. If you are unable to understand the warnings, cautions or instructions provided, contact a health care professional or dealer before attempting to use this equipment*
- *DO NOT use this product or any available optional equipment without first completely reading and understanding the safety warnings and instructions included in this Motion Concepts MPSS Owners Manual, as well as any additional instructional material such as user manuals, service manuals or instruction sheets supplied with this product or optional equipment.*



IMPORTANT! Please be certain to also read and understand the detailed safety warnings included in your **Power Wheelchair Base Owners Manual** (*provided separately*)



IMPORTANT! Motion Concepts disclaims all responsibility and liability for any personal injury or damage to property that occurs as a result of improper or unsafe use of the power positioning system, and/or any unauthorized dealer or third party repairs or modifications made to the power positioning system or to the wheelchair on which the system is installed.

2.1 Stability

Motion Concepts Modular Power Standing Systems are designed to accommodate a wide range of user needs. Only the dealer and the health care professional can ensure that the system meets your individual requirements. It is your dealer or healthcare professional's responsibility to ensure that the wheelchair and the power positioning system are set up properly and safely for your specific needs.

STABILITY WARNINGS!



WARNING!! Risk of Damage, Serious Injury or Death

Altering the mounting position or seat depth of your Rovi-MPS System could compromise wheelchair stability, reduce drive control and reduce traction resulting in damage, serious injury or death

- *Your Motion Concepts seating system may be mounted/adjusted on the powerbase over a range of fore and aft positions. It is the Dealer/Service Providers responsibility to ensure the final system mounting position provides you with maximum stability over the full range of seating positions.*
- *Adjustments to the seat depth and/or adjustment of the system mounting position can have a significant effect on the overall stability and driveability of the wheelchair and must ONLY be performed by a qualified technician.*
- *If you have any concerns with the stability of your wheelchair, upon delivery or following a seat depth adjustment, contact your authorized Dealer/Service Provider immediately to resolve the issue.*

2.0 SAFETY INFORMATION



WARNING! Risk of Serious Injury or Damage.

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

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



DANGER! Risk of Damage, Serious Injury or Death

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

- *Ensure all mounting hardware is present and tightened securely*



WARNING! Risk of Serious Injury or Damage.

Driving/operating your wheelchair when tilted, reclined, elevated or standing could cause a loss of stability resulting in serious injury or damage.

- *When operating/driving the wheelchair in a tilted and/or reclined, or elevated or standing position, ALWAYS ensure the wheelchair is on a smooth level surface (even when travelling at reduced drive speed).*
- *When approaching an incline or step, ALWAYS return the system to a stable (seated/upright & fully lowered) driving position, proceed with caution, and approach the incline/step from straight on to greatly reduce the risk of tipping.*



WARNING! Risk of Serious Injury or Damage.

Improper body positioning in the wheelchair could compromise wheelchair stability resulting in serious injury or damage.

Your wheelchair has been designed to remain upright & stable during normal daily activities. To maintain proper balance, ensure system stability and assure the safe operation of your wheelchair:

- *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.*
- *DO NOT lean forward out of the wheelchair any further than the length of the armrests.*
- *NEVER lean forward or sideways to grab items/objects, or shift body position (in any direction) while in an standing or elevated position.*
- *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.*
- *ALWAYS wear your postural belt when you are occupying the wheelchair. Your postural belt helps reduce the possibility of a fall from the wheelchair.*
- *ALWAYS ensure the knee blocks and chest bar are locked into position PRIOR to transitioning into the stand position.*
 - *ALWAYS ensure the chest strap is properly adjusted and secured PRIOR to transitioning into the stand position.*
- *NEVER transfer in or out of your wheelchair while in the elevated or standing position.*
- *When driving, 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, and may compromise the stability of the wheelchair.*



WARNING! Risk of Serious Injury or Damage.

Seating accessories and personal gear could cause instability resulting in serious injury. The following factors should be considered when evaluating stability:

- *Consider all personal gear and accessories (backpacks, extra batteries, etc..) that will be carried on the wheelchair. For example, a loaded backpack, attached to the back of the seating system can significantly reduce the rearward stability of your wheelchair.*
 - *Consider the backrest being used. 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 wheelchair's forward stability.*
 - *Consider the seat cushion being used. A thick seat cushion will raise your center of gravity and reduce the wheelchairs stability in all directions.*

2.0 SAFETY INFORMATION

2.1 Stability Warnings (...cont'd)



WARNING! Risk of Serious Injury or Damage.

By altering your seat position in the wheelchair (via power positioning functions such as tilting/reclining/elevating/standing), you are changing the stability characteristics of the wheelchair. It is essential that the seating system is set up so that it remains stable in all seating positions.

- NEVER extend your arms backward beyond the back when the seating system is in a tilted or reclined or elevated or standing position. This could shift your center of gravity and cause the wheelchair to become unstable.
- When the system is fully tilted or reclined, the front wheels of the powerbase should NEVER come off the ground. If this occurs, return your seat to a stable position and contact your authorized Service Provider/Dealer immediately to resolve the issue.
- When the system is in the standing position, the rear wheels of the powerbase should NEVER come off the ground. If this occurs, return your seat to a stable position and contact your authorized Service Provider/Dealer immediately to resolve the issue.
- 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, reclined, elevated or standing position.



WARNING! Risk of Damage, Serious Injury or Death

A wheelchairs stability is adversely affected by additional weight that shifts the center of gravity

- Your wheelchair/seating system is designed to accommodate a single occupant. DO NOT operate with additional person(s) (including children or pets) seated in or on the wheelchair.
- DO NOT carry heavy objects on your lap while operating the wheelchair.



DANGER! Risk of Damage, Serious Injury or Death

Operating your wheelchair with improperly set safety limits/lockouts could cause a loss of stability, resulting in damage, serious injury or death.

- The setting of the wheelchair safety limits/lockouts MUST be performed by a Qualified Service Technician; DO NOT attempt to adjust or disable the safety limits/lockouts (see also **Section 4.3- Safety Lockouts and Limits**).
- ALL Motion Concepts wheelchairs are programmed with a drive lockout (DLO) limit. The DLO limit MUST always be set to ensure your stability is not compromised when operating your wheelchair.
- Your Motion Concepts seating system is programmed with variety of safety limits/lockouts based on the type of power positioning functions installed (e.g. tilt, recline, elevate). All required safety limits/lockouts are set to ensure your stability is not compromised when operating your wheelchair.
- Your MPS-Maxx system is equipped with front anti-tipper lockouts and a reduced drive speed limit; ALWAYS be aware when these lockouts engage, and proceed with caution when operating/driving your wheelchair in reduced drive speed, or with the anti-tipper lockouts engaged, and travel on a smooth, level surface to ensure the wheelchair's stability is not compromised.



WARNING! Risk of Damage, Serious Injury or Death

Loss of traction or stability on rough or unstable terrain may cause damage, injury or death

- DO NOT operate the wheelchair on rough or unstable terrain. This would include, but is not limited to areas of rock, gravel, sand, mulch, mud, uneven pavement, roots and similar conditions
- ALWAYS be aware of your surroundings and conditions that might affect the stability and performance of the wheelchair.



DANGER! Risk of Damage, Serious Injury or Death

Driving while on an incline could cause a loss of stability resulting in death or serious injury.

- ALWAYS take extra precautions when travelling up or down an incline. To ensure your wheelchair stability is not compromised, Motion Concepts recommends a maximum safe incline/slope angle of 6 degrees for wheelchair travel (with the wheelchair in the upright 'home' position). (See **Section 2.2- Warnings When Travelling on Inclines**)

2.0 SAFETY INFORMATION

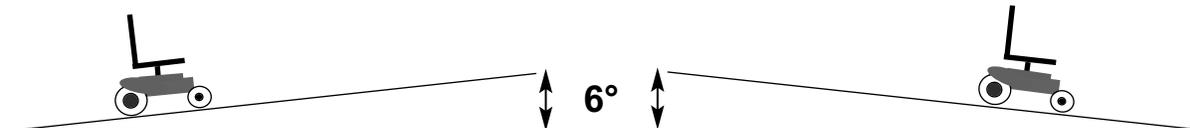
2.2 Guidelines for Travelling on Inclines

i IMPORTANT! Your power chair has been tested in accordance with ISO and RESNA wheelchair standards, and you may have the ability to climb slopes steeper than those indicated in this manual, however any attempt to climb or descend a slope steeper than the maximum recommended safe incline angle may put your wheelchair in an unstable position and cause it to tip.

i IMPORTANT! The maximum safe incline angle, as recommended by the wheelchair base manufacturer, may be **further restricted** with the addition of our Motion Concepts Power Positioning System. Where a variance occurs between the Wheelchair Power Base User Manual and this Motion Concepts MPSS Owners Manual, the lowest recommended incline angle will take precedent.

Your wheelchair's ability to travel up or down inclines is affected by your weight, travel speed, angle of approach to the incline and the set-up/configuration of your power positioning system. For our Motion Concepts Power Positioning Systems, the **maximum recommended incline angle** you may attempt to safely ascend or descend (with the seating system in its most stable 'home' position) **should not exceed 6°**.

Recommended Maximum Incline Angle (Ascending and Descending)



SAFETY WARNINGS WHEN TRAVELLING ON INCLINES!



DANGER! Risk of Tipping, Serious Injury or Death.

Failure to observe these warnings may result in death or serious injury.

- *If the power wheelchair must climb up or down a loading ramp or incline which exceeds the maximum recommended safe slope, ALWAYS have an attendant present to monitor and assist the process for safety.*
- *ALWAYS wear your postural belt when climbing up or down a ramp or incline. Your postural belt reduces the possibility of a fall from the wheelchair, and should be worn whenever the wheelchair is occupied.*



DANGER! Risk of Death or Serious Injury.

Driving in an elevated/standing and/or tilted and/or recline position while on an incline or ramp could cause loss of stability resulting in death or serious injury.

- *DO NOT drive in an elevated or standing position while on an incline.*
- *If the seating system must be tilted or reclined when travelling on an incline (e.g.; when loading into a transport vehicle), ALWAYS have an attendant monitor and assist at all times over the duration of travel.*



DANGER! Risk of Tipping, Serious Injury or Death

Failure to observe these warnings when travelling on an incline may result in death, serious injury or damage.

- *NEVER place your power wheelchair in freewheel mode on any type of incline, especially while seated on the wheelchair, or standing next to it.*
- *ALWAYS exercise extreme caution when travelling on an incline; DO NOT zigzag, make sudden direction changes or drive at an angle up the face of the incline. Return your seating system to an upright driving position, and ALWAYS drive your power wheelchair straight up the incline; This greatly reduces the possibility of tipping.*
- *NEVER travel down an incline or ramp backwards. Doing so may cause the power wheelchair to tip.*
- *NEVER operate your power positioning functions (tilt, recline, elevate, stand etc..) while on an incline.*
- *When travelling up or down a ramp or incline, NEVER attempt to drive with power elevating leg rests in the fully extended position.*

2.0 SAFETY INFORMATION

2.2 Guidelines for Travelling on Inclines (...cont'd)



DANGER! Risk of Death or Serious Injury.

Braking hard and/or sudden stops while on inclines could cause loss of stability resulting in death or serious injury.

- *While on inclines, ALWAYS travel at a reduced, constant speed to maintain stability. Traveling down ramps at high speeds will reduce traction and increase stopping distance*
- *DO NOT brake hard and avoid sudden stops while traveling on an incline.*
- *If stopping becomes necessary while on an incline, release the joystick and allow the wheelchair to come to a full stop. Then proceed at a slower speed.*



DANGER! Risk of Serious Injury or Death.

Traveling on inclines with wet, slippery, icy or oily surfaces could cause a loss of traction resulting in death or serious injury.

- *Loss of traction on ramps and inclines can occur for a variety of reasons including; water, ramp material, surface conditions, steepness or grade etc. Lighter weight users may be at an increased risk for loss of traction. As such, when using on ramps or inclines ALWAYS reduce speed and proceed with caution.*
- *DO NOT travel on inclines with wet, slippery, icy or oily surfaces. This may include, but is not limited to, wet leaves, cut grass and certain painted or otherwise treated wood surfaces.*



WARNING! Risk of Serious Injury or Damage.

When transferring a power wheelchair on a ramp to/from a vehicle for transport, adhere to the following guidelines:

- *It is always better to transfer the power wheelchair to/from a vehicle without the occupant seated in it.*
- *If the power wheelchair needs to be loaded/unloaded on a ramp together with its driver, ensure that the ramp does not exceed the maximum recommended safe slope.*
- *If the power wheelchair needs to be loaded/unloaded on a ramp which exceeds the maximum safe slope, or if the wheelchair must be tilted or reclined to enter/exit the vehicle, ALWAYS have an attendant present to safely monitor and assist the transfer process.*
- *As an alternative, a platform lift may be used. Ensure that the total weight of the power wheelchair does not exceed the maximum permissible weight for the platform lift or winch being used.*

2.3 Operating your Power Positioning System & Power Wheelchair



IMPORTANT! To ensure your personal safety when operating your power positioning system and your powered wheelchair base, please be certain to read and obey ALL **Safety Warnings/Information** provided in this section, as well as the other safety information identified throughout this Motion Concepts MPS System Owners Manual; Please also be certain to also read and understand the detailed safety warnings included in the **Wheelchair Power Base Owners Manual** (*provided separately*).



DANGER! Risk of Death or Serious Injury if wheelchair and/or power positioning system is used in any other way than the purpose described in this manual!

- *Only use the wheelchair/seating system in accordance with the instructions provided in this Owners Manual and your Wheelchair Power Base Owners/Operators Manual (provided separately)*
- *Pay strict attention to all safety information provided throughout this Owners Manual*



DANGER! Risk of Death or Serious Injury if safety limits/lockouts are not configured correctly

- *The setting of safety limits and lockouts is **critical** to the safe operation of your power wheelchair and power positioning system. Improper set-up may result in death or serious injury. (see also **Section 4.3: Safety Lockouts & Limit Switches**)*
- *Programming/adjustments to safety limits/lockouts must ONLY be performed by a Qualified Technician.*
- *NEVER operate your wheelchair/seating system without the required safety limits/lockouts set or if the required safety limits/lockouts are disabled.*

2.0 SAFETY INFORMATION

2.3.1 WARNINGS WHEN OPERATING YOUR POWER POSITIONING SYSTEM!



WARNING! Risk of Serious Injury or Damage

The following guidelines should be adhered to while operating your Motion Concepts power positioning system to avoid damage or serious injury and ensure safe operation:

- ALWAYS check your surroundings before operating your Motion Concepts seating system. Make sure that the way is clear of obstructions throughout the full range of travel before operating any seat positioning function.
- NEVER operate the tilt or elevate or stand function while underneath a fixed object such as a table or desk
- NEVER operate the powered legrest function while underneath a table, desk, or other obstruction.
- NEVER use your legrest footplates or foot platform to open doors or move obstructions.
- NEVER operate your power positioning system while driving your wheelchair.
- NEVER allow items such as posture belts, backpacks, coats, etc... to become trapped under your seat while in a tilted, elevated or standing position, OR under your power legrests while extended, otherwise damage to the system may occur.



WARNING! Risk of Serious Injury or Death

Not wearing your postural belt (seat positioning belt) could result in serious injury or death

- ALWAYS wear your postural belt when you are occupying the wheelchair. Your postural belt helps reduce the possibility of a fall from the wheelchair. **Note:** The postural belt is a positioning strap only; it is NOT designed for use as a safety device to withstand high stress loads such as the safety belts used in automobiles or aircraft. (refer to **Section 5.14- Postural Belts/Chest Straps**)



DANGER! Failure to utilize the Stander safety accessories (Chest Bar/Knee Blocks/Chest Strap) and/or failure to follow proper adjustment procedures may result in serious injury or death.

- PRIOR to transitioning to a full standing position, be certain to read and follow the recommended seating system set-up/adjustment instructions provided in **Section 5.0**, otherwise serious injury may occur.
- ALWAYS ensure the Chest Bar/Support is properly adjusted and locked into position PRIOR to transitioning into the stand position. Refer to **Section 5.13** for detailed set-up/adjustment instructions
- ALWAYS ensure the Knee Block is properly adjusted and locked into position PRIOR to transitioning into the stand position. Refer to **Section 5.9** for detailed set-up/adjustment instructions
- ALWAYS ensure the Chest Strap is properly adjusted and secured PRIOR to transitioning into the stand position. Refer to **Section 5.14** for detailed set-up/adjustment instructions



WARNING! Risk of injury due to crushing or pinching.

- Be mindful of potential pinch points caused by moving parts. Use caution when operating your power positioning system, especially around children and pets.
- Keep hands, fingers or limbs clear of any articulating mechanisms/linkages on your positioning system.



WARNING! Risk of Serious Injury or Damage

Operating the wheelchair with insufficient ground clearance between the footplates and the ground/floor may cause serious injury or property damage.

- While the wheelchair is in motion, ALWAYS maintain a minimum ground clearance of 3 inches, **or** the minimum ground clearance stated by wheelchair base manufacture (whichever is greater).
 - If necessary, elevate the front rigging or tilt the seat to achieve the proper ground clearance prior to driving the wheelchair.
 - If the wheelchair dips forward and the footplates touch the ground while in motion, please contact your Service Provider for immediate assistance and/or inspection; Avoid use of the wheelchair until corrected.
-

2.0 SAFETY INFORMATION

2.3.2 WARNINGS WHEN DRIVING YOUR POWER WHEELCHAIR!

 **IMPORTANT!** The following section identifies several important safety warnings that are critical to the safe operation of your power wheelchair. Prior to operating your wheelchair, please read and understand the warnings provided below, and be certain to read the complete safety warnings and transport guidelines in the **Power Wheelchair Base Owners Manual** (*provided separately*)



WARNING! Changes to the wheelchair drive program can adversely affect the driving characteristics of the wheelchair and may result in serious injury or damage

- *It is the Dealer/Service Provider's responsibility to select a suitable wheelchair drive program, and to ensure that appropriate and safe operating limits are established for the end user.*
- *Changes to the drive program (maximum acceleration and deceleration of the wheelchair) must only be carried out by qualified service technicians. Unauthorized adjustments beyond safe operating limits may cause serious injury or damage, and will compromise the limited warranty.*



WARNING! Risk of Damage or Serious Injury

Loss of traction or stability on rough or unstable terrain may cause damage or serious injury

- *ALWAYS ensure the wheelchair is on a smooth level surface when driving or operating the system in a tilted or elevated or standing position (even at reduced speed).*
- *DO NOT operate the wheelchair on rough or unstable terrain. This would include, but is not limited to areas of rock, gravel, sand, mulch, mud, uneven pavement, roots and similar conditions.*
- *ALWAYS be aware of surroundings & conditions that might affect the ability to operate the wheelchair.*



DANGER! Driving the wheelchair near motor vehicles may result in damage, serious injury or death.

- *ALWAYS be aware of motor vehicles when using the wheelchair.*



DANGER! Driving the wheelchair outdoors or in areas of poor lighting may result in damage, serious injury, or death.

- *DO NOT operate on roads, streets or highways.*
- *Use caution when operating the wheelchair outdoors at night or in areas with poor lighting.*



DANGER! Risk of Damage, Serious Injury or Death if the wheelchair is operated when judgement or ability is impaired

- *NEVER operate your wheelchair under the influence of medication or alcohol or other substances that impair judgement.*
- *Changing medications may affect your ability to operate the wheelchair. Discuss the ability to operate the wheelchair with a healthcare 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 vision.*



WARNING! Risk of Damage, Serious Injury or Death

Improper wheelchair operation may cause a loss of traction which can result in damage, serious injury or death

- *Travelling at high speeds reduces traction and increases stopping distance.*
- *DO NOT make sudden direction changes at high speed. Allow the wheelchair to come to a full stop before changing direction.*
- *ALWAYS shift your weight in the direction you are turning. Shifting your body weight in the opposite direction of the turn may cause the inside drive wheel to lose traction.*



WARNING! Risk of Damage or Serious Injury when travelling over curbs or on inclines

- *When approaching a curb or incline, return the seating system to a stable, seated/upright driving position, and ALWAYS drive your power wheelchair straight up the curb or incline (not on an angle). This greatly reduces the possibility of tipping.*
- *ALWAYS reduce speed and proceed with caution when negotiating a curb/incline (see also **Section 2.2: Travelling on Inclines**).*

2.0 SAFETY INFORMATION



DANGER! Risk of Damage, Serious Injury or Death if the Drive Lockout (DLO) Limits are disabled or not properly programmed

• NEVER drive your wheelchair with the DLO system disabled or set beyond the maximum recommended drive lockout limit (see also **Section 4.3: Safety Lockouts & Limit Switches**).



WARNING! Risk of Damage or Serious Injury if the wheelchair is switched off while driving (for example by pressing the On/Off Button or disconnecting a cable in order to stop abruptly).

• If you have to brake in an emergency, simply release the joystick to bring the wheelchair to a full stop. (For more information refer to the Joystick User Manual/Instructions (provided separately) with your power wheelchair base).



WARNING! Risk of Injury by Moving Parts.

• To avoid personal injury and injury to other individuals from moving wheelchair parts such as wheels, power legrests, and/or the tilt or elevate/stander modules, always be aware of your surroundings, especially when children or pets are present.



CAUTION! Risk of being stuck/stranded due to an electrical or mechanical wheelchair malfunction.

• When operating/travelling independently in your wheelchair (without an attendant present), ALWAYS have a communication device (e.g.; cell phone, tablet, beeper...) accessible to call for assistance in case of an emergency.



WARNING! Impact with objects in the surrounding environment can result in damage and/or personal injury

• ALWAYS check your surroundings before manoeuvring the wheelchair; ALWAYS ensure the way is clear of any obstructions.

• NEVER use footplates or foot platforms to open doors or move obstructions.

• Continued use of the wheelchair/seating system with damaged parts could lead to the wheelchair malfunctioning, causing injury to the user.

• In case of damage or if the wheelchair/seating system is not functioning properly, contact your local service provider immediately to arrange for repair.



CAUTION! Risk of Damage to your cell phone/electronic device when travelling on rough or uneven terrain

• For systems equipped with Motion Concepts cell phone holder, ALWAYS ensure your cell phone or electronic device is properly seated and secured inside the holder before driving your wheelchair or operating your power positioning system;

• ALWAYS remove your cell phone/electronic device from the holder and store in a secure place when travelling on rough or uneven terrain.



CAUTION! Operating/Storing the wheelchair in extreme temperature conditions (below -15°C (5F) and above 40°C (104F)) may cause the wheelchair to malfunction electrically or mechanically.

• When not in use, DO NOT store or expose the wheelchair to an extreme temperature environment for an extended period of time.

• In extreme conditions, ALWAYS test the wheelchair performance (seating functions and drive functions) prior to travelling outdoors.

• When possible, travelling with an attendant is strongly recommended during extreme temperature conditions



CAUTION! Operating the wheelchair in rain or dampness may cause the wheelchair to malfunction electrically or mechanically, and may cause it 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 is torn or cracked, replace it IMMEDIATELY.

2.0 SAFETY INFORMATION

2.4 Transferring Guidelines



IMPORTANT! Before attempting transfers, consult a healthcare professional to determine proper transfer techniques based on your abilities, and practice transferring in the presence of a healthcare professional before attempting active use of the wheelchair.



WARNING! Risk of Serious Injury or Damage

Failure to turn off power to the wheelchair and/or failure to engage the motor locks could cause the wheelchair to move during transfer activities which may result in serious injury.

- *Before transferring in or out of your wheelchair, ALWAYS turn the wheelchair power off; NEVER transfer with the power turned on.*
- *ALWAYS ensure both motor locks/clutches and free wheel hubs (if equipped) are engaged to prevent the wheels from moving*



WARNING! Risk of Serious Injury or Damage

Improper transfer techniques may cause serious injury or damage.

- *NEVER transfer in or out of your wheelchair while in the elevated or standing position.*
- *DO NOT use armrests for load bearing support when performing transfers in or out of the wheelchair.*
- *To prevent the risk of personal injury and/or damage to the armrests, transfers should be performed using designated transfer handles, and in the presence of an attendant whenever possible.*
- *ALWAYS reduce the gap between the transfer surface and the wheelchair seat to the minimum distance needed to perform transfer.*
- *Align the casters parallel to the drive wheels to improve stability during transfer.*
- *NEVER use the footplates as a support during forward transfers. When transferring in or out of the MPS-Maxx seating system, ensure that footplates are in a 'flipped-up' position*

2.5 General Safety and Handling Warnings



WARNING! Risk of Serious Injury or Damage

Adjusting the position of the seating system on the wheelchair base may reduce driver control, wheelchair stability, traction and increase caster wear resulting in serious injury or damage.

- *Adjustments to the PPS position, should ONLY be performed by a qualified service technician in order to better fit the wheelchair to the end user and/or to optimize wheelchair stability for the user.*
- *If the seating system position must be adjusted, ALWAYS inspect the wheelchair to ensure the front rigging DOES NOT interfere with the front casters.*
- *If the seating system position must be adjusted, ALWAYS test the seating system over the full range of power positioning functions to ensure the wheelchair remains stable..*



WARNING! Risk of damage or serious injury if seating system adjustments are not performed correctly

- *Your system has been specially configured and assembled to the wheelchair base prior to delivery. There are a limited number of general adjustments that can be safely performed by the end user. If you are not comfortable making an adjustment, or if you require a more specific adjustment or a change to the original configuration/set-up, it is strongly recommended that the seating system be serviced by a qualified technician.*
- *PRIOR to transitioning to the full standing position, be certain to read and follow all recommended set-up/adjustment instructions provided in **Section 5.0- Seating System Adjustments***



WARNING! Risk of Damage, Serious Injury, or Death.

Misuse of the wheelchair may cause component failure and/or the wheelchair to start smoking, sparking, or burning. Damage, serious injury, or death 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.*

2.0 SAFETY INFORMATION



DANGER! Risk of Damage, Serious Injury or Death

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

- *If your wheelchair is involved in a collision or impact event, seek immediate medical attention. 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 service technician if the wheelchair is involved in a collision or impact event.*



WARNING! Risk of damage or serious injury if wheelchair is accidentally set into motion!

- *ALWAYS switch the wheelchair power off before you get in, get out or handle unwieldy objects.*
- *When the drive motors are disengaged (unlocked) for manual pushing, the brake inside the drive motors is deactivated. NEVER leave your wheelchair on a gradient with its motors disengaged. Always re-engage the drive motor locks immediately after pushing the wheelchair.*



WARNING! Accidental activation of wheelchair caused by pets, children, etc. may result in serious injury or damage.

- *ALWAYS turn power off when around pets and/or children to prevent unintended movement.*



WARNING! Risk of Serious Injury or Damage.

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

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



WARNING! Risk of Damage, Serious Injury or Death if incorrect or improper replacement (service) parts are used

- *Replacement parts for your power positioning system MUST match original Motion Concepts parts*
- *ALWAYS provide the wheelchair serial number (see **Section 1.4 - System Identification**) to assist in ordering the correct replacement parts .*



WARNING! Risk of Injury, Damage and Loss of Warranty if proper maintenance is not followed.

- *For reasons of safety and in order to avoid potential injury or damage from unnoticed wear, it is recommended that under normal operating conditions your power positioning system undergoes a complete inspection every 6 months. (refer to **Section 7.0- General Maintenance and Safety**).*



WARNING! Risk of injury due to improper lifting or dropping of heavy components!

- *When maintaining, servicing or lifting any part of your power wheelchair, take into account the weight of the individual components, especially the batteries. Be sure at all times to adopt the correct lifting posture and ask for assistance if necessary.*



WARNING! Risk of Injury due to sharp edges

- *Be mindful that in certain areas on the wheelchair, there may be metal and/or plastic components that have sharp edges. Use caution when exposed to any parts/components with sharp edges.*



WARNING! Risk of Injury due to hot surfaces

- *Hot surfaces can cause severe burns. Be mindful of potential hot surfaces and avoid touching.*
-

2.0 SAFETY INFORMATION

2.6 Weight Capacity

Several factors must be considered when determining the total user weight and the wheelchair weight capacity. To obtain the weight limitation data for the wheelchair base, refer to the **Power Wheelchair Base Owners Manual** (*provided separately*).

 **IMPORTANT!** If you have any concerns or questions regarding weight capacities, or if the total occupant weight is determined to be greater than the maximum permissible load, please contact our Technical Service Department immediately.



WARNING! Risk of Damage, Serious Injury or Death

Exceeding the weight capacity of the wheelchair/seating system could cause instability resulting in damage, serious injury or death.

- *DO NOT exceed the maximum weight capacity of the power positioning system or the wheelchair base.*
- *DO NOT use the wheelchair to transport more than one person. The wheelchair is only designed for use by a single occupant whose maximum weight does not exceed the maximum permissible load of the device.*
- *DO NOT carry heavy objects on your lap while operating the wheelchair.*

2.6.1 WEIGHT LIMITATION:

Weight Limitation takes into account any additional equipment (*e.g. back pack*) that is part of the seating system (i.e.; user weight minus any additional items/equipment that the user may use or require).

Example: If the weight capacity of the PPS is 250lb. (113kg) and the weight of the additional equipment equals 25lb. (11kg), then you must subtract 25lb. (11kg) from 250lb. (113kg); This means the weight limitation of the user is 225lb. (102kg).



WARNING! The total User Weight Capacity (including weight limitations) should never exceed the Wheelchair Weight Capacity or the power positioning system (PPS) Weight Capacity.

2.6.2 POWER POSITIONING SYSTEM (PPS) WEIGHT CAPACITY

The weight capacities for our Motion Concepts power positioning systems vary depending on the type of seating system/module and the type of power wheelchair base onto which the system/module is being interfaced. **The weight capacity of the Modular Power Standing System is max. 250 lb (113kg)**

Power Positioning System/Module	PPS Weight Capacity (see Warning! above)
Modular Power Standing System (MPSS)	max 250lb. (113kg)



IMPORTANT! The weight capacity of the MPS System is provided as a guideline only.

Further limitations may be required depending on the specific requirements of the end user (including any aforementioned Weight Limitations), as well as the type of wheelchair base onto which the system is being installed. The maximum allowable PPS weight capacity is assessed at the time of order.

2.7 Hardware and Accessories

Should you require any replacement hardware for your power positioning system, or for information on Motion Concepts accessories, please contact our Customer Service Dept. or your local Service Provider for assistance



WARNING! Risk of Serious Injury or Damage.

- *DO NOT substitute hardware. All hardware used by in the assembly and installation of our Power Positioning Systems is high strength. Use only the hardware supplied with the seating system.*



WARNING! Risk of Serious Injury or Damage.

Use of non-approved Motion Concepts accessories may result in serious injury or damage.

- *Motion Concepts products are specifically designed and manufactured for use in conjunction with Motion Concepts accessories. Accessories designed by other manufacturers have not been tested, and are not recommended for use with Motion Concepts products.*

2.0 SAFETY INFORMATION

2.8 Flammability

The materials (foams and fabrics) utilized in our power positioning systems are tested to ensure compliance with applicable Medical Device Flammability Standards (*ISO/RESNA*) and *California Technical Bulletin (CA TB-117)*.



DANGER! Risk of Damage, Serious Injury, or Death

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

- *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.*
- *Always exercise caution near open flames.*

2.9 Electrical Components (Wiring Harnesses/Cables/Electronics)

All electrical components on your seating system are designed and tested to meet all necessary safety standards.



WARNING! Risk of Damage, Serious Injury, or Death

Improper routing of cables/harnesses may cause a tripping, entanglement or strangulation hazard that may result in damage, injury or death

- *Ensure all cables/harnesses are routed and secured properly.*
- *Ensure there are no loops of excess cable extending away from the chair.*
- *Pay close attention when operating the wheelchair near children or pets.*



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 Damage, Serious Injury, or Death

Pinched or severed cable(s)/harness(es) may present a shock or fire hazard and may result in damage, injury or death

- *Ensure all cables/harnesses are routed and secured properly, and that no pinching or pulling occurs over the full range of power positioning functions.*
- *Inspect all cables/harnesses periodically for proper routing, and for evidence of damage due to pinching, chafing or other similar wear.*
- *Replace damaged cables/harnesses immediately*



DANGER! Risk of Serious Injury or Death.

Electric shock can cause serious injury or death

- *To avoid electric shock, inspect plugs, connectors and cables for cuts and/or frayed wires. Replace cut cables or frayed wires immediately*



WARNING! Risk of Damage, Serious Injury or Death

The connection of uncertified electric devices could result in fire or electrical damage and/or system breakdown

- *Do not connect any electric devices to your Rovi-MPS System that are not expressly certified by Motion Concepts for this purpose. Have all electrical installations performed by an authorized Dealer.*



WARNING! Risk of Damage, Serious Injury, or Death

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

- *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.*

2.0 SAFETY INFORMATION

2.9 Electrical Components (Wiring Harnesses/Cables/Electronics) ...cont'd



WARNING! Risk of Injury or Damage

The wiring harnesses/cables are not to be modified in any way following the installation of our Motion Concepts power positioning system.

• If installed on previously used product, all OEM harnesses on the wheelchair should be examined for damage/ wear and replaced if necessary. Please consult the wheelchair base manufacturer if you are unsure as to the status or condition of the existing wiring harness before interfacing with our Motion Concepts seating system.

2.10 Electromagnetic Interference (EMI)



WARNING! Laboratory tests have shown that electromagnetic interference (EMI) can have an adverse effect on the performance of electrically-powered mobility vehicles.

• Electromagnetic interference (EMI) comes from radio wave sources such as radio transmitters and transceivers. Powered wheelchairs including the power positioning system may be susceptible to EMI emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios and mobile phones. In some cases, this interference may cause the wheelchair to release its brakes, activate/move in unintended directions, or may cause damage to the control system.



WARNING! The following warnings are recommended to prevent the risk of serious personal injury and to prevent possible interference with the control system of the powered wheelchair.

• Do not turn on personal communications devices, such as mobile phones, or operate hand held transceivers (transmitters- receivers), such as citizens band (CB) radios, while the powered wheelchair is turned ON.

• Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them.

• If unintended movement or brake release occurs, turn the wheelchair OFF as soon as it is safe to do so.

• Be aware that adding accessories or components, or modifying the power positioning system or powered wheelchair, may make it more susceptible to EMI. Parts not specifically tested or aftermarket parts from other suppliers have unknown EMI properties. **NOTE:** There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair.

• Promptly report all incidents of unintended movement of the power positioning system and/or powered wheelchair (including brake release), and note whether there was a source of EMI near the wheelchair at the time of occurrence. Contact:

Motion Concepts, Customer Service Department: **USA** (888) 433-6818 or **CAN** (800) 680-4191



IMPORTANT! Please refer to **Section 9.0 - EMI Information** in this manual for more detailed information and warnings regarding the possible effects of electromagnetic interference (EMI) on your Motion Concepts Modular Power Standing (MPS) System

2.0 SAFETY INFORMATION

2.11 Motor Vehicle Transportation

2.11.1 LOADING THE WHEELCHAIR INTO A VEHICLE (with Occupant Seated in Chair)



WARNING! Risk of Serious Injury or Damage.

When loading a power wheelchair into a vehicle for transport with the occupant seated in it, adhere to the following guidelines:

- It is always better to transfer the power wheelchair to a vehicle *without* the occupant seated in it.
- If the power wheelchair needs to be loaded up a ramp together with its driver, ensure that the ramp does not exceed the maximum safe slope (refer to **Section 2.2- Incline Warnings** for the maximum recommended safe slope angle and additional safety warnings)
- If the power wheelchair needs to be loaded using a ramp which exceeds the maximum safe slope, or if the wheelchair must be tilted or reclined to enter the vehicle, **ALWAYS** have an attendant present to safely monitor and assist the loading process.
- As an alternative, a platform lift may be used. Ensure that the total weight of the power wheelchair does not exceed the maximum permissible weight for the platform lift or winch if you are using.

2.11.2 WHEELCHAIR TRANSPORTATION WARNINGS!



IMPORTANT! Failure to comply with the transportation safety warnings provided below, may result in damage, serious injury, or death. Please be certain to read and understand all safety warnings PRIOR to transporting your wheelchair. If you have any questions or concerns regarding the safe transportation of your wheelchair in a motor vehicle, please contact your Dealer/Service Provider for assistance.



IMPORTANT! Please be certain to also read and understand the transportation safety warnings included in your **Power Wheelchair Base Owners Manual** (provided separately)



DANGER! Risk of Damage, Serious Injury, or Death

This wheelchair seating system in combination with the wheelchair base has NOT been crash tested and may NOT be used as a vehicle seat!

- Your Motion Concepts Power Positioning System, in combination with the OEM (Original power Equipment Manufacturer) wheelchair base, has not been tested to the requirements of ISO 7176-19:2001 or ANSI/RESNA WC-19 and may not under any circumstances be used as a vehicle seat or to transport the user in a vehicle.
- Using a wheelchair that does not fulfill these criteria as a vehicle seat can lead to the most severe injuries and even death in the event of a traffic accident.



DANGER! Risk of Property Damage, Serious Injury or Death

When travelling in a motor vehicle you must be properly secured in a motor vehicle seat with safety belts securely fastened.

- Although your chair may be equipped with a positioning belt, this belt is not designed to provide proper restraint during motor vehicle transport. **DO NOT** sit in your wheelchair while it is in a moving vehicle.



WARNING! Risk of Serious Injury or Damage.

Use only approved/designated Transport Brackets to tie-down the wheelchair base during transport.

- Wheelchair bases **MUST** be equipped with Transport Brackets (TRBKTS) for safe transportation in a motor vehicle; Approved tie-downs straps **MUST** be secured at the designated/labelled anchoring points on the Transport Brackets- see **section 2.11.3**.
- **NEVER** allow any part of the Motion Concepts power positioning system to be used as a tie-down point to anchor the wheelchair to the transporting vehicle.

2.0 SAFETY INFORMATION

2.11.2 WHEELCHAIR TRANSPORTATION WARNINGS! (...cont'd)



WARNING! Risk of Serious Injury or Damage

When travelling in a motor vehicle the wheelchair must be properly secured using an approved **Wheelchair Tie-Down and Occupant Restraint System (WTORS)**.

- *If you are unable to fasten your electric wheelchair securely in a transport vehicle, we recommend that you do not transport it!*
- *Before transporting your wheelchair, make sure the motors are engaged and that the wheelchair power is switched off.*
- *NEVER allow your wheelchair to be lifted by any part of the Motion Concepts power positioning system.*
- *We strongly recommend securing the wheelchair to the floor of the transporting vehicle.*
- *ALWAYS anchor the wheelchair in the transport vehicle with it facing the intended direction of travel.*
- *The wheelchair must always be secured in accordance with the wheelchair manufacturer and the Wheelchair Tie-Down and Occupant Restraint System (WTORS) operating manual.*
- *Always remove and secure any accessory parts fixed to the wheelchair such as chin controls or tables.*
- *If your wheelchair is fitted with a tilt or recline seat function, then it must be placed in its upright position.*
- *Power elevated legrests (if fitted) must be fully lowered prior to transport.*

2.11.3 ANCHORING THE WHEELCHAIR IN A VEHICLE



IMPORTANT! Please refer to your **Power Wheelchair Base Owners/Operators Manual** (*provided separately*) for detailed information on anchoring your wheelchair base in a vehicle.

The wheelchair is to be transported only with Wheelchair Tie-down and Occupant Restraint Systems (WTORS) that have been installed in accordance with the manufacturer's instructions and SAE J2249.

Attach WTORS to the tie-down brackets in accordance with the manufacturer's instructions and SAE J224



NOTE: A copy of SAE J2249 *Wheelchair Tie-down and Occupant Restraint Systems (WTORS) for use in Motor Vehicles* can be obtained from: SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, (877) 606-7232 or (724) 776-4970



The following symbol indicates the designated anchor point for use with a tie-down system.

This symbol (bright **yellow** sticker) on the wheelchair base indicates the approved anchoring point for securement of the wheelchair in a vehicle.

2.0 SAFETY INFORMATION

2.12 Technical Data

Our Motion Concepts Modular Power Stander (MPS) System can vary depending on the final configuration of the seating system, including the type and number of accessories installed onto the system. The following section is provided to illustrate the overall range of dimensions for our MPS system, taking into account the various positioning configuration and accessories offered by Motion Concepts

i **IMPORTANT!** The following dimensional information is provided for the Motion Concepts MPS system only. It does not include the power wheelchair base.

2.12.1 UL MAXX MODULAR POWER STANDING (MPS) SYSTEM:

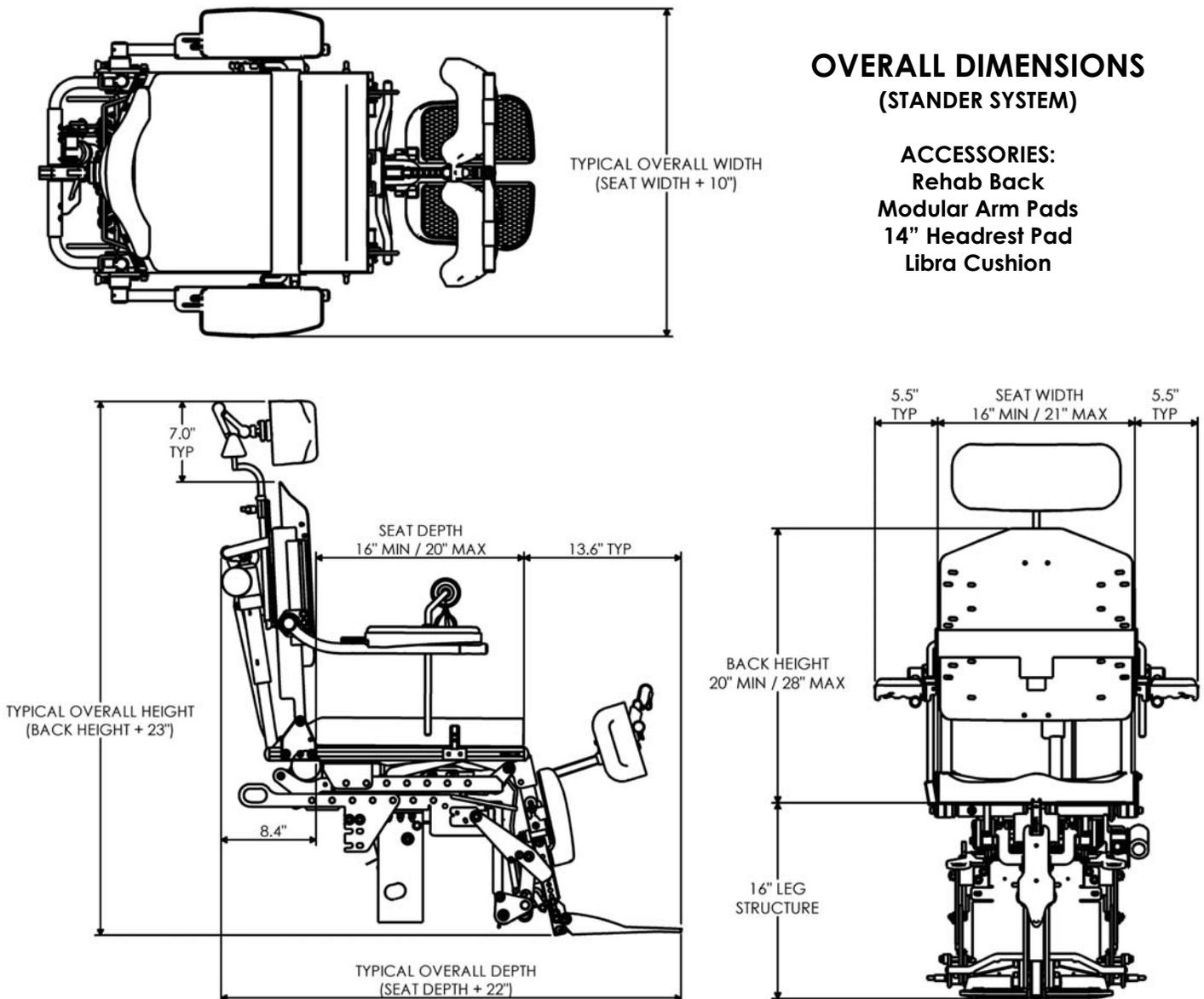
Parameters and Dimensions

i) OVERALL DIMENSIONS:

Modular Power Standing System (MPSS): TILT/RECLINE ELEVATE/STAND/POWER CM LEGS

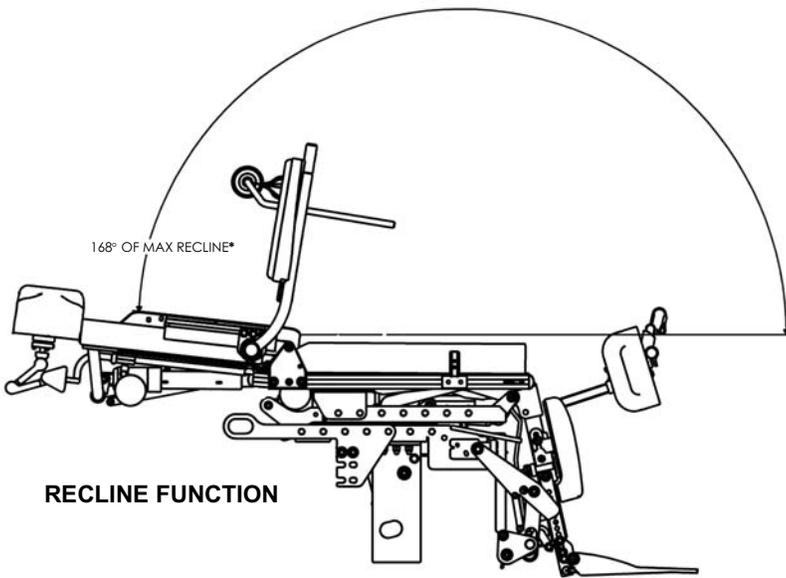
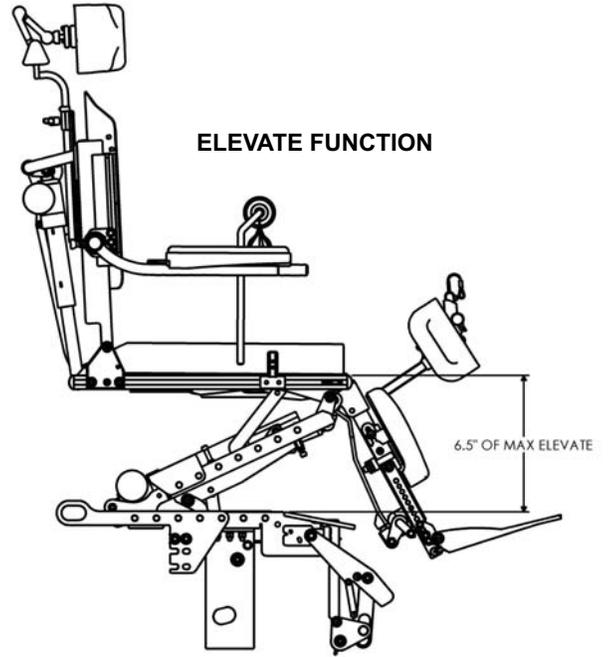
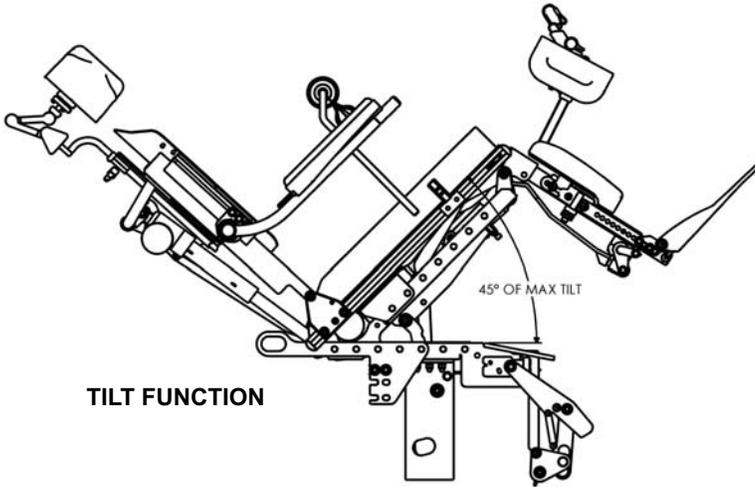
OVERALL DIMENSIONS (STANDER SYSTEM)

ACCESSORIES:
 Rehab Back
 Modular Arm Pads
 14" Headrest Pad
 Libra Cushion

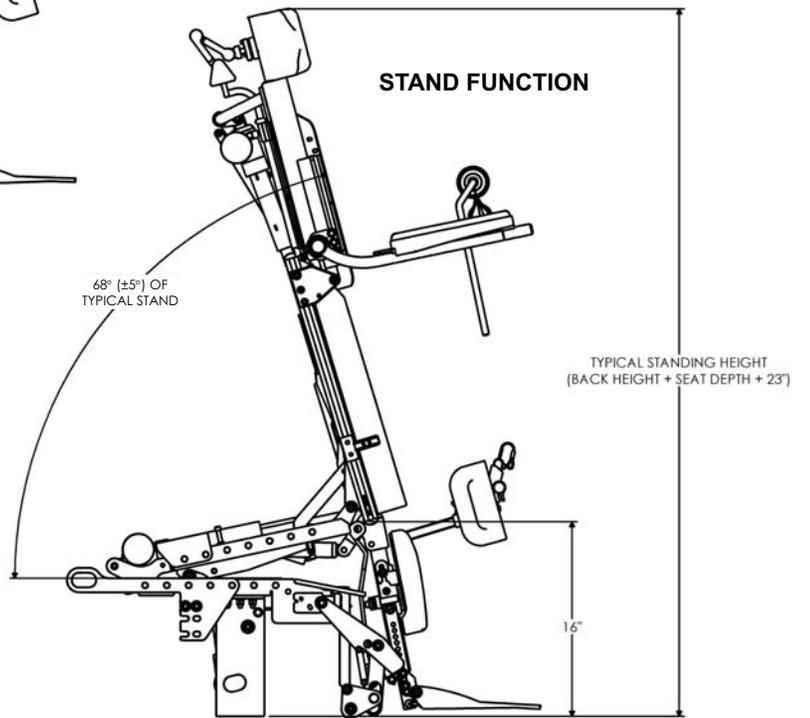


2.0 SAFETY INFORMATION

i) Modular Power Standing System (MPSS): TILT/RECLINE ELEVATE/STAND/POWER CM LEGS



(*ACHIEVES UP TO 178° OF MAX RECLINE AT FULL ANTERIOR/STAND)



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM



Please read through ALL instructions PRIOR to operating your wheelchair and power positioning system

3.1 Programming your Wheelchair/ Power Positioning System



Can the Program Settings for my Power Positioning System be modified ?

Program modifications may be carried out to fit your individual requirements if required. For safety purposes, these modifications must **ONLY** be performed by a qualified service technician; If you require any programming changes, or have any questions on your existing program settings, please contact your local Service Provider for assistance.



WARNING! Risk of Damage, Serious Injury or Death

Incorrect programming and set-up of this wheelchair performed by users, caregivers or unqualified technicians can result in damage, serious injury or death.

- User/Caregivers- **DO NOT** attempt to set up this wheelchair.
- To ensure your wheelchair and seating system is programmed correctly and safely, all programming, including the joystick, switches, base controller and applicable safety lockouts/limits, must be performed by a Qualified Technician



WARNING! Risk of Serious Injury or Damage

Changes to the drive programme can affect the driving characteristics & stability of the wheelchair.

- It is the Dealer/Service Provider's responsibility to select a suitable wheelchair drive program, and to ensure that appropriate and safe operating limits are established for the end user.
- Changes to the drive program (*maximum acceleration and deceleration of the wheelchair*) must only be carried out by qualified service technicians. Unauthorized adjustments beyond safe operating limits may cause serious injury or damage, and will compromise the limited warranty.



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 qualified healthcare professionals or technical personnel that are fully trained in system programming and insightful to the end users capabilities.
- After a wheelchair has been set up/programmed, always ensure the wheelchair performs in accordance with the programming specifications.
- If the wheelchair does not perform to specifications, immediately turn-off the wheelchair and have the technician re-enter the program specifications. If wheelchair still does not perform to the correctly, contact the power base manufacturer or Motion Concepts Technical Service Dept. for assistance.

3.1.1 PROGRAMMING THE ROVI RNET REMOTE JOYSTICK CONTROL:



IMPORTANT! For more detailed information on programming/configuring your joystick control please read the **RNet Remote/Joystick Operators Manual** (*provided separately*).

Depending on the type of programming required, a specialized hand-held programmer may be necessary to program the power seating functions into the joystick. The M290 Remote Attendant Control included with our M-Series electronics (see also **Section 4.1.2**) may be used to program/assign the individual actuators (seating functions) to the joystick control. Programming via the attendant control is password protected and may only be performed by a Qualified Service Technician.

The power seating seat functions may be configured/programmed to operate in either direct-mode or toggle-mode depending on the number of functions installed, and/or the preference of the end user. (*For instructions on how to operate your Rovi-MPS system via the joystick, please refer to **Section 3.4***).



WARNING! Incorrect programming of the joystick by users, caregivers or unqualified technicians can result in serious injury or damage.

- Programming of the remote joystick **MUST** be performed by a qualified technician.

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM



DANGER! A malfunctioning joystick could cause unintended/erratic movement resulting in death, serious injury, or damage.

- If unintended/erratic movement occurs, stop using the wheelchair immediately and contact your service provider or a qualified technician.



DANGER! An improperly connected joystick could cause loss of power resulting in death, serious injury, or damage.

- Ensure the joystick is securely connected to the controller.

3.1.2 PROGRAMMING A SEPARATE SWITCH CONTROL

A specialized hand-held programmer may be required to program the seating functions into the TRx switch control. The M290 Remote Attendant Control included with our M-Series electronics (see also **Section 4.1.2**) may be used to program the individual actuators (seating functions) to the switch control. Programming via the attendant control is password protected and may only be performed by a Qualified Service Technician.

During programming, each seat function may be configured to operate in either direct-mode or toggle-mode depending on the number of power seating functions installed, and/or the preferences of the end user. (For instructions on how to operate your Rovi-MPS System using a separate switch, please refer to **Section 3.5**).



DANGER! A malfunctioning switch could cause unintended/erratic movement resulting in death, serious injury, or damage.

- If unintended/erratic movement occurs, stop using the wheelchair immediately & contact your service provider or a qualified technician.



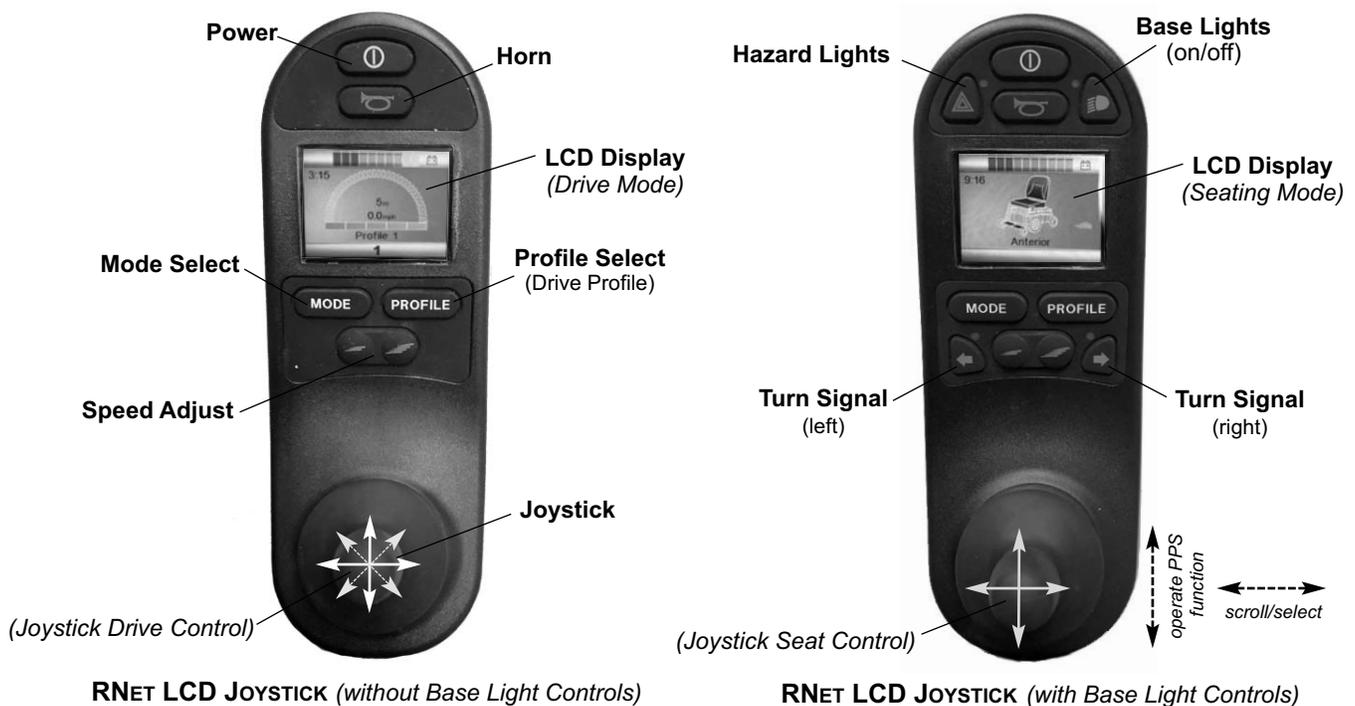
WARNING! Incorrect programming of a switch by users, caregivers or unqualified technicians can result in serious injury or damage.

- Programming of the operator/attendant switch **MUST** be performed by a qualified technician.

3.2 Understanding Your ROVI RNet Remote/Joystick:

There are two models of RNet LCD Remote/Joysticks available for use with the Rovi-MPS System:

3.2.1 RNET LCD JOYSTICK FEATURES:



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.2.2 RNET LCD ADVANCED JOYSTICK FEATURES:



RNET LCD ADVANCED JOYSTICK (comes standard with Base Light controls)

3.2.3 WHEELCHAIR DRIVE CONTROLS:

i IMPORTANT! The following section covers instructions for basic wheelchair drive controls. Please be certain to read the **RNET Remote /Joystick Manual** and/or the **ROVI Powerbase Owner's Manual** (provided separately) for more detailed safety, operating and troubleshooting instructions .

! DANGER! Risk of Death, Serious Injury, or Damage.
A malfunctioning joystick could cause unintended/erratic movement resulting in death, serious injury, or damage.
• If unintended/erratic movement occurs, stop using the wheelchair immediately and contact a qualified technician.

! WARNING! Risk of Death, Serious Injury, or Damage.
An improperly connected joystick could cause loss of power resulting in death, serious injury, or damage.
• Ensure the joystick harness is securely connected to the controller.

! DANGER! Risk of Death, Serious Injury, or Damage.
Do not attempt to operate an attendant control joystick with it removed from the seating system as it could be dropped or be disorienting to operate.
• To prevent unsafe operating conditions, ensure the attendant control joystick remains in place on the seating system when operating/driving the wheelchair.

DRIVE MODE:

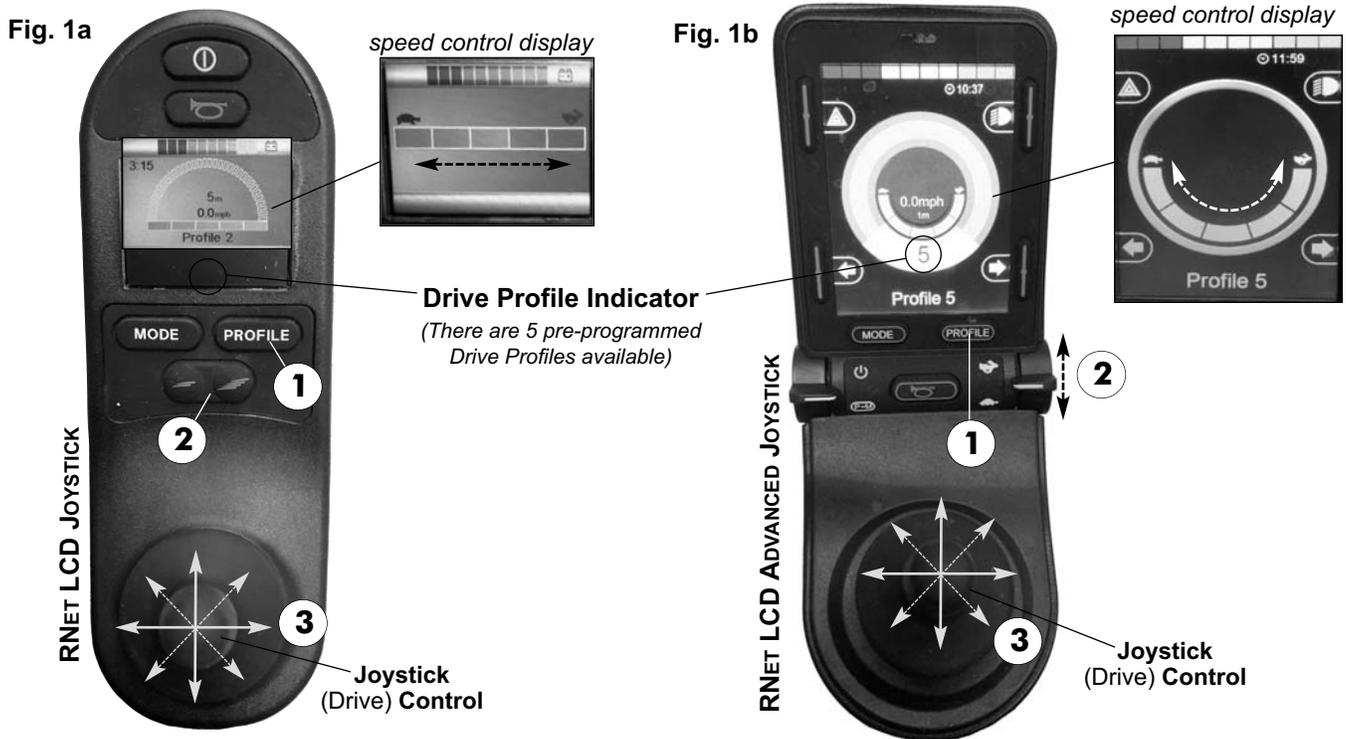
The ROVI RNet remote joystick functions as the wheelchair drive control when the joystick is set to one of the available **Drive Profiles** (Drive Mode). There are 5 pre-programmed drive profiles to choose from on the RNet LCD Joysticks. To scroll through the available drive profiles, press the **Profile Button (1)** on the joystick remote -see **Fig.1a/1b**. The drive profiles are factory pre-set for specific driving conditions (e.g.; ramp/curb speed, indoor speed, outdoor speed, etc...), but may be reprogrammed if necessary by a qualified technician. The speed within each pre-set drive profile can be further adjusted by pressing the **Speed Adjust** button on the joystick remote (2).

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.2.3 WHEELCHAIR DRIVE CONTROLS: (...cont'd)

In Drive Mode, the **Joystick Control** is used to drive, steer and stop the wheelchair (3). To drive and steer the wheelchair, press the joystick control in the direction that you wish to travel. To stop, release the joystick control so that it returns its home or neutral position.

RNET LCD JOYSTICK DISPLAYS (IN DRIVE MODE)



3.2.4 POWER POSITIONING SYSTEM CONTROLS:

i IMPORTANT! The following section covers instructions for basic seating system controls through the joystick/remote. Please be certain to read the **RNET Remote /Joystick Manual** (provided separately) for additional safety, operating and troubleshooting instructions .

POWER SEATING MODE:

The power positioning functions available on your Modular Power Standing (MPS) System may be programmed to operate through the RNet Remote Joystick. In order to access/operate the power positioning functions thru the joystick, the joystick remote must be switched from 'Drive Mode' to 'Power Seating Mode'. This is accomplished by pressing the **Mode Button** (1).

In Power Seating Mode, an image of a wheelchair seating system will appear in the joystick display- **see Fig. 2a/2b**. The activated power seating function will be highlighted on the wheelchair image along with a description of the seating function (2) (i.e.; *Tilt, Stand, Legs etc...*). To scroll through all the available power positioning functions, press the joystick control to the left or right (3) until the desired seat function appears in the joystick display.

Note: to return the joystick display back to Drive Mode, press the Mode Button a second time (or press the Profile Button).

For a detailed summary of each of the power positioning functions available on the Rovi-MPS System please refer to **Section 3.3- Understanding your Power Positioning Functions**. For instructions on how to operate your Rovi-MPS System using the RNet Remote Joystick, please refer to **Section 3.4**.

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

RNET LCD JOYSTICK DISPLAYS (IN POWER SEATING MODE):

Fig. 2a

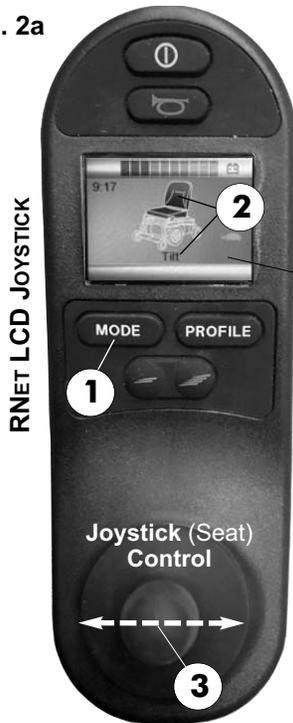


Fig. 2b

LCD Super Joy Display
(Seating Mode)

LCD Joystick Display
(Seating Mode)

Press the **MODE** button to
access **Power Seating Mode**;

Then use **Joystick Control**
(left & right) to scroll thru
the seating functions



RNET LCD JOYSTICK

RNET LCD ADVANCED JOYSTICK

3.3 Understanding the Power Positioning Functions

IMPORTANT! Motion Concepts disclaims all responsibility and liability for any personal injury or damage to property that occurs as a result of improper or unsafe use of the power positioning system.



WARNING! Risk of Damage, Serious Injury or Death

• Be certain to read through **Section 2.0- Safety Information**, PRIOR to operating your Modular Power Standing (MPS) System. Failure to follow the safety guideline and warnings provided in this manual could result in system damage, serious personal injury or death.

3.3.1 POWER TILT FUNCTION

The power tilt function is designed to allow for a center of gravity (CG) shift as the Rovi-MPS System is tilted. The tilt function compensates for weight shift by sliding the pivot axis and entire seat assembly forward as the seat tilts back.

TILT RANGE OF TRAVEL:

The Rovi-MPS system (seating module) allows for a maximum tilt angle range up to **45°**. (**Note:** The full range of Tilt is only available when the Rovi-MPS system is in the non-elevated/non-standing position).

TILT - LOCKOUTS & LIMITS:

On the Rovi-MPS System, the TILT function is locked out (non-functional) when the Rovi-MPS System is in an ELEVATED or STANDING position.

If the TILT function is 'out of home' prior to activating the STAND or ELEVATE function, the seating system will automatically return to its home position PRIOR to transitioning into the Stand or Elevate position.

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

TILT - LOCKOUTS & LIMITS: (...cont'd)

The Rovi-MPS System is programmed with a **Drive Lockout (DLO)** limit to prevent the wheelchair from being driven when the seating system is tilted (or reclined) beyond a designated safe angle. The DLO Limit is typically set to engage once the tilt and/or recline angle reaches 30° (if Reduced Drive Speed (RDS) is programmed); or 25° (if Reduced Drive Speed is not programmed). Refer to **Section 4.3** for detailed information on the recommended Safety Limit and Lockout Settings.

3.3.2 POWER RECLINE FUNCTION

The RECLINE function allows for adjustment of the seat-to-back angle on the Rovi-MPS System.

RECLINE RANGE OF TRAVEL

The Rovi-MPS System allows the back angle to be infinitely adjusted within the established recline range (from 93° up to a maximum of 168° recline). This recline range is only available when the Rovi-MPS system is in the HOME (non-elevated/non-standing) position. (**Note:** *In the standing position, the recline angle is designed to achieve up to a maximum of 178° of recline*).

The Recline function comes standard with **Extended Shear Reduction (ESR)**. The ESR feature is designed to synchronize with the recline function (via linkages) to reduce the amount of shear between the end user and the backrest when the seating system is reclined, as well as when the system transitions to the Standing position.

RECLINE - LOCKOUTS & LIMITS:

The Rovi-MPS System is programmed with a **Drive Lockout (DLO)** limit to prevent the wheelchair from being driven when the seating system is reclined (or tilted) beyond a safe angle. The DLO Limit is typically set to engage once the recline or tilted back angle reaches 30° (when Reduced Drive Speed (RDS) is programmed); or when the tilt and/or recline angle reaches 25° (if Reduced Drive Speed is not programmed). Refer to **Section 4.3** for detailed information on the recommended Safety Limit and Lockout Settings.

When the Rovi-MPS System is in an ELEVATED or STANDING position, there will be LIMITED Recline function available; The range of recline will be reduced due to the Drive Lockout (DLO) Limit, and also due the restricted range of motion available at the full Standing position.

3.3.3 POWER CENTER MOUNT LEGREST FUNCTION

The Rovi-MPS System comes configured with our **Power Articulating Belt-Drive Center Mount Legrest** to secure and position the users legs. The power CM Legrest is preset to a +7° (83°) angle (from vertical) and allows for adjustment to the knee-to-heel length, calf pads and footplates. The CM Legrest is also designed to allow the fitting of an adjustable/removable Knee Bolster for lower leg support in the Standing position. (*Detailed adjustment/ set-up instructions for the power CM Legrest are provided in **Section 5.7***).

WARNING! Risk of serious injury or damage

- *ALWAYS maintain a minimum of **3 inches** between bottom of the front riggings and the floor/ground while the wheelchair is in motion to ensure proper ground clearance. If necessary, elevate the front rigging or tilt seat to achieve proper ground clearance.*

WARNING! Risk of injury

- *Operating/extending the CM Legrest with the knee block in place may cause increased pressure/force on the users legs if not adjusted correctly; When operating the Power Legrest (in the lowered seat (non-standing) position), it is recommended that the knee block assembly be placed in the stored position.*

POWER CM LEGREST RANGE OF TRAVEL:

The Power CM Legrest will provide up to 55° of extension at full articulation, and knee-to-heel (KTH) adjustments from 13" (33cm) - 18" (46cm). (**Note:** *The full range of legrest function is only available when the seating system is in the HOME position and/or throughout the Tilt function*).

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.3.3 POWER CENTER MOUNT LEGREST FUNCTION (...cont'd)

POWER LEGREST - LOCKOUTS & LIMITS

- If the Power Legrest is 'out of home' (extended) prior to activating the STAND or ELEVATE function, the legrest will automatically return to its home position PRIOR to transitioning into the Stand or Elevate position.
- The Power CM Legrest will remain locked out (non-functional) when the seating system transitions into an ELEVATED or STANDING position.

3.3.4 ELEVATE FUNCTION

The ELEVATE function allows the MPS-Maxx System to be raised up to a maximum of 6.5" (17cm) above the lowest seat-to-floor height of their system.



WARNING! Risk of compromised wheelchair stability and serious personal injury.

- *ALWAYS ensure the wheelchair is on a smooth level surface when driving or operating the system in an elevated position (even at reduced speed).*
- *ALWAYS wear your postural belt when seated in the wheelchair. Your postural belt reduces the possibility of a fall from the wheelchair - refer to **Section 5.14***
- *NEVER drive up or down an incline while in an elevated position (even at reduced speed)*
- *NEVER lean forward or sideways to grab items/objects, or shift body position (in any direction) while in an elevated position.*
- *NEVER transfer in or out of your wheelchair while in the elevated position.*

ELEVATE RANGE OF TRAVEL:

The ELEVATE function on the MPS-Maxx System will lift (elevate) the seating system upward* approximately 7" (18 cm) above the lowest seat-to-floor height of their system.

***Note:** During the Elevate function, the seating system will transition to a slightly pre-tilted position, PRIOR to levelling the front of the seat and elevating upward. *(When returning to Home position from an Elevated position, the seating system will travel (and self adjust) over the identical range of motion, but in the reverse sequence).*

ELEVATE- LOCKOUTS & LIMITS:

The Elevate function utilizes a pre-programmed limit switch that signals the wheelchair into **Reduced Drive Speed (RDS)** as soon as the seating system is Elevated beyond its home (fully retracted) position. (The RDS Limit reduces the drive speed of the wheelchair to approximately 25-30% of its maximum speed when the Elevate function is activated). *(Note: To return to normal drive speed, the seating system must be lowered back down to its home position).*

The Tilt function will remain locked out (non-functional) at all times throughout the Elevate function. *(If the seating system is already tilted when the elevate function is activated, the seat will automatically return to the 'Tilt Home' position PRIOR to Elevating).*

When the Rovi-MPS System is in an Elevated position, there will be LIMITED Recline function available; The amount of recline will be reduced due to the Drive Lockout (DLO) Limit.

If the power Legrest is 'out of home' (extended) prior to activating the Elevate function, the legrest will automatically return to its home position PRIOR to transitioning into the Elevate position.

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.3.5 STAND FUNCTION

The STAND function allows the seating system to be raised from a seated position into an upright position.

 **DANGER!** Failure to utilize the Stander safety accessories provided and/or failure to follow proper adjustment procedures can result in serious injury or death.

- ALWAYS wear your Postural Belt when seated in the wheelchair. Your postural belt reduces the possibility of a fall from the wheelchair- refer to **Section 5.14**
- ALWAYS ensure the Chest Strap is properly adjusted and secured PRIOR to transitioning into the stand position- refer to **Section 5.14** for detailed set-up/adjustment instructions
- ALWAYS ensure the Chest Bar is properly adjusted and locked into position PRIOR to transitioning into the stand position- refer to **Section 5.13** for detailed set-up/adjustment instructions
- ALWAYS ensure the Knee Bolster is properly adjusted and locked into position PRIOR to transitioning into the stand position- refer to **Section 5.9** for detailed set-up/adjustment instructions

 **WARNING!** Risk of compromised wheelchair stability and serious personal injury.

- ALWAYS ensure the wheelchair is on a smooth level surface when driving or operating the system in an standing position (even at reduced speed).
- NEVER drive up or down an incline while in an standing position (even at reduced speed)
- NEVER lean forward or sideways to grab items/objects, or shift body position (in any direction) while in an standing position.
- NEVER transfer in or out of your wheelchair while in the standing position.

STAND RANGE OF TRAVEL:

The STAND function will transition* the seating system from a standard seated position, into a full upright standing position. The MPS system is designed to achieve up to a **68°** standing angle ($\pm 5^\circ$) at the full anterior/standing position.

***Note:** When transitioning to a Standing position, the seating system will first go into a pre-tilted position, BEFORE the seat begins to shift upward into the full upright (stand) position. (When returning to the Home position from the Standing position, the seating system will travel (and self adjust) over the identical range of motion, but in the reverse sequence).

STAND - LOCKOUTS & LIMITS:

The Tilt function will remain locked out (non-functional) at all times throughout the Stand function. (**note:** If the seating system is already tilted when the Stand function is activated, the seat will automatically return to the 'Tilt Home' position PRIOR to Standing).

When the Rovi-MPS System is in the full Standing position, the Recline function is approaching the maximum attainable recline angle. The Recline function will still operate when the system is at full Stand, however the range of available recline will be minimized (allowing for approximately **10°** of recline (angle) adjustment in the Standing position).

If the power CM Legrest is 'out of home' (extended) prior to activating the Stand function, the power legrest will automatically return to its home position PRIOR to transitioning into the Stand position.

NOTE: The Rovi-MPS System uses a mechanical mechanism to lockout the front caster suspension, and stabilize the wheelchair base as the seating system transitions into the full Standing position. The front caster lockout is controlled via the CM Legrest. If power to the legrest was to become disconnected for any reason, an electronic protection system is in place that will 'lock-out' the Stand function until the issue is corrected.

 **IMPORTANT!** If you have any concerns with the effectiveness of the front caster lockout mechanism, or any concerns with stability of the system in the STANDING position, return the seating system to a stable seating position IMMEDIATELY, and contact your Service Provider for assistance. DO NOT operate the Stand function until your concerns are addressed.

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.4 Operating the ROVI-MPS System - Thru the Joystick



WARNING! Risk of Damage, Serious Injury or Death

• Be certain to read through **Section 2.0- Safety Information**, *PRIOR* to operating your Modular Power Standing (MPS) System. Failure to follow the safety guideline and warnings provided in this manual could result in system damage, serious personal injury or death.



IMPORTANT! Be certain to read through **Section 3.3, Understanding the Power Positioning Functions**, BEFORE operating your Rovi-MPS System for the first time.



IMPORTANT! Please consult your **RNet Remote /Joystick User Manual** and/or **your Rovi Power Base Owner's Manual** (provided separately) for detailed safety, operating and troubleshooting instructions.



Read ALL instructions thoroughly before operating your MPS seating system.

To operate the power positioning system with the RNet Remote Joystick, the joystick must be in 'Power Seating Mode'. To activate a power seating function, press and hold the joystick control UP or DOWN. The actuator motor (seat function) will stop when the joystick control is released back to its neutral/ centered position. The direction of travel (tilt up/tilt down, elevate up/elevate down, etc...) will correspond to the direction of the joystick control. The joystick direction can be programmed* to meet the needs/preferences of the end user, and are also dependent on whether the power seating function is programmed to operate in direct-mode or toggle-mode. The following section illustrates the standard (factory default) configuration for thru joystick operation of the Rovi-MPS System.



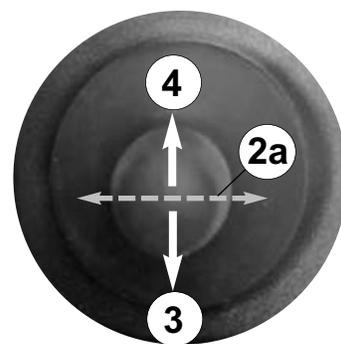
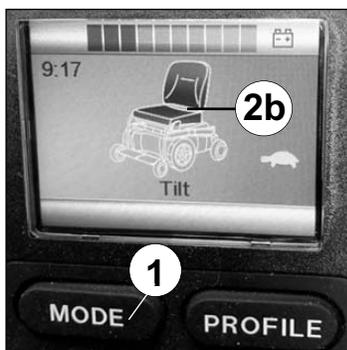
NOTE: Changes to the joystick configuration for each power positioning function requires a special programmer, and may only be performed by a Qualified Service Technician. If you require changes to your existing joystick configuration, please contact your local Service Provider for assistance.

3.4.1 TILT FUNCTION - THRU JOYSTICK

POWER TILT INSTRUCTIONS:

(*Note: the Tilt Function operates in **DIRECT** mode thru the joystick.*)

1. Press the Mode Button (1) on the remote joystick to put the wheelchair in power seating mode.
2. Press the joystick control to the left or right (2a), to scroll through all the available power positioning options, until the TILT function is highlighted in the joystick display (2b).
3. To tilt the seat back, *pull back* on the joystick control (3). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.
4. To tilt the seat forward, *push forward* on the joystick control (4). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.



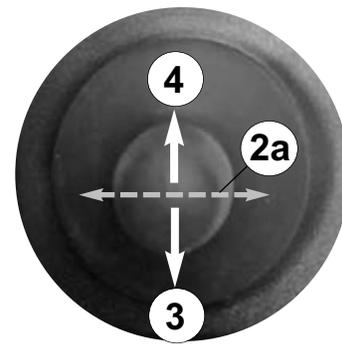
3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.4.2 RECLINE FUNCTION - THRU JOYSTICK

POWER RECLINE INSTRUCTIONS:

(*Note: the Recline Function operates in **DIRECT** mode thru the joystick.*)

1. Press the Mode Button (1) on the remote joystick to put the wheelchair in power seating mode.
2. Press the joystick control to the left or right (2a), to scroll through all the available power positioning options, until the RECLINE function is highlighted in the joystick display (2b).
3. To recline the seat back, pull back on the joystick control (3). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.
4. To recline the seat forward, push forward on the joystick control (4). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.

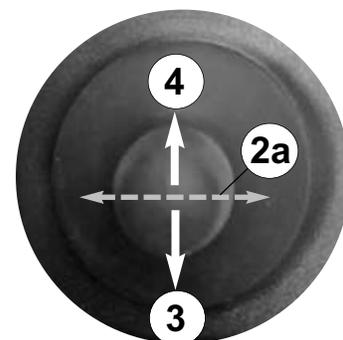


3.4.3 POWER LEGREST FUNCTION - THRU JOYSTICK

POWER LEGREST INSTRUCTIONS:

(*Note: the Legrest Function operates in **DIRECT** mode thru the joystick.*)

1. Press the Mode Button (1) on the remote/joystick to put the wheelchair in power seating mode.
2. Press the joystick control to the left or right (2a), to scroll through all the available power positioning options, until the LEGS function is highlighted in the joystick display (2b).
3. To extend the legrest outward, pull back on the joystick control (3). Hold the joystick control until you reach the desired position; Release the joystick control to stop.
4. To bring the legrest inward, push forward on the joystick control (4). Hold the joystick control until you reach the desired legrest position; Release the joystick control to stop.



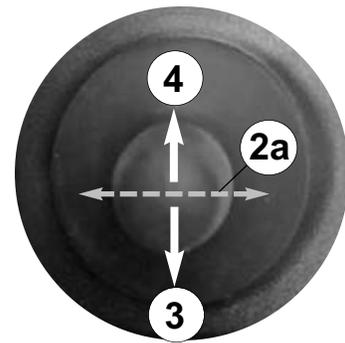
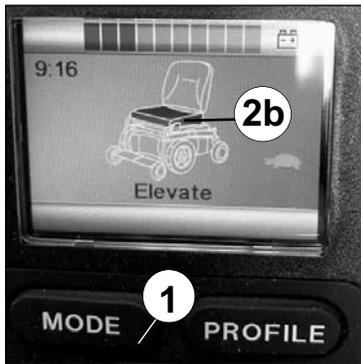
3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.4.5 ELEVATE FUNCTION - THRU JOYSTICK

ELEVATE INSTRUCTIONS:

(*Note: the Elevate Function operates in **DIRECT** mode thru the joystick.*)

1. Press the Mode Button (1) on the remote joystick to put the wheelchair in power seating mode.
2. Press the joystick control to the left or right (2a), to scroll through all the available power positioning options, until the ELEVATE function is highlighted in the joystick display (2b).
3. To raise the seating system to an elevated position, *pull back* on the joystick control (3). Hold the joystick control until you reach the desired position/height*; Release the joystick control to stop.
4. To lower the seating system, *push forward* on the joystick control (4). Hold the joystick control until you reach the desired position/height; Release the joystick control to stop.

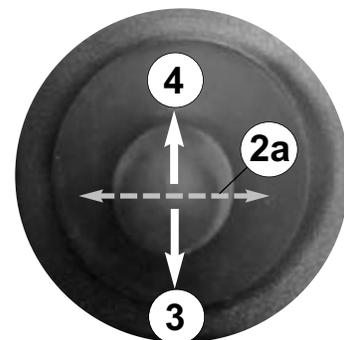


3.4.6 STAND FUNCTION - THRU JOYSTICK

STAND INSTRUCTIONS:

(*Note: the Stand Function operates in **DIRECT** mode thru the joystick.*)

1. Press the Mode Button (1) on the remote joystick to put the wheelchair in power seating mode.
2. Press the joystick control to the left or right (2a), to scroll through all the available power positioning options, until the STAND function is highlighted in the joystick display (2b).
3. To raise the seating system up the 'Stand' position, *pull back* on the joystick control (3). Hold the joystick control until you have extended forward to the desired position; Release the joystick control to stop.
4. To return from the 'Stand' position, *push forward* on the joystick control (4). Hold the joystick control until you reach the desired legrest position; Release the joystick control to stop.



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.4.7 JOYSTICK SAFETY INDICATORS (FOR REDUCED DRIVE SPEED & DRIVE LOCKOUT):

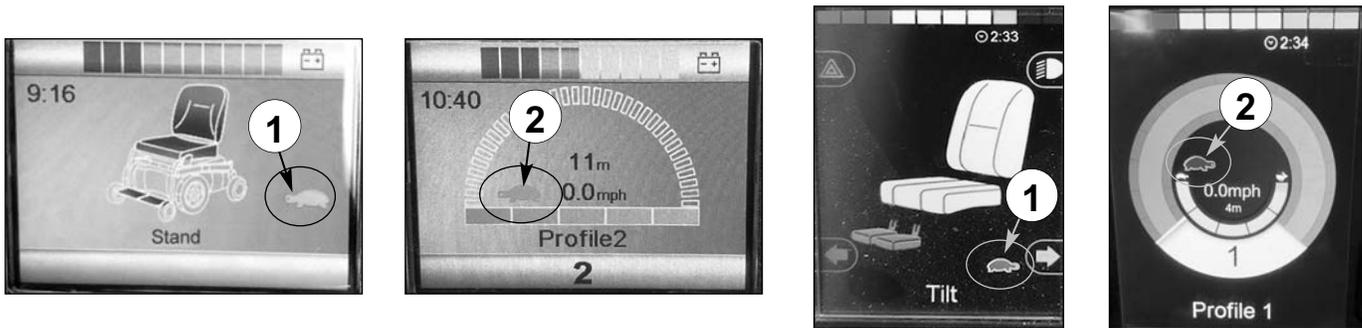
The Rovi-MPS System uses a programmable Tippy Angle Sensor to set all the required safety limits and lockouts for the wheelchair. This includes programmed settings for the Home position, the Maximum Tilt (or Tilt/Recline) Limit, the Drive Lockout Limit and the Reduced Drive Speed Limit. Please refer to **Section 4.3.4 - Tippy Angle Sensor** for more detailed information on the recommended safety limit settings.

When operating your Rovi-MPS system, the associated joystick control will provide a visible indicator to notify if/when the wheelchair has reached the established safety limits for **Reduced Drive Speed (RDS)** and/or **Drive Lockout (DLO)**:

I. REDUCED DRIVE SPEED (RDS) INDICATORS :

The RDS Limit places the wheelchair into a reduced drive speed when the seating system is tilted and/or reclined beyond a preset angle, and/or in an elevated/stand position. When the seating system/wheelchair is in reduced drive speed, a **'Solid YELLOW'** colored turtle will appear on the LCD joystick display, or a **'Solid RED'** colored turtle on the LCD Advanced Joystick display

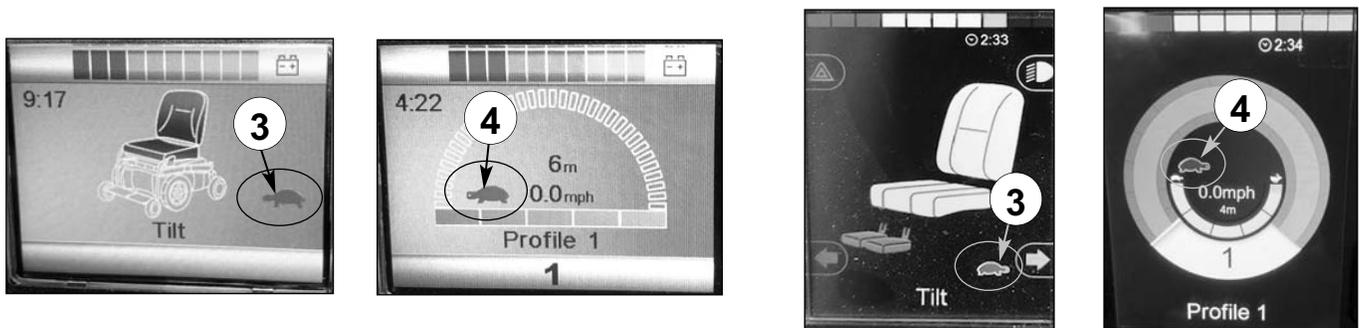
- Power Seating Mode - the 'turtle' will appear next to the wheelchair icon on the joystick display (1).
- Drive Mode - the 'turtle' will appear inside the drive speed indicator on the joystick display (2).



II. DRIVE LOCKOUT (DLO) INDICATORS:

The DLO limit prevents the wheelchair from driving when the seating system is tilted and/or reclined beyond a safe operating angle/position. When the seating system/wheelchair is in drive lockout, a **Flashing "RED"** turtle will appear on the Joystick display (The flashing turtle image is common to both the LCD Joystick and the LCD Advanced Joystick).

- Power Seating Mode - the flashing 'red turtle' will appear next to the wheelchair icon on the joystick display (3).
- Drive Mode - the 'flashing red turtle' will appear inside the drive speed indicator on the joystick display (4).



i ***NOTE:** In order to return the wheelchair to normal drive speed, the affected power positioning function (*Tilt/Recline/Elevate/Stand*) must be returned to its established 'HOME' position. (The turtle image is not visible on the joystick display when the ROVI-MPS System is in the safe operating/ 'HOME' position).

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.5 Operating the ROVI-MPS System - Thru a Separate Switch Control

i IMPORTANT! Be certain to read through **Section 3.3, Understanding the Power Positioning Functions**, **BEFORE** operating your Rovi-MPS System for the first time.

i IMPORTANT! The RNet Remote/Joystick **MUST** be powered on to enable the 8-Way Switch Control.

When a separate switch control is installed on the Rovi Multi-Position Stander (MPS) system, the seating functions may be operated independent from the joystick. (The RNet remote joystick does not have to be placed into 'Power Seating Mode' in order to operate the power positioning functions; however the joystick power must be turned on).

The available power seating functions are labeled on the 8-way switch control. To operate a selected power positioning function, press and,hold the rocker switch (button) FORWARD or BACKWARD to activate the actuator motor (seat function). The actuator motor will stop when the rocker switch/button is released. The switch control can be independently programmed* to meet the preferences of the end user. The direction of the rocker switch and the corresponding seat function (e.g.; tilt up/tilt down, elevate up/elevate down, etc...) will be dependent on whether the power seating function (rocker switch) is programmed to operate in direct-mode or toggle-mode:

- i) **Direct Mode:** two switch/button directions are required to operate a designated power seating function, one for each actuator motor direction.
- ii) **Toggle Mode:** only one switch/button direction is required for each power seating function. In this mode, pressing the switch once will activate the seat function (actuator motor); releasing the switch (pausing 2 sec.), then pressing the same switch again will cause the actuator motor to travel in the reverse direction.

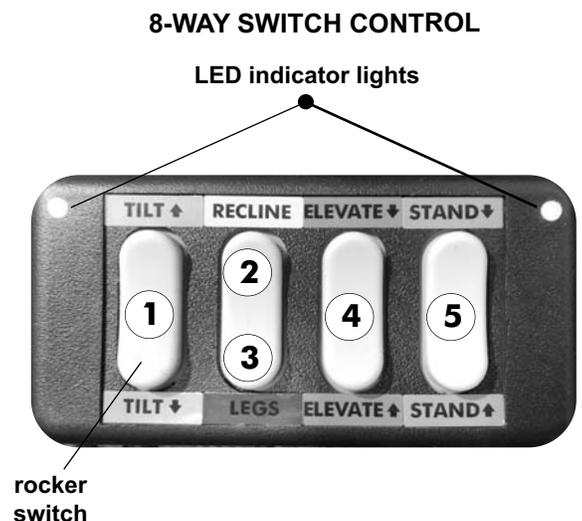
**Note: The 8-way switch control on your Rovi-MPS has been pre-programmed; Programming changes must only be performed by a Qualified Service Technician. If you require any changes to your existing switch configuration, please contact your local Service Provider for assistance.*

3.5.1 SEAT CONTROLS THRU SWITCH

8-WAY SWITCH CONTROL

The rocker switches on the 8-way Switch Control may be programmed to operate in either Direct Mode and/or Toggle Mode depending on the seating function to which they are assigned. The following image illustrates the standard (factory) switch configuration for the Rovi-MPS system, and a basic functional overview of the rocker switches (push buttons)

- 1** = **TILT** (DIRECT mode):
 - Tilt Up- Press Switch Forward;
 - Tilt Down- Press Switch Backward
- 2** = **RECLINE** (TOGGLE mode):
 - Recline Back- Press Switch Forward;
 - Recline Up- Release, Pause, then Press Switch Forward again
- 3** = **POWER LEGS** (TOGGLE mode):
 - Legrest Extend- Press Switch Backward;
 - Legrest Retract- Release, Pause, then Press Switch Backward
- 4** = **ELEVATE** (DIRECT mode):
 - Elevate Up- Press Switch Forward;
 - Elevate Down- Press Switch Backward
- 5** = **STAND** (DIRECT mode):
 - Stand Up- Press Switch Forward;
 - Stand Down- Press Switch Backward



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.5.2 POWER TILT FUNCTION - THRU SWITCH

POWER TILT INSTRUCTIONS:

(*Note: the Tilt Function operates in **DIRECT** mode thru the 8-way Switch.*)

1. Press backward on the TILT switch (1) to tilt the seat backward .
2. Press forward on the TILT switch (2) to tilt the seat forward.



3.5.3 POWER RECLINE FUNCTION - THRU SWITCH

POWER RECLINE INSTRUCTIONS:

(*Note: Recline typically operates in **TOGGLE** mode thru the 8-way Switch.*)

1. Press forward on the RECLINE switch (1) to recline the seat backward.
2. Release the switch (*pause for 1-2 seconds until you hear a 'click'*), then press forward again on the RECLINE switch (1) to recline forward (back to an upright position).



3.5.4 POWER LEGREST FUNCTION - THRU SWITCH

POWER LEGREST INSTRUCTIONS:

(*Note: Power Legs typically operates in **TOGGLE** mode thru the 8-way Switch.*)

1. Press downward on the Legrest (LEGS) switch (1) to extend the legrests outward.
2. Release the switch (*pause for 1-2 seconds until you hear a 'click'*) then press downward again on the legrest (LEGS) switch (1) to retract the legrests inward.



3.5.5 ELEVATE SEAT FUNCTION - THRU SWITCH

ELEVATE INSTRUCTIONS:

(*Note: Elevate operates in **DIRECT** mode thru the 8-way Switch.*)

1. Press backward on the ELEVATE switch (1) to elevate the seating system upward .
2. Press forward on the ELEVATE switch (2) to lower the seating system downward.



3.5.6 STAND FUNCTION - THRU SWITCH

STAND INSTRUCTIONS:

(*Note: Stand operates in **DIRECT** mode thru the 8-way Switch.*)

1. Press backward on the 'STAND' switch (1) to raise the seating system up into the full Stand position.
2. Press forward on the 'STAND' switch (2) to lower the seating system down to its home position.



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.5.7 THRU SWITCH SAFETY INDICATORS (for REDUCED DRIVE SPEED & DRIVE LOCKOUT):

The Rovi-MPS system uses a programmable Tippy Angle Sensor and feedback actuator motors to set all the required safety limits and lockouts for the wheelchair. This includes programmed settings for the Home position, the Maximum Tilt (or Tilt/Recline) Limit, the Drive Lockout Limit and the Reduced Drive Speed Limit. Refer to **Section 4.3.4 Tippy Angle Sensor** for more detailed information on the recommended safety limit settings.

When operating your Rovi-MPS system thru an 8-way switch, the LED indicator lights on the switch control box provide a visible indicator to notify if/when the wheelchair has reached the established safety limits for **Reduced Drive Speed (RDS)** and/or **Drive Lockout (DLO)**:

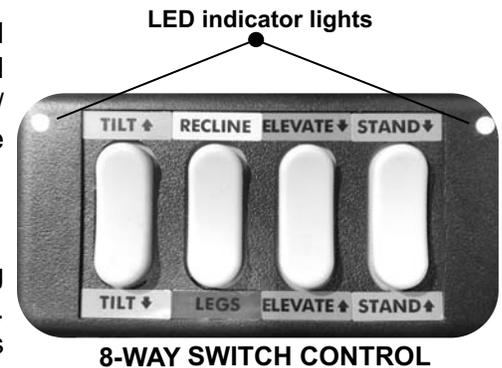
I. SWITCH INDICATORS FOR RDS AND DLO

REDUCED DRIVE SPEED (RDS):

The RDS Limit places the wheelchair into a reduced drive speed (prior to DLO) when the seating system is tilted and/or reclined beyond a preset angle, or raised beyond the 'home' position for the Elevate/Stand functions. When the Rovi-MPS system is in reduced drive speed, the LED indicator lights are **"Flashing RED"**.

DRIVE LOCKOUT (DLO):

The DLO Limit prevents the wheelchair from driving when the seating system is tilted and/or reclined beyond a preset (safe) operating angle. When the Rovi-MPS system is in drive lockout, the LED indicator lights are **"Solid RED"**.



***NOTE:** In order to return the wheelchair to normal drive speed, the affected power positioning function must be returned to its established 'Home' position. (When the Rovi-MPS System is in the 'Home' position, the LED indicator lights remain **GREEN**).

3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

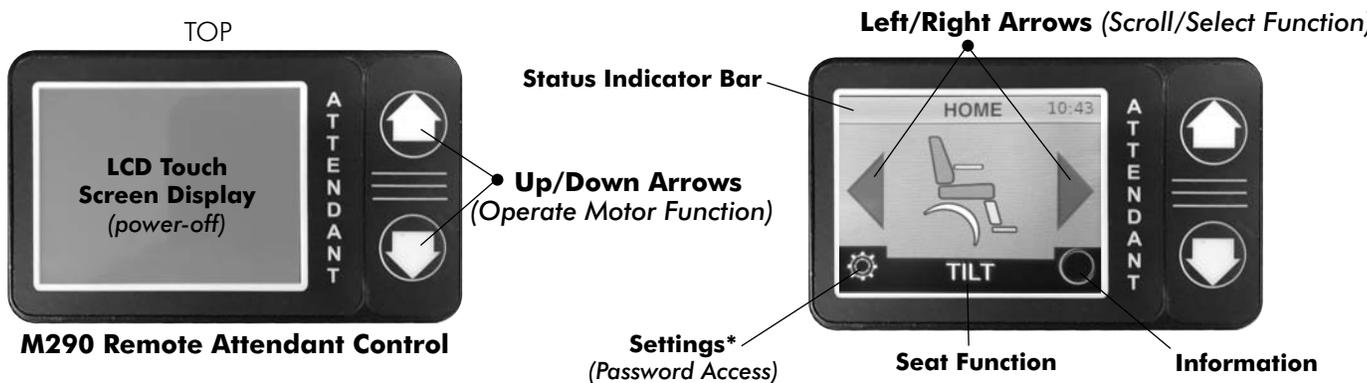
3.6 Operating the ROVI-MPS System - Thru the Remote Attendant Control

i IMPORTANT! The RNet Remote/Joystick MUST be powered on to enable the Remote Attendant Control.

i NOTE: When not in use, the **screen display** on the Attendant Control is designed to enter into sleep mode after 10 sec. To activate, or re-awaken the Remote Attendant Control, touch the screen display or press on of the Up/Down function arrows.

3.6.1 REMOTE ATTENDANT CONTROL - FEATURE OVERVIEW:

All Rovi-Multi-Position Stander (MPS) systems come standard with an **M290 Remote Attendant Control**, as part of our standard electronics. The Remote Attendant Control is connected directly into the M-Series seat control box, and is mounted/located at the rear (back) of the power positioning system. The Remote has a backlit LCD touch display along with a directional key pad which allows an attendant, or healthcare provider, to select and operate the power positioning functions on the wheelchair.



i *NOTE: The Remote Attendant Control also functions as a multi-functional hand-held electronics programming device. Access to the program settings for the Attendant Control is password protected, and restricted to Qualified Technical Service personnel only. For additional information on programming options and other features available with the Remote Attendant Control, please refer to **Section 4.0- Electronics (4.1.2 - Remote Attendant Control)**

3.6.2 OPERATING THE ROVI-MPS SYSTEM via the REMOTE ATTENDANT CONTROL

1. Use the **LEFT/RIGHT** touch screen arrows (1) to scroll through the available power positioning (motor) functions (i.e. Tilt, Recline, Elevate, Stand, etc..).

Note: the remote will only display the power positioning functions that are available

2. Select the desired motor function (on the screen display), then press and hold the **UP/DOWN** arrows (2) and (3) to operate the actuator motor. The power positioning function and direction of travel will be indicated on the display screen (See example below showing Tilt function).

Scroll via arrows (to select seat function:
i.e.; TILT, RECLINE, ELEVATE, STAND, LEG)

e.g. TILT BACKWARD

e.g. TILT FORWARD



3.0 PROGRAMMING AND OPERATING YOUR ROVI-MPS SYSTEM

3.6.3 REMOTE ATTENDANT CONTROL - SAFETY/STATUS INDICATORS

REDUCED DRIVE SPEED (RDS):

The RDS Limit places the wheelchair into a reduced drive speed when the seating system is tilted and/or reclined beyond a preset angle, and/or elevated/standing beyond a designated height/seat position. When the Rovi-MPS System is in Reduced Drive Speed, the status indicator bar at the top of the Remote Attendant Control display with turn **'Yellow'** and **'SLOW DRIVE'** will be indicated on the screen*.

'YELLOW' RDS Status Indicator Bar



DRIVE LOCKOUT (DLO):

The DLO limit prevents the wheelchair from driving when the seating system is tilted and/or reclined and/or elevated/standing beyond a designated (pre-programmed) safe operating angle/position. When the Rovi-MPS System is in Drive Lockout, the status indicator bar on the Remote Attendant Control display with turn **'Orange'** and **'NO DRIVE'** will be indicated on the screen.

'ORANGE' DLO Status Indicator Bar



i ***NOTE:** In order to return the wheelchair to normal drive speed, the affected power positioning function (*Tilt and/or Recline and/or Elevate and/or Stand*) must be returned to its established **'HOME'** position. When the Rovi-MPS System is in the Home position, the status indicator bar on the Remote Attendant Control display with turn **'Green'** and **'HOME'** will be indicated on the screen.

'GREEN' HOME status Indicator Bar



4.0 ELECTRONICS

Your UL Maxx Multi-Position Stander (MPS) System has been specifically programmed/ configured for use prior to delivery. While certain seating system features and functions may be adjusted by the user and/or attendant following delivery, to ensure your seating system is operating properly and safely, any programming changes to the electronics must only be performed by a qualified technician.



WARNING! Risk of Serious Injury or Damage

Incorrect set up of this wheelchair performed by users/caregivers or unqualified technicians can result in serious injury or damage.

- *User/Caregivers- DO NOT attempt to set up this wheelchair.*
- *Set-up and programming of this wheelchair MUST be performed by a Qualified Technician.*

There are 3 key components in our system electronics: **Seat Control Box, Wiring Harnesses & Limit Switches/Sensors**. The following sections provide information/instructions related to each of these components.

4.1 Seat Control Box

The seat control box is the brain behind our Power Positioning Systems. It is responsible for controlling the available motor functions (*i.e.; tilt, recline, elevate, etc.*), as well as signaling the associated safety limits and lockouts (*i.e.; DLO Limit, Reduced Speed Drive, etc.*). Motion Concepts uses state of the art electronics to operate our power positioning systems and ensure the safe operation of your wheelchair system. The Rovi-Multi-Position Stander (MPS) System is configured with our enhanced (**M610 series**) electronics, in combination with **Rovi RNet** power base electronics.

4.1.1 M610 SERIES SEAT CONTROL

Our M610 series (multi-function) seat control boxes are designed for maximum programmability and function (*up to 6 functions*). All enhanced seat control boxes come standard with our **Remote Attendant Control**.



IMPORTANT! The M-Series seat controls are equipped with built-in over-current protection. In the event that a current spike occurs during operation of your power positioning system, the controller is designed to go into a temporary shutdown to prevent damage to the electronics. If you experience a repeated controller shutdown, please contact your service provider or our Technical Service Department for assistance.

4.1.2 M290 REMOTE ATTENDANT CONTROL:

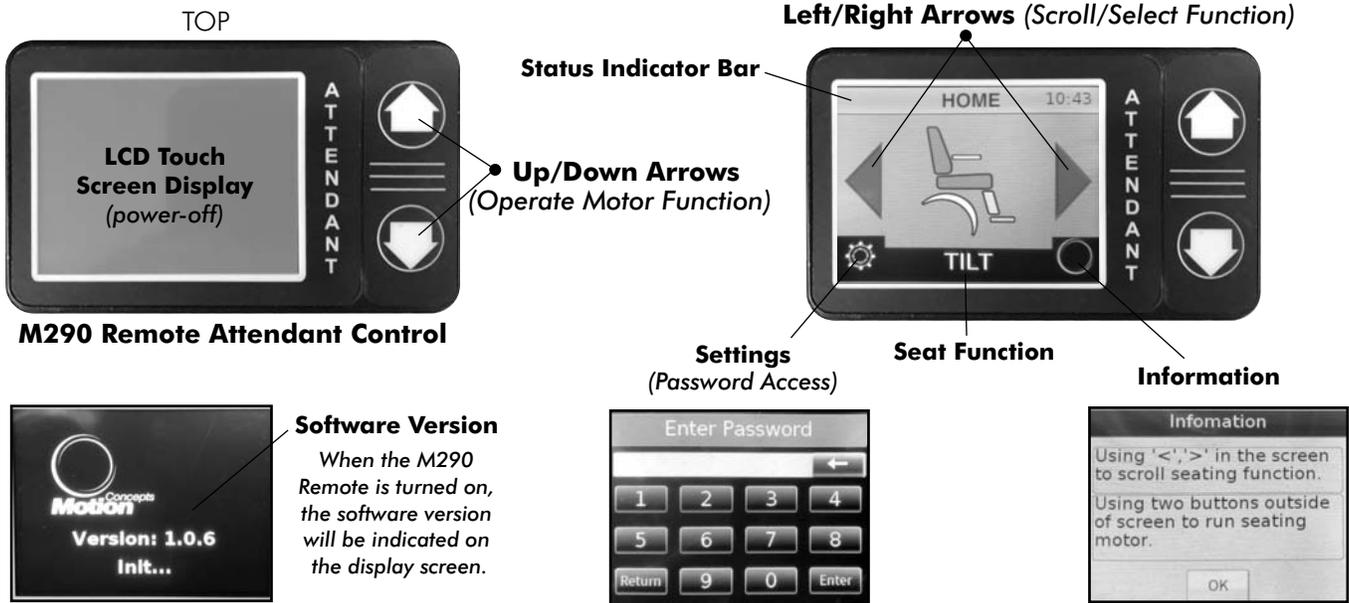
The M290 Remote Attendant Control serves dual purpose as both an attendant control box for the available seat functions, as well as a hand-held electronics programmer for certain seating system features.

In **Standard Mode** the Remote Attendant Control functions as an attendant control switch/display for the power positioning system.

In **Program Mode**, the Remote Attendant Control functions as a hand-held programmer to configure various seating system parameters/limits. Programming access is password protected and restricted to qualified Technical Service personnel.

4.0 ELECTRONICS

M290 REMOTE ATTENDANT CONTROL:



i NOTE: When not in use, the screen display on the Remote is designed to enter into sleep mode after 10 sec. Pressing any button on the remote will re-awaken the display.

M290 REMOTE ATTENDANT CONTROL: FEATURE OVERVIEW

- ◆ **Attendant Controls-** the M290 Remote operates as an attendant control (with LCD display) that uses touch screen controls and push buttons to scroll through and operate the seat functions on the power positioning system (refer to **Section 3.6- Operating Your Rovi-MPS System Thru the Attendant Control**).
- ◆ **Motor Speed Control¹-** The remote allows the individual actuator speeds to be adjusted/set independently for both Forward and Reverse directions.
- ◆ **Configuring Switches & Joystick Functions¹-** The installed operator switches and/or joystick can be reconfigured to operate the available motor functions in either toggle or direct mode.
- ◆ **Setting Limits & Lockout Angles¹-** The remote operates as a hand-held programmer for the Topsy Sensor to set the recommended safety limits & lockouts on the power positioning system (see **Section 4.3**)
- ◆ **Status Indicator Bar (Screen Display)-** a color-coded status bar (and text) at the top of the LCD screen display will indicate the position/status of the seating system with respect to safety limits and lockouts (see also **Section 3.6.3**):

GREEN Status Indicator = indicates the seating system is in the HOME position;

WHITE/GREEN Status Indicator = indicates the seating system is OUT OF HOME;

YELLOW Status Indicator = indicates the seating system/wheelchair is in Reduced Drive Speed (RDS);

ORANGE Status Indicator = indicates the seating system/wheelchair is in Drive Lockout (DLO).

¹**Note:** Requires password for programming access.

(Program settings/options in the M290 Remote are password protected and only accessible to Qualified Technical Service personnel. If you require programming changes beyond your existing set-up, please contact your authorized Dealer or Service Provider for assistance).

4.0 ELECTRONICS

4.2 Wiring Harnesses

Wiring Harnesses can be split into two categories: **Power Cables** and **Motor/Actuator Harnesses**. In the case of power cables, there are several unique cables available in order to interface with the various base electronics (controllers) utilized by the different wheelchair base manufacturers. The number of actuator harnesses required for any particular power positioning system is determined by the number of motor functions available.

i) **Power Cables** - draw power from the wheelchair base in order to operate the power positioning system. The power cable is the first link in the series of wiring harnesses and typically draws power from the wheelchair batteries via the base controller (electronics). The final wiring configuration will vary depending on the type of PPS electronics and the type of wheelchair base.

ii) **Motor/Actuator Harnesses** - distribute the power to the individual motors on the Power Positioning System. The number of actuator harnesses is in direct correlation with the number of motor functions available.

4.3 Safety Lockouts and Limit Switches

 **IMPORTANT!** Programming of the **Tipsy Angle Sensor** (via the Remote Attendant Control) may only be performed by a Qualified Technician. Program access into the Attendant Control is password protected. If you have questions or concerns regarding your existing program settings, or any of the available program options, please contact your local Dealer or Service Provider for assistance.

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

- The angle at which the limit switches/lockouts are set is **critical** to the safe operation of the Multi-Position Stander system. Improper set-up may result in serious injury or death.
- Motion Concepts 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 must **ONLY** be performed by a Qualified Technician.

 **WARNING! Risk of Death or Serious Injury**
Operating the wheelchair with the seat back angle position beyond the recommended drive lock-out (DLO) angle can cause instability resulting in death or serious injury from the wheelchair tipping over.

- For wheelchair systems programmed WITH reduced drive speed, the maximum recommended DLO angle is 30° (refer to **Section 4.3.1**)
- For wheelchair systems programmed WITHOUT reduced drive speed, the maximum recommended DLO angle is 25° (refer to **Section 4.3.1**)
- **NEVER** operate the wheelchair or elevate/lower the seat while in any back angle position that exceeds the maximum recommended DLO angle.
- If the drive lock-out does not stop the wheelchair from operating, or does not stop the seat from elevating when the tilt/recline back angle exceeds the recommended DLO angle, **STOP** operation of the wheelchair **IMMEDIATELY**. Return the seat to the **HOME** position for safe operation. **DO NOT** attempt to adjust the drive lock-out. Contact your Dealer/Service Provider **IMMEDIATELY** to arrange service.

The wheelchair user MUST have a clear line of sight to drive safely.

- Upon initial chair delivery, 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 have the lockout angle readjusted until a clear line of sight is achieved for safe driving.

 **WARNING! Risk of compromised wheelchair stability and serious personal injury.**

- When operating/driving the wheelchair in a tilted and/or reclined, elevated or standing position, ensure the wheelchair is on a smooth level surface (even at reduced speed).

4.0 ELECTRONICS

4.3 Safety Lockouts and Limit Switches



WARNING! Risk of Serious Injury or Damage.

• ALWAYS ensure the wheelchair base is on a level surface when setting/adjusting safety limits.



WARNING! Risk of Death or Serious Injury if the Maximum Recommended Limits are Exceeded

• Safety Lockouts and Limit Switches may only be adjusted by a Qualified Technician, and should be set up to best meet the needs of the user without compromising the overall stability of the wheelchair.



WARNING! Risk of Serious Injury or Damage.

• Following any limit or lockout adjustments, **always** test the seating system over the full range of motion (i.e.; tilt, recline, elevate, stand) to verify the revised set-up is functioning properly and ensure that there are no resulting stability or interference issues.

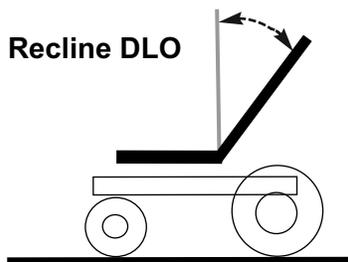
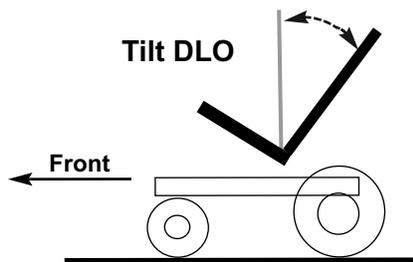
4.3.1 TILT/RECLINE DRIVE LOCKOUT (DLO) AND REDUCED DRIVE SPEED (RDS) LIMIT

Both the TILT and RECLINE functions are programmed with a **Drive Lockout (DLO)** Limit to prevent the wheelchair from being driven when the seating system is Tilted and/or Reclined beyond a pre-determined safe angle*. The DLO limit is configured using a programmable **Tipsy Angle Sensor** (see **section 4.3.4**).

Note: The Tipsy Angle Sensor also allows programming of a **Reduce Drive Speed (RDS)** limit that will trigger the wheelchair base to drive at approx. 25-30% of its maximum speed when the back angle extends beyond a preset angle* (between the Home angle and the DLO angle) . For the Rovi-MPS System, Reduced Drive Speed is typically set to engage between 10-20° and will stop when the Drive Lockout limit/angle is reached)

Tilt and/or Recline Function (With Reduced Drive Speed): **Max. DLO Angle = 30°**

Tilt and/or Recline Function (Without Reduced Drive Speed): **Max. DLO Angle = 25°**



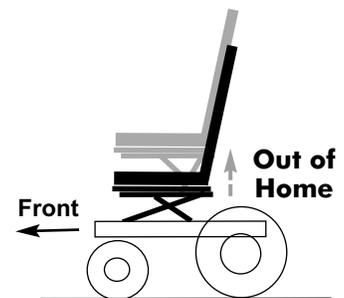
(Angle measured from vertical)

Max. DLO = 30°

Max. DLO = 25° (if No Reduced Drive)

4.3.2 ELEVATE/STAND REDUCED DRIVE SPEED (RDS) LIMIT

The Rovi-MPS system is configured to put the wheelchair into **Reduced Drive Speed (RDS)** when the seating system begins ELEVATE or STAND function is activated. The RDS Limit is controlled using a feedback actuator (electronic limit) to trigger the MPS system into reduced drive speed as soon as the seating system is raised (elevated or standing) beyond the home position*.



RDS Limit (for Elevate/Stand)

ELEVATE FUNCTION: RDS Engaged when Elevate/Stand - 'Out of Home'



***NOTE:** To regain full drive function of the wheelchair, return the seat angle to a more upright position (when the Tilt/Recline DLO or RDS Limits are activated), or lower the seat to its home (fully retracted) position (when the Elevate or Stand RDS Limit is activated).

4.0 ELECTRONICS

4.3.3 MAXIMUM TILT (TILT/RECLINE) LIMIT

The Max. Tilt (Tilt/Recline) Limit establishes the maximum back angle for the seating system at full Tilt or full Recline or Tilt/Recline combined. The function of this limit is to prevent the back angle from extending beyond the maximum recommended angle. The Rovi-MPS System is factory preset to the maximum allowable tilt/recline angle and will typically not require any further adjustment unless the max. angle needs to be decreased.



CAUTION! Risk of Damage

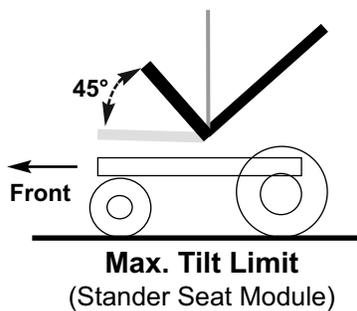
• When establishing the max tilt limit, always consider the size and location of any personal gear that may be carried on the wheelchair, as it could cause interference between the backrest and the wheelchair base when fully tilted/reclined, and damage the actuator and/or wheelchair.

TILT-ONLY (Stander Seat Module):

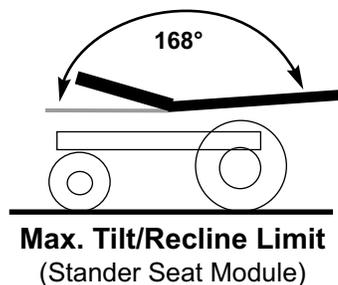
Max. Tilt Limit = 45°

TILT/RECLINE; RECLINE-ONLY:

Max. Tilt/Recline Limit = 168°



(max. combined tilt/recline angle)



4.3.4 TIPSY ANGLE SENSOR

The Tippy Angle Sensor is a programmable* limit switch that utilizes a separate angle sensor mounted to the seating system (refer to images that follow). The **M11S Tippy** angle sensor is utilized with our M-Series electronics and may be programmed (by a Qualified Technician) using the M290 Remote Attendant Control.

The tippy angle sensors allows for the individual programming of up to 4 limits: **Home Position, Reduced Drive Speed, DLO Limit** and the **Max Tilt (Tilt/Recline) Limit**.

STANDER HOME POSITION

Home Setting = 0° - 10° Max

REDUCED DRIVE SPEED (RDS) LIMIT

RDS Limit = 10° - 20° Max

DRIVE LOCKOUT (DLO) LIMIT¹

Max. DLO Limit = 30° (with Reduced Drive Speed)

Max. DLO Limit = 25° (without Reduced Drive Speed)

MAXIMUM BACK ANGLE:

Max. Tilt Limit = 45°

Max. Tilt/Recline Limit = up to 168°

¹Note: DO NOT exceed the maximum recommended DLO Limit.



***NOTE:** Programming of the **Tippy Angle Sensor** (via the M290 Remote Attendant Control) may only be performed by a Qualified Technician. Program access into the M290 Remote is password protected. If you have questions or concerns regarding your existing program settings, or any of the available program options, please contact your Dealer or Local Service Provider for assistance.

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

Motion Concepts offers a wide range of positioning features/accessories for use with our Modular Power Standing (MPS) System. The following information is provided as a reference for our typical seating system configurations. The components/accessories on your wheelchair may differ from those illustrated in this manual. If you have any questions or concerns related to your specific seating system that are not addressed in this Owners Manual, please contact your Service Provider or Motion Concepts directly for further assistance.

Once you become familiar with the operation of your power positioning system, you may find a need to make some basic adjustments to improve your comfort. The following section identifies a variety of features and adjustment options common to our power positioning systems.



WARNING! Risk of Serious Injury or Damage

• *Your seating system has been uniquely configured and installed onto the the power wheelchair base prior to delivery. There are a limited number of adjustments that can be safely performed by the end user. To ensure that the adjustments are completed properly, it is preferred to have all adjustments performed by a qualified technician. If there is an adjustment required that is not indicated in this manual, DO NOT perform that adjustment. Contact your Service Provider to arrange for service by a qualified technician.*



The following tools are recommended to complete the adjustments contained in this manual:

- *metric/standard socket set and ratchet*
- *metric/standard hex key set*
- *adjustable wrench*

MODULAR POWER STANDING (MPS) SYSTEM



NOT SHOWN:
- *Lateral Supports*
- *Hip Supports*

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

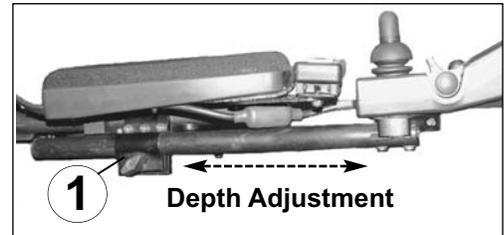
5.1 Joystick Positioning and Adjustment

i **NOTE:** The type of joystick can vary depending on the base electronics and the type of wheelchair base. *The following images are provided for reference only.*

5.1.1 STANDARD JOYSTICK MOUNTING

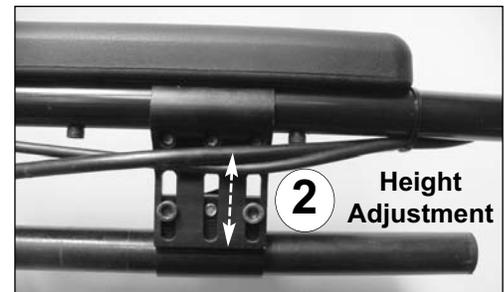
i) JOYSTICK DEPTH ADJUSTMENT:

- Loosen the adjustment knob (screw) on the outside of the joystick mounting bracket (1)
- Set the joystick to the desired length by sliding the mounting tube forward or backward.
- Re-tighten the adjustment knob (screw).



ii) JOYSTICK HEIGHT ADJUSTMENT:

- Loosen the mounting screws (x2) on the joystick clamping bracket (2).
- Adjust the lower mounting plate up or down (via slots) of the mounting bracket to establish the desired joystick height.
- Re-tighten the mounting screws on the clamping bracket.



5.1.2 SWING-AWAY QUAD LINK JOYSTICK MOUNT

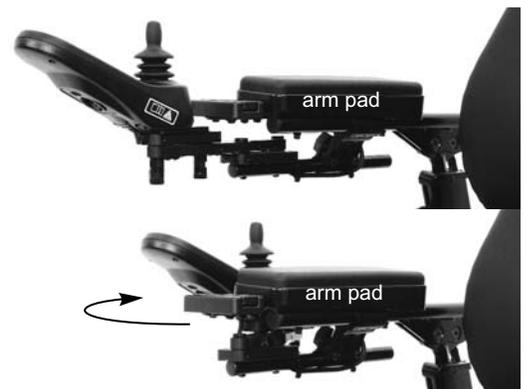
! **WARNING! Risk of Injury or damage due to improper set-up/adjustment**

- **ALWAYS** test the swing away joystick over its full range of motion to ensure there is no interference.
- **ALWAYS** ensure the height of the joystick is properly adjusted to prevent accidental contact between the joystick knob and the arm pad (which could cause the wheelchair to move unexpectedly)

i) OPERATING THE MANUAL SWING-AWAY FEATURE:

The swing-away feature allows easy repositioning of the Joystick for client comfort, transfers, or environmental access.

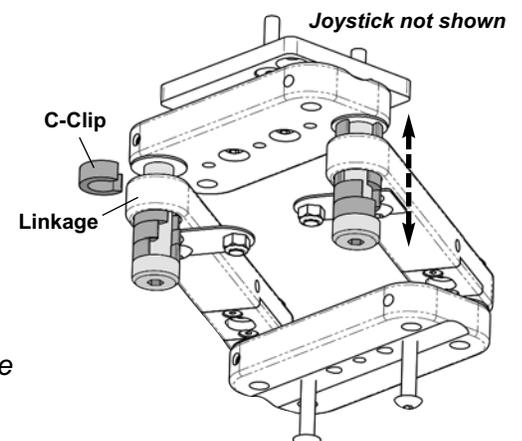
- To use the swing-away feature, push outward on the joystick in order to release the detent pins on the quad link mechanism and rotate the joystick around to the outside of the arm pad.
- To return the joystick back to its original position in front of the arm pad, rotate the joystick forward until the quad link mechanism (detent pins) 'click' back into place.



ii) JOYSTICK HEIGHT ADJUSTMENT (QUAD-LINK MOUNT):

*The **C-Clips** on the joystick mount may be re-arranged as needed to adjust the final joystick height. (Each clip provides 1/4" (6mm) of height adjustment- up to a max. 1" (25mm)).*

- Carefully remove/pry the clips from their existing position using a small screwdriver or your finger tips.
- Re-insert the clips above or below each linkage*, as required to attain the desired joystick height.



i ***NOTE:** All lower clips (below linkage) must be installed prior to the upper clips. Always adjust clips equally on both links.

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.2 RECLINE CANTILEVER CANE MOUNTED ARMREST ADJUSTMENTS

The cane mounted Recline Cantilever Armrests are secured independently to their respective recline back cane and offer a variety of adjustment options to alter the angle, width and height as necessary. The recline cantilever armrest is also designed to flip back to allow for side transfers when required.

The following section illustrates the basic cantilever armrest adjustments available. (**Note:** it is recommended that armrest adjustments be made with the seat placed in the full upright (home) position):



WARNING! Risk of serious injury or damage.

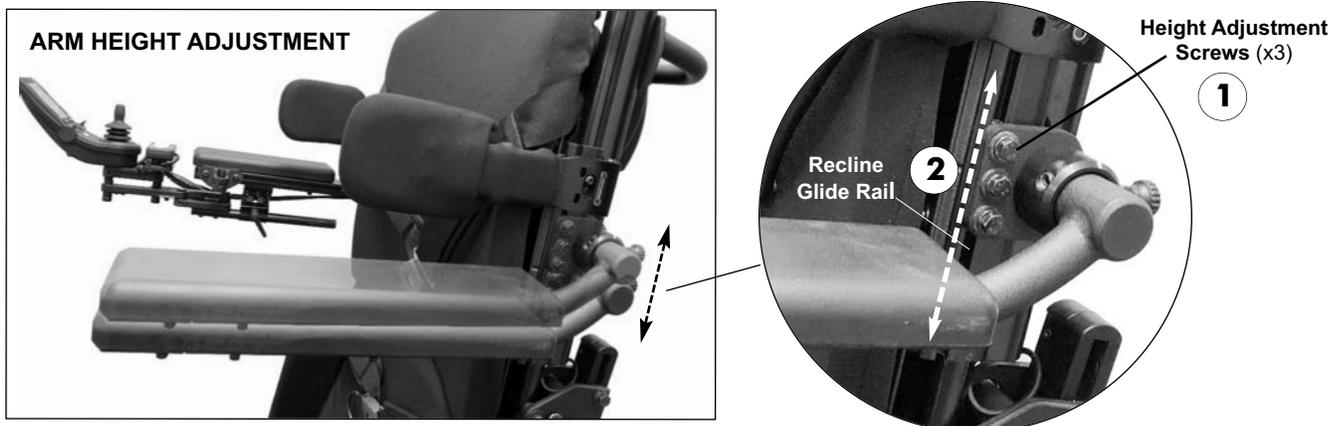
- When performing transfer activities into and out of the wheelchair, **DO NOT** use the armrest for load bearing support. To prevent the risk of personal injury and/or damage to the armrests, transfers should be performed using designated transfer handles, and in the presence of an attendant whenever possible.
- Before travelling in your wheelchair and/or operating your power positioning system, **always** ensure the armrests are securely locked in place.

5.2.1 ARMREST HEIGHT ADJUSTMENTS

The height of the Recline Cantilever Armrests (left and right) may be adjusted independently along the recline back canes in order to achieve the desired arm position. The armrest mounting bracket armrest (hardware) can be infinitely adjusted along the slotted channel in the Recline Glide Rail. (**Note:** the range of height adjustment may be limited if additional accessories (e.g. lateral supports) are installed onto the Recline Glide Rail).

Adjusting the Height of the Recline Cantilever Armrest: (repeat for each armrest)

1. Loosen the 3 adjustment screws/t-nuts on the armrest mounting brackets (1). DO NOT remove hardware.
2. Slide the armrest to the desired height along the slotted channel in the Recline Glide Rail (2).
3. Following height adjustment, ensure ALL hardware is fully tightened.



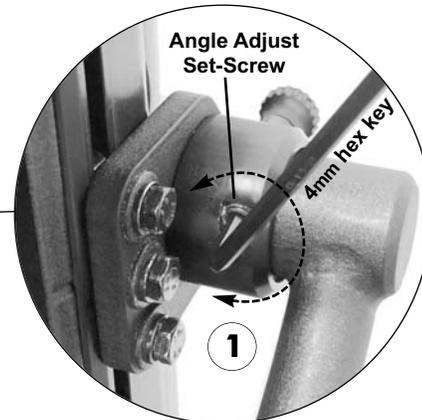
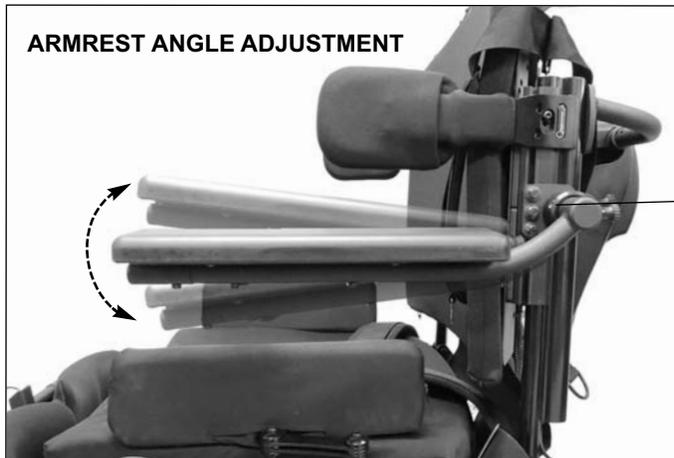
5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.2.2 ARMREST ANGLE ADJUSTMENTS

The angle of the Recline Cantilever Armrests (left and right) may be adjusted independently to achieve the desired arm angle/position. **Note:** *The armrest angle is set relative to the recline back canes, therefore the armrest position (angle) will remain consistent with the back angle of the seating system when it transitions through the various power positioning functions (i.e. Tilt, Recline, Stand).*

Adjusting the Angel of the Recline Cantilever Armrest: (repeat for each armrest)

1. Using a 4mm hex key tool, rotate the set screw in the armrest mounting bracket **CLOCKWISE** to **RAISE/ INCREASE** the armrest angle, or **COUNTER-CLOCKWISE** to **LOWER/DECREASE** the armrest angle (1).



Adjust Clockwise: to Raise Arm Angle
Adjust Counter-clockwise: to Lower Arm Angle

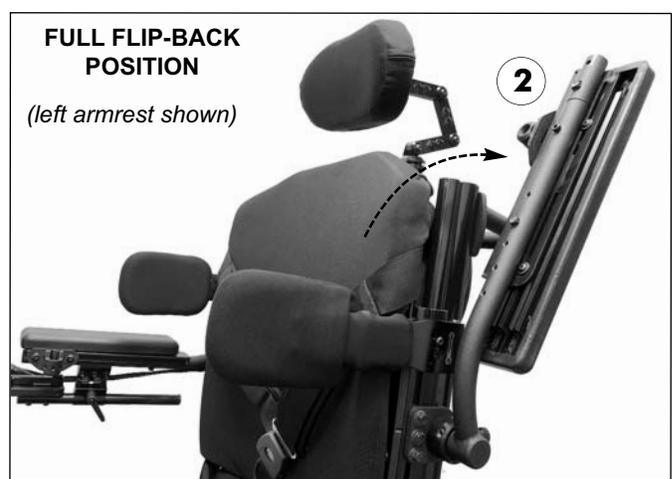
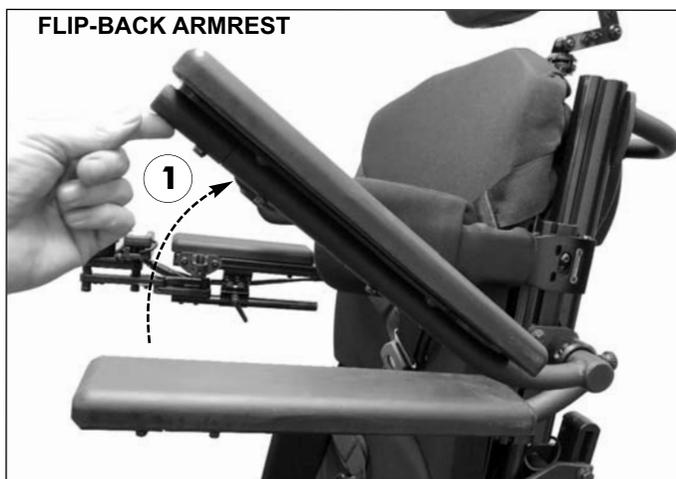
5.2.3 ARMREST “FLIP-BACK” FEATURE



WARNING! Risk of serious injury or damage

• Do Not drive or operate the Rovi-MPS System with the armrests in the raised/flipped back position

Each Recline Cantilever Armrest (left and/or right) can be independently rotated (“flipped”) backward to assist with side transfers. To place the armrest in the fully flipped back position, simply lift upward on the armrest (1) until it is rotated past the recline back canes as illustrated below (2).



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.2 RECLINE CANTILEVER CANE MOUNTED ARMREST ADJUSTMENTS ..cont'd

5.2.4 REMOVING THE ARMREST



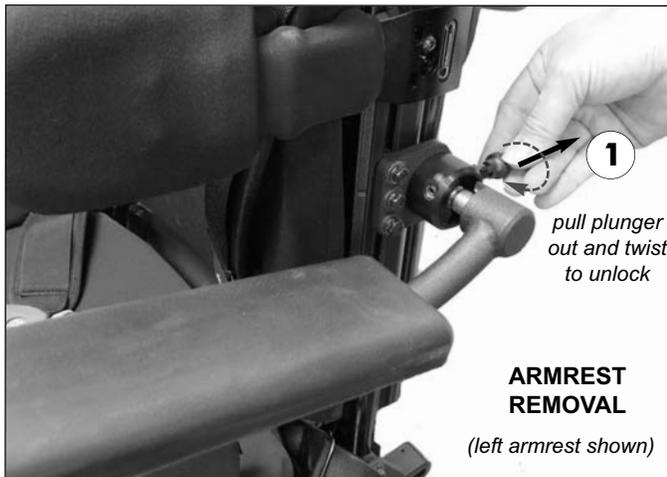
WARNING! Risk of serious injury or damage

- Do Not attempt to drive or operate the MPS-Maxx System with the armrests removed.
- ALWAYS ensure the armrest plunger pin is fully engaged prior to operating the MPS-Maxx System

If necessary, to avoid potential interference during wheelchair transportation, or for servicing the wheelchair, the recline cantilever armrests can be fully removed from their mounting bracket on the recline back cane.

To remove the armrests:

1. Pull the plunger (detent) pin at the rear of the armrest (rotate pin 1/4-1/2 turn to remain unlocked) (1).
2. Pull the armrest straight outward (way from the mounting bracket/recline back cane) (2).
(**Note:** The armrest with the Remote/Joystick installed may be removed, but will still be connected via the joystick cable/harness)
3. To re-install the armrest, repeat steps 1 and 2 in the reverse sequence; Making certain that the armrest plunger pin is fully engaged/locked into place following installation.



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.3 Arm Pads

5.3.1 MODULAR ARM PAD - INSTALLATION/ADJUSTMENT:

1. Using the hardware provided, install the moulded arm pad tray onto the armrest tube (left or right) in the pre-determined mounting orientation (see **Fig. 1.**) and arm pad position (see width & depth adjustments below)
2. Secure the modular armpad inside the moulded tray via the velcro tabs (*not shown*).

i. Tray Installation

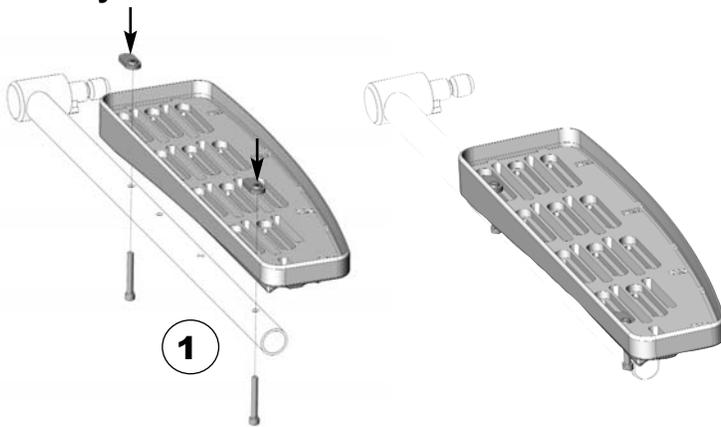
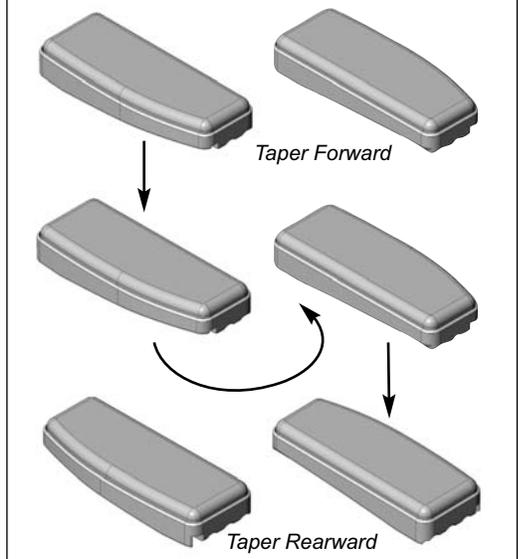
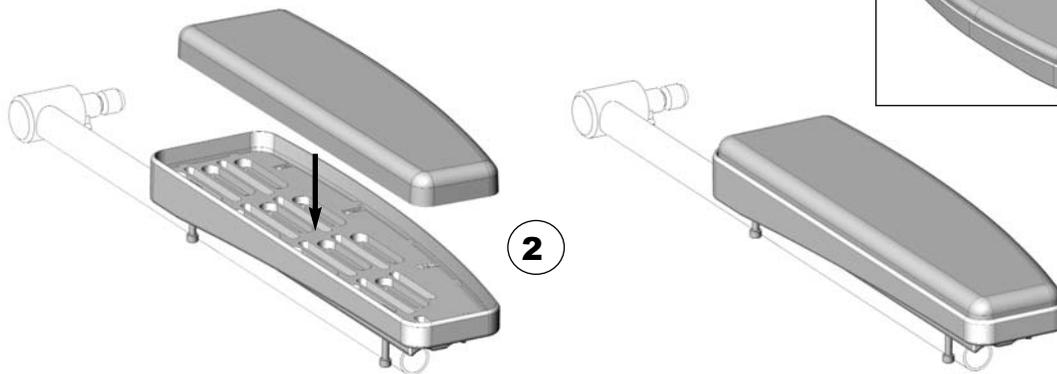


Fig. 1. - Arm Pad Orientation

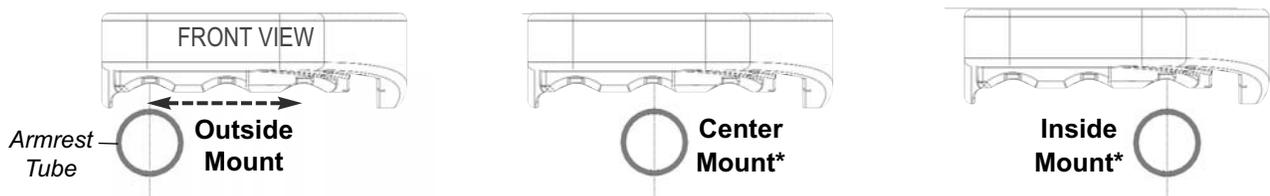


ii. Arm Pad Installation

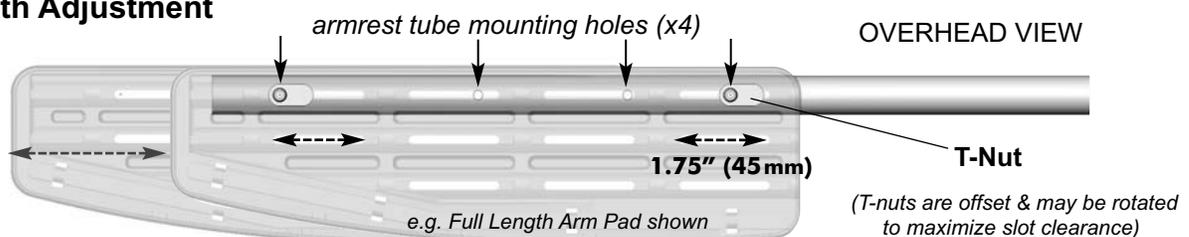


iii. Width Adjustment

***Note:** Center & Inside mount positions may limit how far the armrest will flip/rotate backward during side transfers.



iv. Depth Adjustment



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

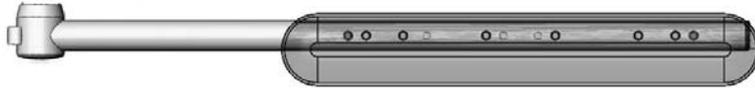
5.3.2 OPTIONAL ARM PAD INSTALLATION:

Our cantilever armrest tubes are designed to fit most standard tube mounted armrest pads available in the marketplace. Arm pad selection is typically made at the time of ordering, and will be pre-installed on the armrest tube, however arm pads can be readily swapped out if necessary. The following section includes examples of the Optional Arm Pad Installations available from Motion Concepts.

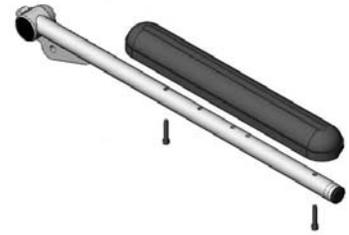
Arm pads are typically installed via two mounting screws, which secure the arm pad to the armrest tube as illustrated below.

OPTIONAL ARM PADS: (examples shown on a cantilever armrest tube)

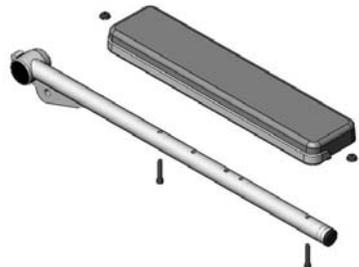
Standard Arm Pad* (full)



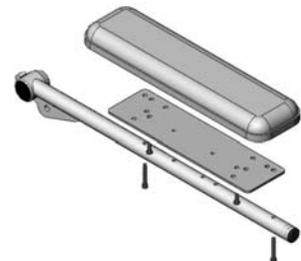
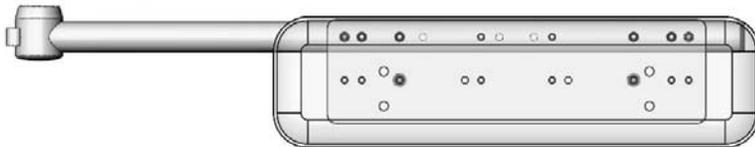
OVERHEAD VIEW



Flat Arm Pad* (full)



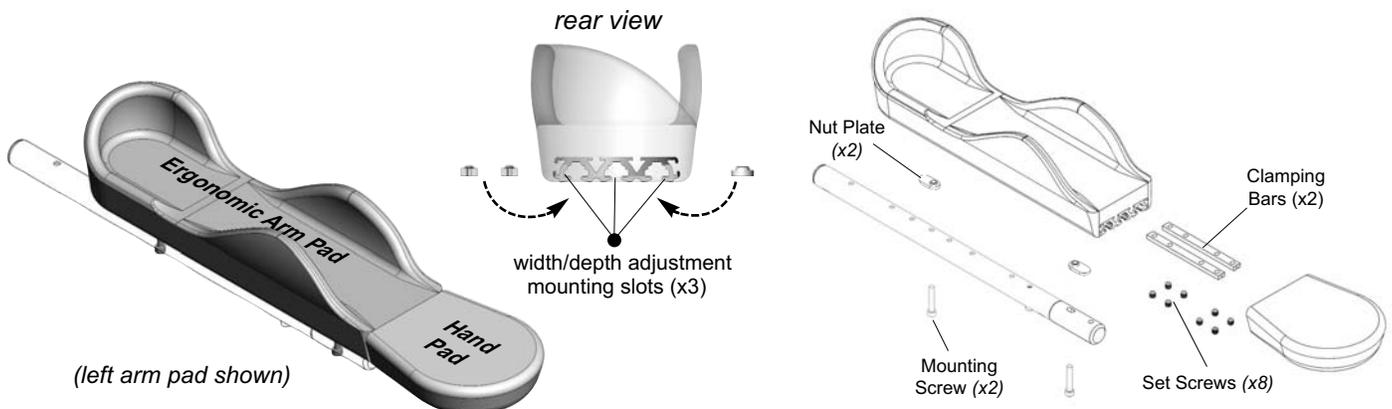
Gel Arm Pad* (long)



***NOTE:** Desk Length arm pads also available for the armpads indicated

Ergonomic Arm Pad (with Hand Pad (Optional))

Our ergonomic arm pad is unique for the left and right armrest. The optional flat hand pad is universal, and may be installed onto either arm support. (**Note:** It is recommended to install the hand pad onto the ergonomic arm pad first)

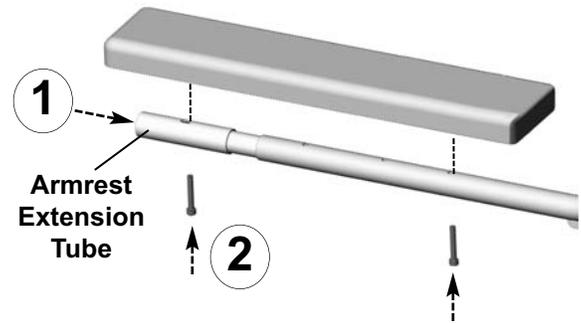


5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.3.3 ARMREST EXTENSIONS:

Armrest extension tubes are available from Motion Concepts (sold separately) when longer armrest lengths are required.

1. Insert the extension tube into the front of the armrest tube with the mounting hole aligned vertically (1).
2. Install the armrest using the mounting hole in the extension tube & a mounting hole in the armrest tube (2).



5.4 Seat Width Adjustment

IMPORTANT! Seat width adjustments will require additional adjustments to the back assembly and front rigging and seat pan. Due to the complexity of a seat width adjustment, this adjustment **MUST** be performed a qualified service technician.

Your Motion Concepts Modular Power Standing (MPS) System is designed to allow for width adjustments when necessary, to accommodate growth or positioning changes needed over the expected service life of your seating system. The seat width adjustment range for the MPS system = 16" - 21" (41cm - 53cm).

The MPS-Maxx seating system width has been pre-adjusted/configured to the meet user specifications prior to delivery. If you feel an additional seat width adjustment is necessary, please contact your Local Dealer/Service Provider for service.

5.5 Seat Depth Adjustment

IMPORTANT! Seat depth adjustments may require additional compensating system adjustments to ensure the safe operation and performance of the Rovi-MPS System. Seat depth adjustments should only be performed by a Qualified Technician.



WARNING! Risk of Serious Injury or Damage.

- *Altering the seat depth of your Rovi MPS System may compromise wheelchair stability and reduce traction/drive control, and should **ONLY** be performed by a Qualified Service Technician.*
- *Following an adjustment to the seating system depth, **ALWAYS** carefully test the seating system over the full range of power positioning functions to ensure there is no interference with the front riggings, electronic harnesses or any other component of the seating system, and ensure the wheelchair **DOES NOT** easily tip forward or backward.*
- *If at any point you have any concerns with the stability of your wheelchair, keep the wheelchair in an upright stable position and contact your Dealer/ Service Provider immediately to arrange service.*

Your Modular Power Stander (MPS) system is designed to allow for depth adjustments when necessary, to accommodate growth or positioning changes needed over the expected service life of your seating system. The MPS-Maxx seating system is designed to allow an infinite range of depth adjustment between 16" - 20" (41cm - 51cm). Basic seating system depth adjustments are performed at the rear of the seating system, by adjusting rear back cane assembly along the ultra-rails (see **Fig. 1.**). (**Note:** More complex depth adjustments may also be performed via the fore/aft positioning of the seating system on the power base (interface plates)).

The depth of the seating system depth has been pre-adjusted/configured to the meet user specifications prior to delivery. If you feel an additional depth adjustment is necessary, please contact you local Dealer/ Service Provider to arrange for service.

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.6 Seat Pan Adjustment

The seat pan on the Rovi-MPS System is an adjustable four-piece assembly and offer a full range of width and depth adjustments (see Fig. 2 below).



WARNING! Risk of Serious injury or Damage

• *Seat pan width adjustments will typically accompany a more complex system width adjustment, and will require further adjustments to the seat frame, back assembly and front rigging. Due to the increased complexity, please contact your service provider to have the adjustments performed by a qualified technician.*

• *Seat depth adjustments can have a significant effect on the overall stability of the wheelchair. The final set-up must take into account the overall system stability and the driveability requirements of the end user. Please consult with your service provider prior to making any adjustments*

Fig 1. Seat Depth Adjustment Overview

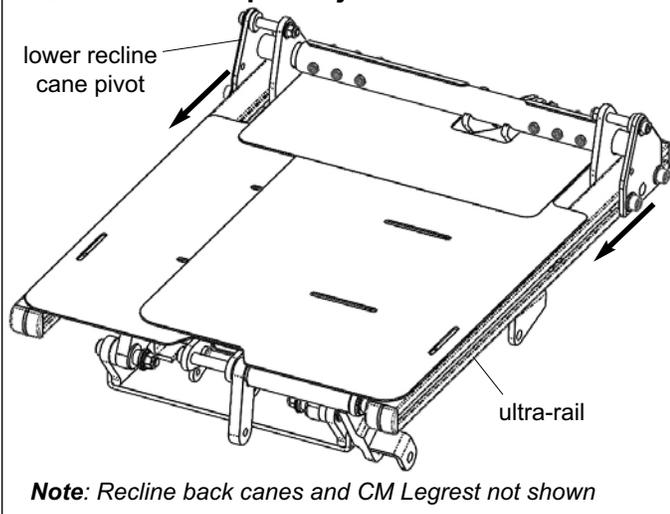
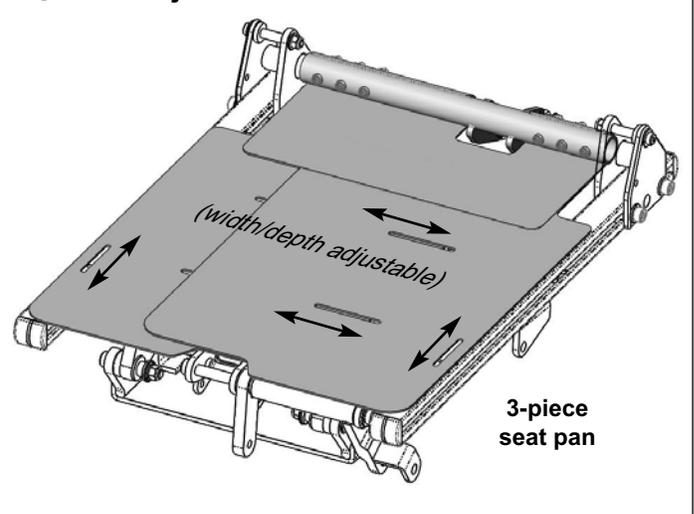


Fig. 2 Adjustable Seat Pans



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.7 Power Center Mount Legrest Adjustments

The Rovi-MPS system is configured with our **Power Articulating Belt-Drive Center Mount Legrest**. The following section illustrates the basic adjustments available on the power CM Legrest.

i IMPORTANT! While some basic adjustments may be performed by the end user or attendant, to ensure the power CM Legrest is adjusted safely and properly, always consult your Service Provider prior to performing any adjustments.

! WARNING! Risk of injury or damage

- Following any legrest adjustment **ALWAYS** inspect/verify that your front rigging **DOES NOT** interfere with the wheelchair chassis or front casters, and that the foot plates/platform does not collide with the ground.
- **NEVER** leave your legrest in a fully extended position when travelling up or down ramps or inclines

! WARNING! Risk of Serious Injury or Damage

Operating the wheelchair with insufficient ground clearance between the foot platform and the ground/floor may cause serious injury or property damage.

- While the wheelchair is in motion, **ALWAYS** maintain a minimum ground clearance of 3 inches (76mm), or the minimum ground clearance stated by wheelchair base manufacture (whichever is greater).
- If necessary, elevate the front rigging or tilt the seat to achieve the proper ground clearance prior to driving the wheelchair.
- If the wheelchair dips forward and the foot platform touches the ground while in motion, please contact your Dealer for immediate assistance and/or inspection, and avoid use of the wheelchair until corrected.

! WARNING! Risk of injury due to crushing or pinching.

- Keep hands, fingers or limbs clear of the articulating mechanism on the inside of a power legrest

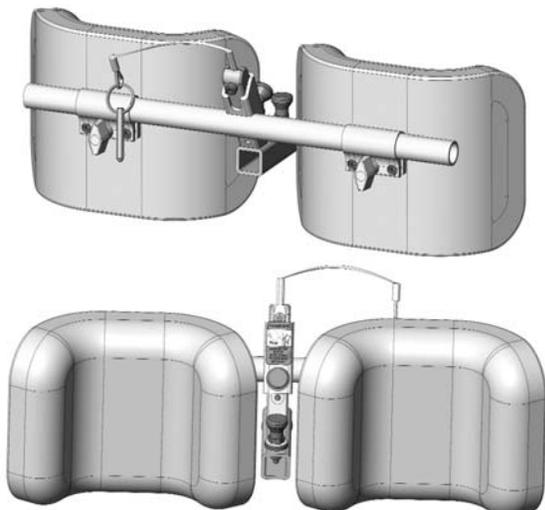
! WARNING! Risk of injury or damage

- **NEVER** use a raised foot platform as a support during transfers. When transferring in or out of the seating system, ensure that foot platform is in the 'flipped-up' position.

! WARNING! Risk of injury

- Operating/extending the CM Legrest with the knee block in place may cause increased pressure/force on the users legs if not adjusted correctly; When operating the CM Legrest (in the lowered seat (non-standing) position), it is recommended that the knee block assembly be placed in the stored position.

Power Belt-Drive Center Mount Legrest:



Knee Block Assembly (for CM Legrest)

(refer to **Section 5.9** for Knee Block Installation/Adjustment)



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.7.1 CENTER MOUNT LEGREST- KNEE-TO-HEEL (KTH) ADJUSTMENTS:

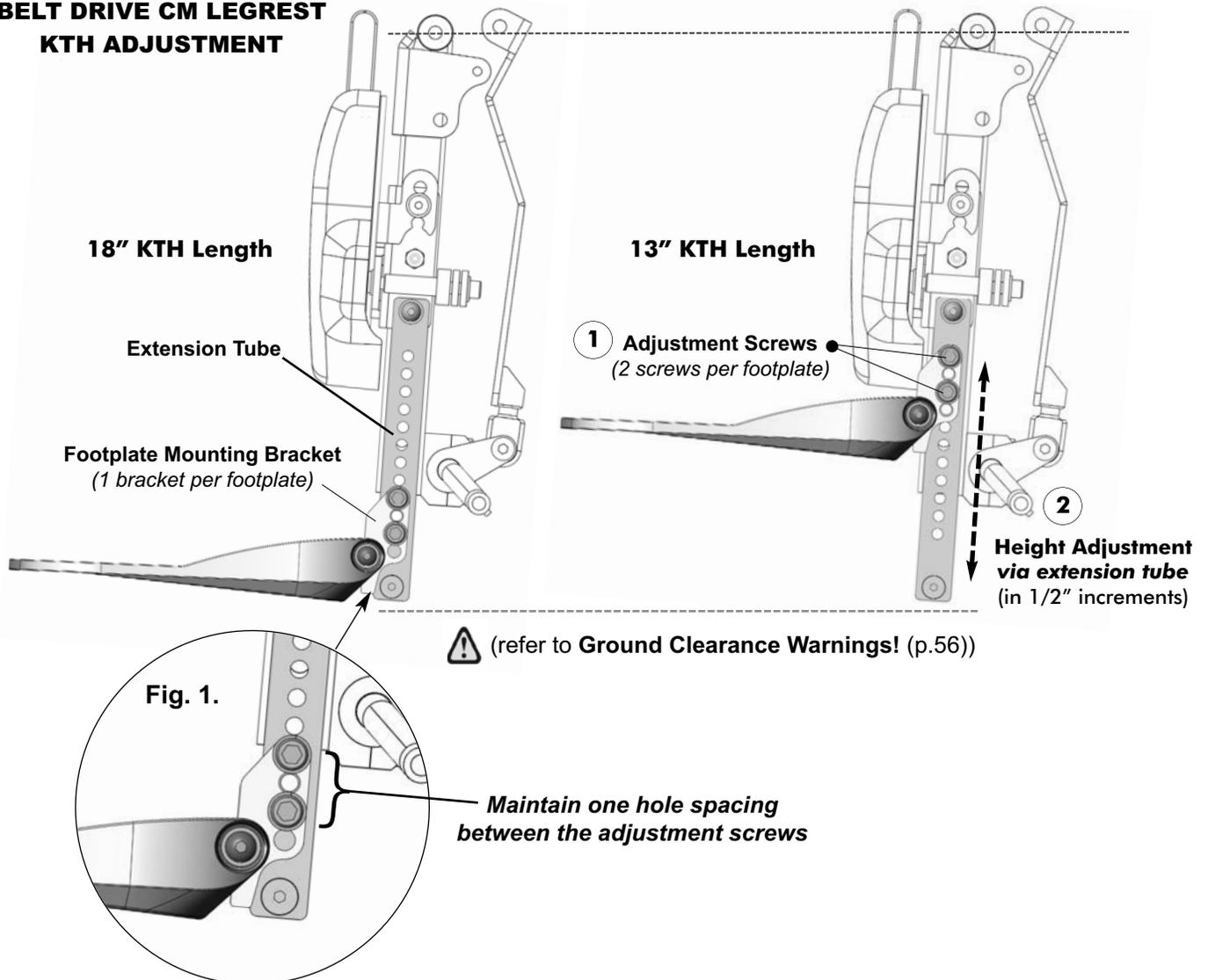
With the client in a seated upright (non-standing) position, the knee-to-heel (KTH) length of the legrest should be adjusted to optimize the comfort and position of the clients legs. The CM legrest offers a range of KTH adjustment from 13" - 18" (33cm - 46cm). (**Note:** KTH Length is measured from top of seat pan to the top of the footplates/foot platform).

KTH ADJUSTMENT:

The KTH length is controlled/adjusted via the mounting position of the footplate mounting bracket on the legrest extension tube. Each footplate must be adjusted independently. (**Note:** The footplates should always be mounted at the same height (KTH Length), unless a leg length discrepancy is prescribed).

1. Working on one footplate at a time, loosen/remove the adjustment screws/hardware on the footplate mounting bracket (1).
2. Adjust the footplate to the desired height (KTH Length) on the extension tube (2) and re-fasten the footplate bracket to the extension tube
(**NOTE:** Ensure there are ALWAYS two (2) mounting screws installed in the footplate mounting bracket; and ensure there is one empty hole spaced in-between each screw - refer to Fig. 1. below)
3. Complete the KTH adjustment on the opposite footplate.
4. Verify that all mounting hardware is properly installed and fully secured.

BELT DRIVE CM LEGREST KTH ADJUSTMENT



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

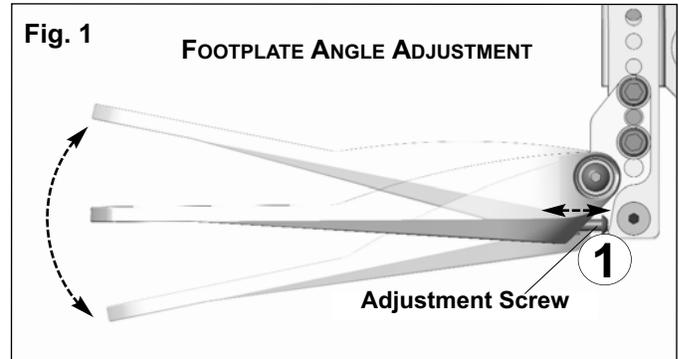
5.7.2 CENTER MOUNT LEGREST- FOOTPLATE ADJUSTMENTS:

i. Footplate Options:

Footplates are available in 3 sizes: **Small** (5" x 7.5"); **Medium** (5.5" x 9.5"); and **Large** (6" x 11.5")

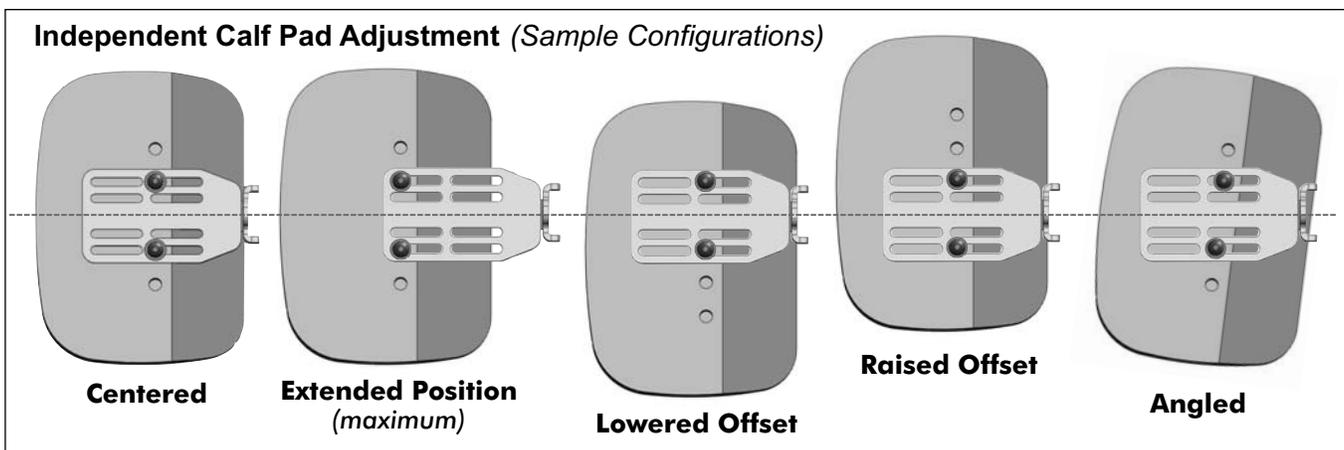
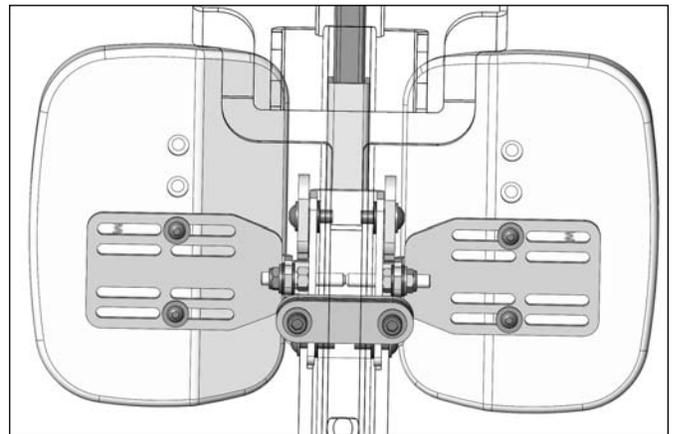
ii. Footplate Angle Adjustment:

If necessary, the angle of the CM footplates can be independently adjusted, using the depth adjustment screw at the rear of each footplate. Increasing the screw length will decrease the footplate angle; conversely, decreasing the screw length will increase the footplate angle (refer to Fig. 1 at right).



iii. Calf Pad Adjustments:

The curved calf pads are mounted onto the CM legrest via an adjustable mounting bracket. The calf pads may be adjusted independently on their respective mounting bracket using the two (2) mounting screws at the rear of the calf pads. The calf pads may be mounted in numerous configurations to ensure a high level of comfort for the client. Refer to the image below for an illustration of the various calf pad mounting configurations available



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.8 STOWING THE KNEE BLOCK ASSEMBLY (When Not in Use)

For convenience and to help facilitate transfers, the adjustable knee block assembly may be removed and stored on the side of the wheelchair when the stand function is not being utilized-see **Warnings!** below.

The Knee Block assembly attaches to a mounting bracket* on the side of the seat frame and is equipped with a plunger-lock to secure and/or remove the knee bolster from its storage location (1). See images below.

(***Note:** the mounting bracket for the Knee Bolster is secured to the ultra-rail on the side of the seating system, and its (fore/aft) mounting position may be adjusted along the ultra-rail if necessary (2)).



WARNING! Risk of serious injury or loss of positioning/stability

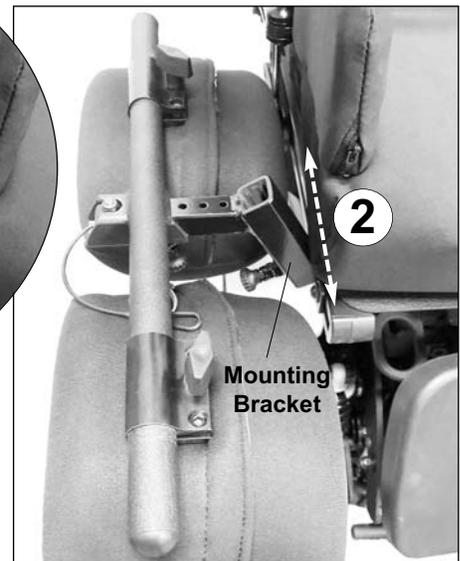
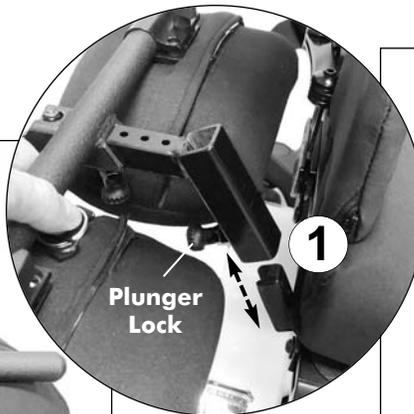
• The Knee Bolster **MUST ALWAYS** be installed onto the CM Legrest **BEFORE** transitioning into the Standing position. Refer to the **Knee Block Installation & Set-Up- Section 5.9**



WARNING! Risk of injury

• Operating/extending the power CM Legrest with the knee block in place may cause increased pressure/force on the users legs if not adjusted correctly; When operating the CM Legrest (in the lowered seat (non-standing) position), it is recommended that the knee block assembly be placed in its stowed position.

KNEE BLOCK ASSEMBLY
(in the stowed position)



5.9 KNEE BLOCK INSTALLATION and SET-UP:

The removable knee block assembly installs onto the retractable mounting bar on the CM Legrest. The Knee Block Assembly offers multiple adjustments including depth, height, knee pad width and knee pad angle. Detailed adjustment instructions are provided in the sections that follow.



IMPORTANT! The knee block is designed to provide stability and support to the users legs when operating the stand function. The knee block **MUST** be installed **PRIOR** to transitioning the wheelchair into the Standing position. Proper set-up/adjustment of the Knee Block assembly is **EXTREMELY** important to prevent injury and ensure user safety and stability in the Standing position -see Safety Warnings below. It is strongly recommended to determine the appropriate set-up for your knee block assembly with your Therapist and/or Service Provider, and to practice/rehearse the standing function with your Therapist and/or Service Provider for the first time.



IMPORTANT! Please be certain to read through **ALL** applicable set-up/adjustment instructions prior to using the standing function for the first time. In addition to the Knee Block adjustments, this also includes set-up & adjustment instructions for the **Postural Belt**, **Chest Strap** and the **Chest Bar**).

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.9 KNEE BLOCK INSTALLATION and SET-UP: ...cont'd



WARNING! Risk of serious injury or loss of positioning/stability

- If wheelchair accessories intended for support (including the knee blocks) are not adjusted properly, injuries could occur during the transition from a seated to a standing position; be certain to read and follow the instructions provided
- The knee block assembly must **ALWAYS** be installed on the legrest (mounting bar) before transitioning into the standing position.
- The **Safety Pin** must **ALWAYS** be locked into place when the knee block is installed on the CM Legrest
- To ensure the MPS system is properly adjusted, practice the Standing function with your Therapist and/or Service Provider present; Make certain you feel comfortable and stable in the full Standing position.



WARNING! Risk of injury

- Operating/extending the power CM Legrest with the knee block in place may cause increased pressure/force on the users legs if not adjusted correctly; When operating the CM Legrest (in the lowered seat (non-standing) position), it is recommended that the knee block assembly be placed in the stored position.



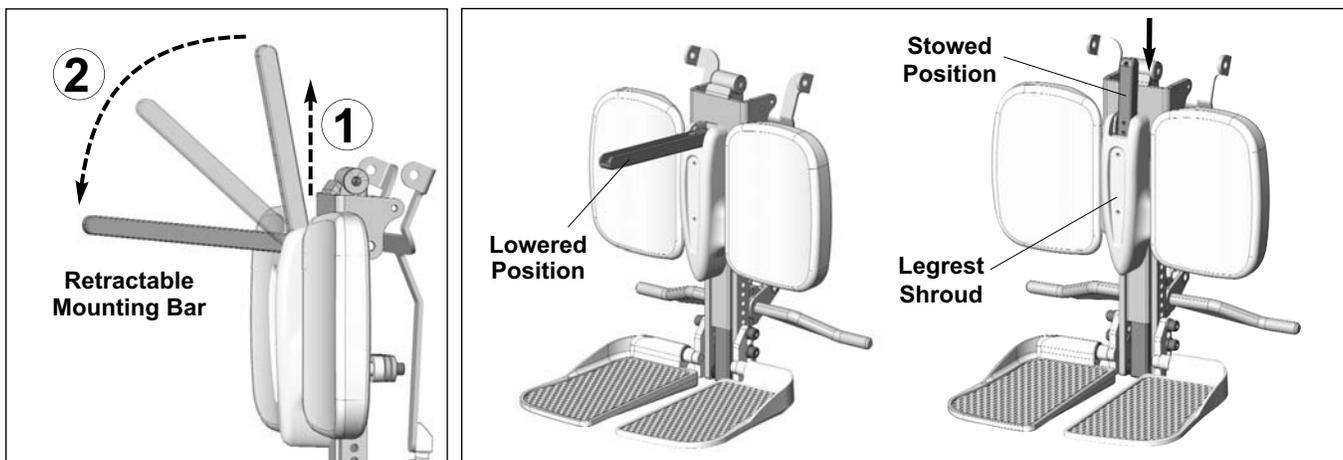
WARNING! Risk of injury

- When the knee block assembly is not in use, **ALWAYS** keep retractable **mounting bar** in its stowed position (see images below).

5.9.1 KNEE BLOCK INSTALLATION & DEPTH ADJUSTMENT

i. Mounting Bar Set-Up:

The knee block assembly is installed onto the retractable mounting bar on the CM Legrest. When not in use, the mounting bar is stowed behind the shroud on the CM Legrest). To remove the mounting bar (for Knee Block installation), lift/raise the mounting bar straight upward (1), then rotate it forward so it sits perpendicular to the legrest (2).



ii. Knee Block Installation & Depth Adjustment:



IMPORTANT! The adjustment images below are provide for illustration purposes only. BEFORE installing and adjusting the knee block assembly, the client should be already seated in the chair (with their hips/upper torso seated as far back as possible in the seat), and the knee-to-heel length properly adjusted.

1. (With the client seated in the seating system) Pull out the plunger lock on the Knee Block Assembly, then align and slide the mounting bracket of the Knee Block assembly onto the mounting bar on the CM Legrest (1); Slide the knee block along the mounting bar until the plunger pin locks into place.

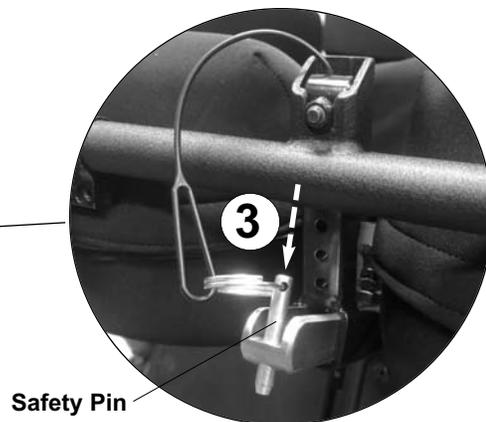
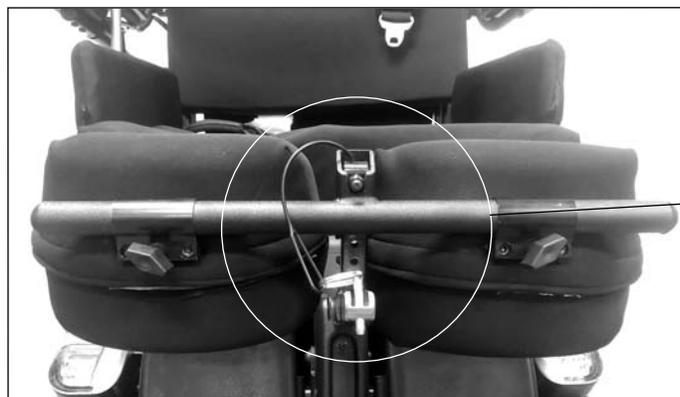
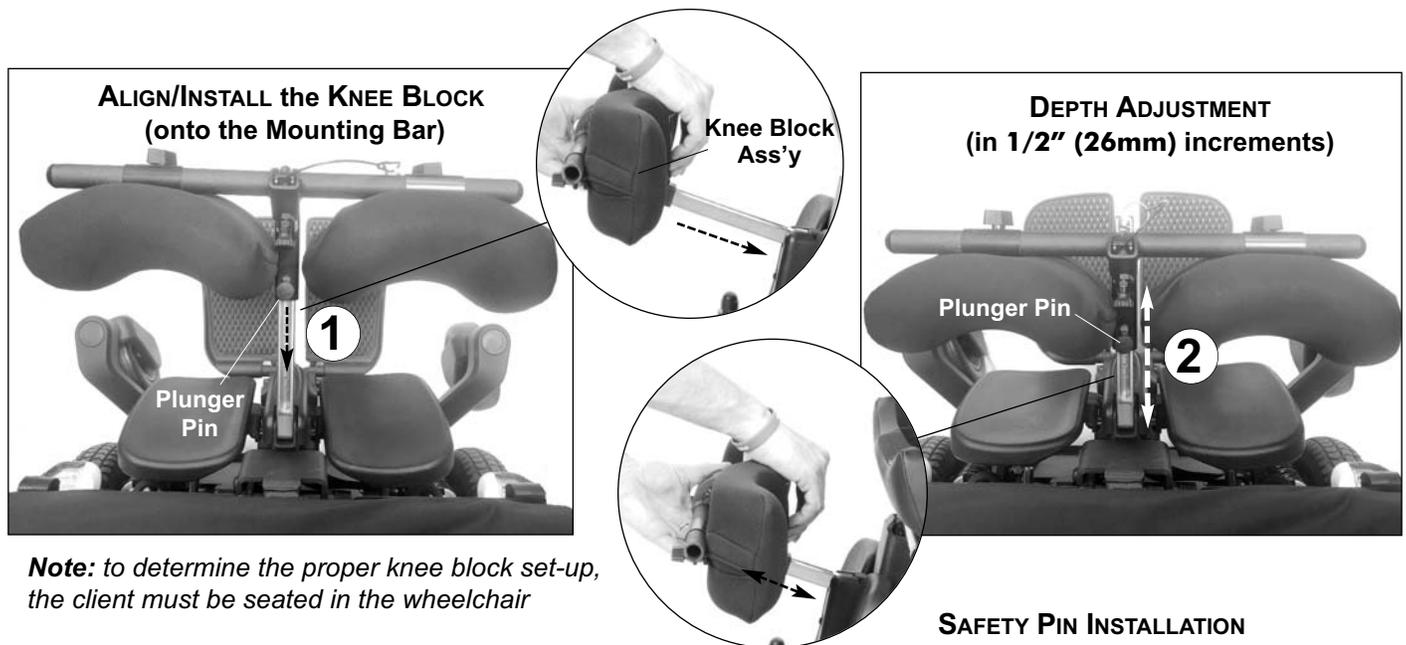
5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.9.1 KNEE BLOCK INSTALLATION & DEPTH ADJUSTMENT

2. To make final adjustments, pull up on the plunger pin/lock and adjust the knee block depth (2) along the mounting bar until there is a gap (approx. 1"-1.5" (26-39mm)) remaining between the users legs (below the knee) and the knee block pads. (**Note:** as the seating system transitions to stand, this gap will shrink and the pads will snug up against the users legs).

3. With the adjustment completed, lock the plunger pin into place to secure the knee block assembly into position, then insert the **Safety Pin** into the outermost hole in the mounting bar (3); Ensure the pin is fully inserted/engaged. (*The safety the pin must ALWAYS be locked into place when the knee block assembly is installed on the CM Legrest*)

4. Ensure all other safety features are in place (i.e. Postural Belt, Chest Strap and/or Chest Restraint Bar), then slowly transition into the standing position, while closely monitoring the knee block position. At full stand, the knee blocks should be snug against the end users legs, but must not apply significant pressure against the lower leg. If there is too much (or too little pressure) on the users legs, return to a seated position and adjust the knee block inward or outward (in 1/2" (26mm) increments), as necessary until a proper set-up is achieved.

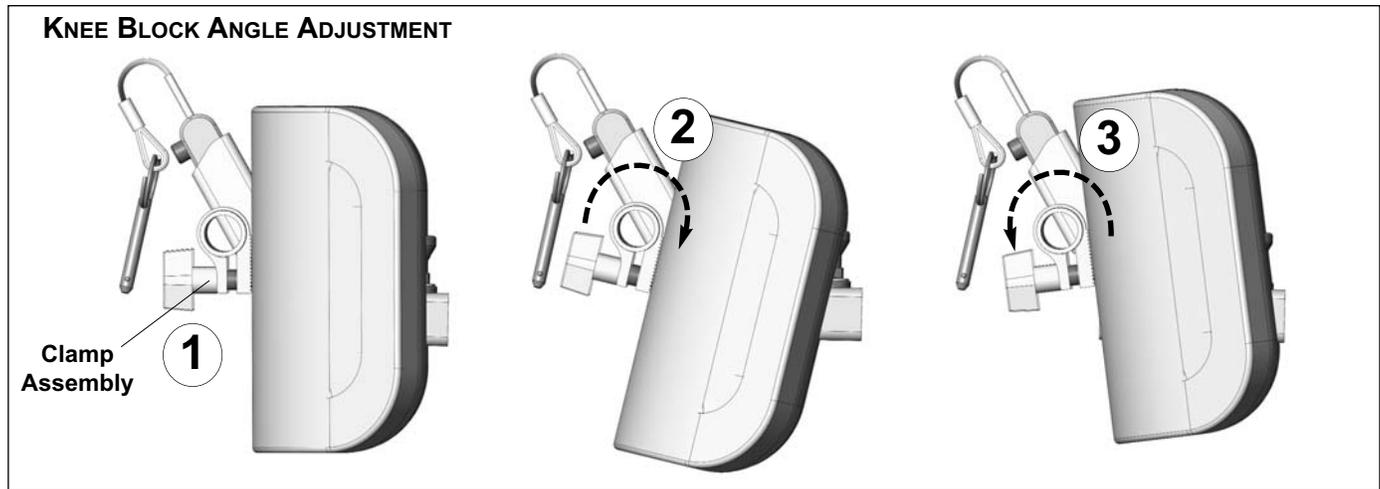


5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.10 KNEE BLOCK ANGLE (ROTATIONAL) ADJUSTMENT:

The angle of the knee block (pads) can be independently adjusted to any desired angle. To adjust the knee blocks, loosen the clamp assembly (1) and rotate the pad around the cross tube until the desired position is achieved- see images (2) and (3) below. Re-tighten the clamp assembly to secure the knee block in place¹.

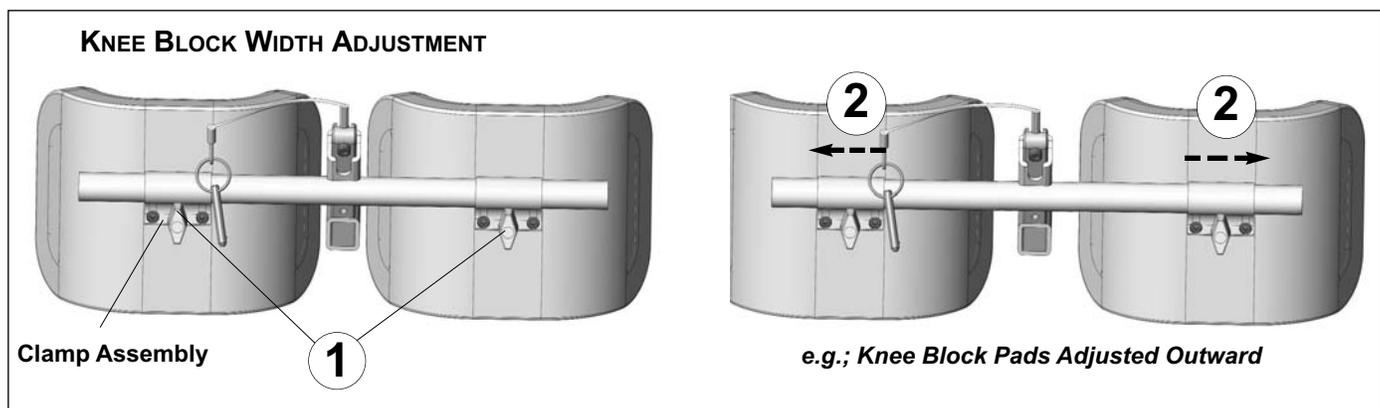
¹**NOTE:** Prior to securing the knee blocks into position, the width (horizontal position) of the knee blocks may also be adjusted simultaneously- Please see **Section 5.11- Knee Block Width Adjustment**. The angle and width adjustments are both controlled via the same clamp assembly.



5.11 KNEE BLOCK WIDTH ADJUSTMENT:

The knee block assembly allows for independent pad width adjustment along the cross tube to achieve the desired leg alignment. To adjust the knee blocks, loosen the clamp assembly (1) and slide the pad inward or outward along the cross tube until the desired pad position is achieved (2). Retighten the clamp assembly to secure the knee block in place².

²**NOTE:** Please refer to **Section 5.10- Knee Block Angle Adjustment** before re tightening the clamp assembly.



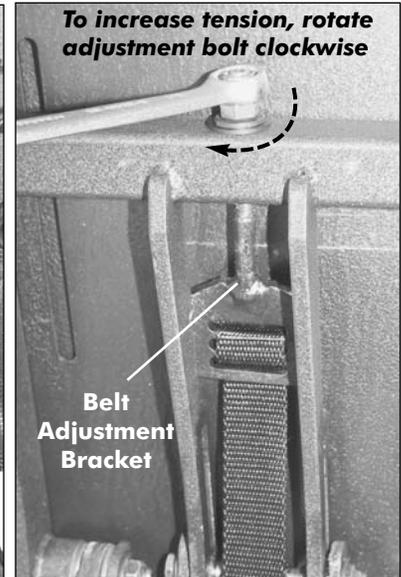
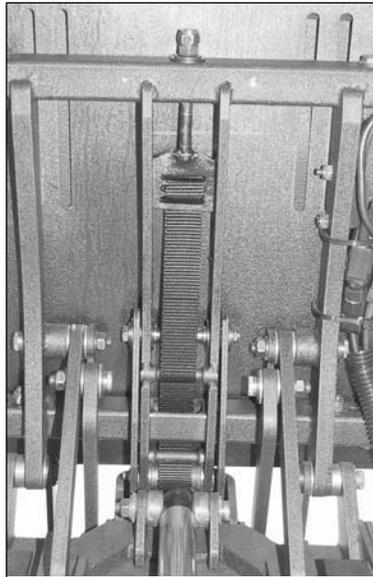
5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.12 CENTER MOUNT LEGREST BELT ADJUSTMENT/ MAINTENANCE:

The belt is designed to control the tension of the CM Legrest during articulation/ extension. Following an extended period of use, some minor stretching of the belt may occur; A belt adjustment may be necessary to tighten any noticeable slack or looseness in the belt. (Please read **Important!** note below). To increase tension on the belt tighten the belt adjustment bracket, on the underside of the seat frame, by rotating the bolt clockwise.

i IMPORTANT!

- *The legrest belt is factory pre-set during installation; We strongly recommend that belt adjustments only be performed by a Qualified Technician, if necessary.*
- *Belt inspection should be performed as part of the routine maintenance of the Rovi-MPS System.*
- *If you notice a significant loss of tension in the legrest belt, please contact your local Dealer to arrange for a belt inspection and adjustment.*



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.13 CHEST BAR/CHEST RESTRAINT ADJUSTMENT:



WARNING! Risk of serious injury or loss of body support/stability

- The Chest Bar must ALWAYS be installed when the Rovi-MPS system is in the standing position.

5.13.1 CHEST BAR HEIGHT ADJUSTMENT:

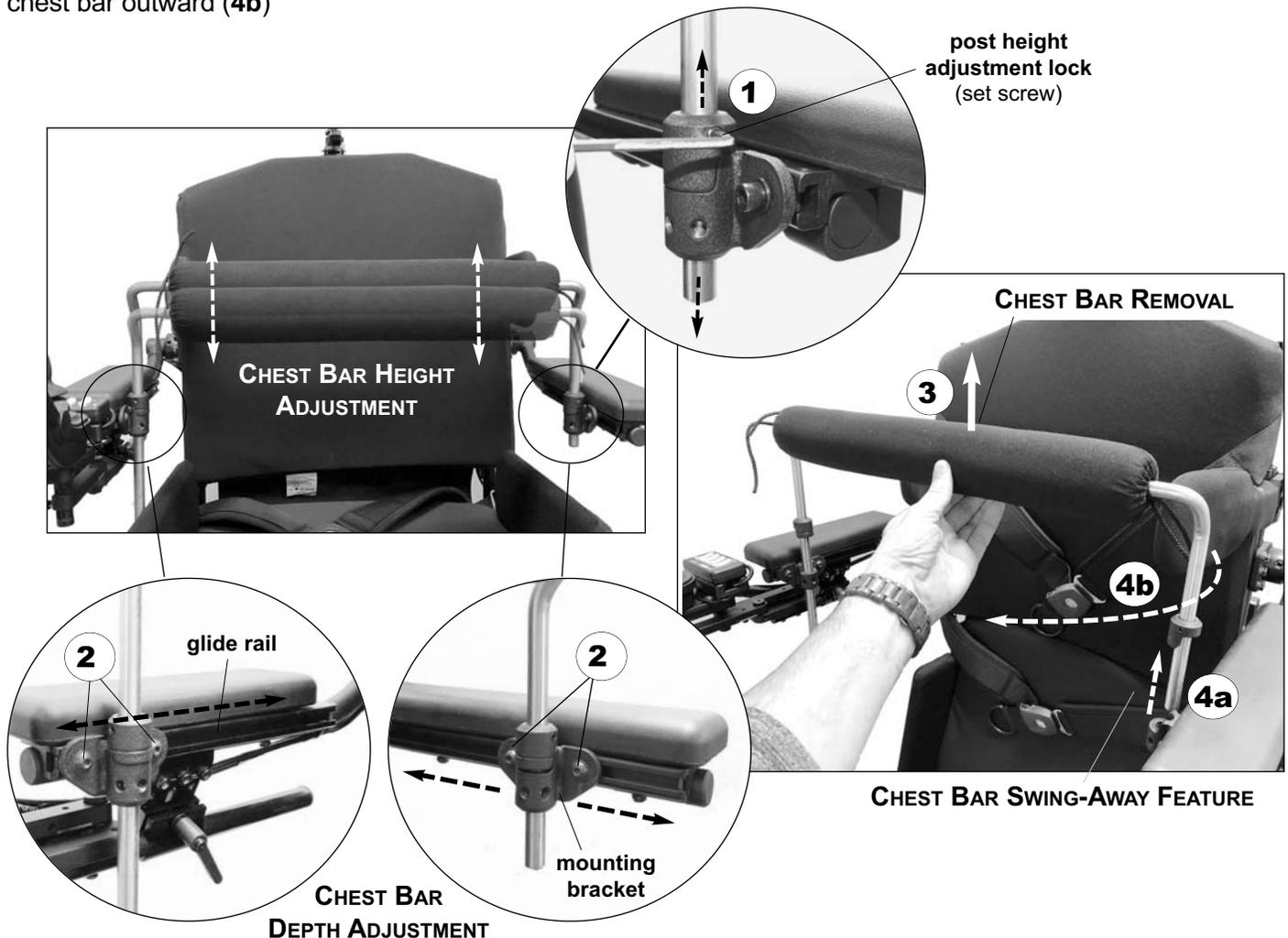
Loosen the set screw in the post height adjustment locks (*left & right*), and adjust each lock position (equally) along the posts until the desired chest bar height is achieved (1). Re-tighten the set screws to secure the adjustment locks into position.

5.13.2 CHEST BAR DEPTH ADJUSTMENT:

Loosen the adjustment screws (x2) in the chest bar mounting bracket on each armrest (left & right), then adjust the fore/aft position of the mounting bracket along the glide rail (2) until the desired chest bar depth is achieved. Both mounting brackets are typically adjusted equally to keep the chest bar parallel with the back, however the brackets may also be offset to position the chest bar on an angle (if desired). Re-tighten the adjustment screws to secure the mounting brackets into position.

5.13.3 CHEST BAR REMOVAL AND SWING-AWAY FEATURE:

To remove the chest bar completely, lift the chest bar/pad straight upward to disengage it from both (left & right) mounting brackets (3). To use the swing-away feature, disengage the shorter post length from its mounting bracket (4a), leaving the opposite (longer) post still installed inside its mounting bracket, then swing/rotate the chest bar outward (4b)



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.14 POSTURAL BELTS AND CHEST STRAPS

Postural belts and chest straps will help you keep an optimum sitting/standing position in your Rovi-MPS System. Correctly adjusted postural belts ensure users are sitting or standing securely, comfortably and well-positioned in the wheelchair, especially for those that experience difficulties with balance.



IMPORTANT! A postural belt should ALWAYS be used when the wheelchair is occupied. A postural belt allows users to sit securely, comfortably and well-positioned in the wheelchair, and is especially important for users who experience difficulties with balance while sitting. Refer to **Section 5.14.4** for instructions on proper belt adjustment.



DANGER! Risk of Death or Serious Injury.

Not wearing your postural belt could result in death or serious injury.

- *ALWAYS wear your postural belt. Your postural belt helps reduce the possibility of a fall from the wheelchair.*
- *The postural belt 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.*
- *Ensure your seat positioning strap is properly secured to the wheelchair and is adjusted for comfort before each use.*
- ***Postural Belts are NOT designed for use as a seat belt in a motor vehicle.*** Nor is your power wheelchair suitable for use as a vehicle seat. Persons travelling in a vehicle must be properly belted into seats approved by the vehicle manufacturer.
- *ALWAYS be certain to read the safety information provided in the belt manufacturer owner's manual.*



WARNING! Risk of Serious Injury.

Not wearing your chest strap could result in serious injury.

- *To ensure proper body positioning and stability, the chest strap should ALWAYS be worn in the Stand position.*
- *ALWAYS ensure the chest strap is properly secured to the wheelchair and properly adjusted PRIOR to transitioning into the stand position.*



WARNING! Risk of Serious Injury or Death.

Improper care & maintenance of your postural belt/chest strap could result in death or serious injury.

- *Inspect the postural belt and chest strap for wear, loose parts or damage prior to each use. Inspect for tears, frayed webbing, bent hardware, damaged latch mechanisms, and/or contamination. DO NOT attempt to repair a worn or damaged belt. If signs of wear appear, the postural belt should be replaced IMMEDIATELY.*
- *Regularly inspect & clean belt of any dirt or debris using mild soap & water.*
- *Take care to avoid contamination of the belt webbing from damaging polishes, oil, lubricants and/or other chemicals.*



WARNING! Risk of crushing, damage or entanglement.

- *To prevent crushing or entanglement, postural belts should remain secure at all times .*
- *NEVER allow the positioning belt to hang or drag on the floor, or become trapped between the seating system and the power base.*
- *NEVER allow the chest strap to become trapped between the seating system and the power base.*

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.14.1 TYPES OF POSTURAL BELTS

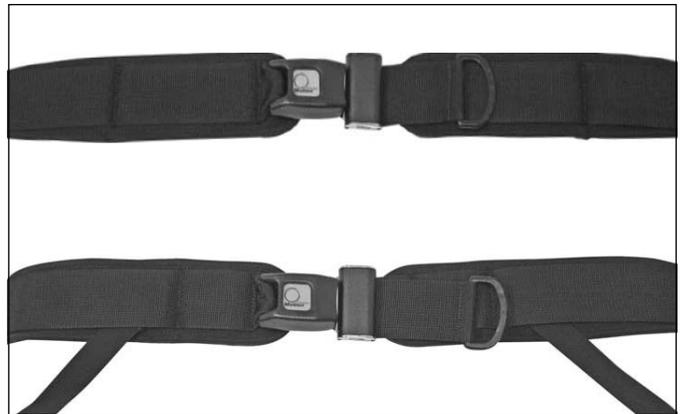
Your wheelchair may be fitted with the following types of postural belts. Always ensure that you have received the belt manufacturer's installation/user instructions (provided separately). Please be certain to read through all documentation in regard to correct fitting and safe use of the postural belt.

2-Point Padded Lap Belt

- Center-pull push button, padded lap belt
- Two points of attachment to the wheelchair
- Suitable for supporting users with low tone or weakness

4-Point Padded Lap Belt

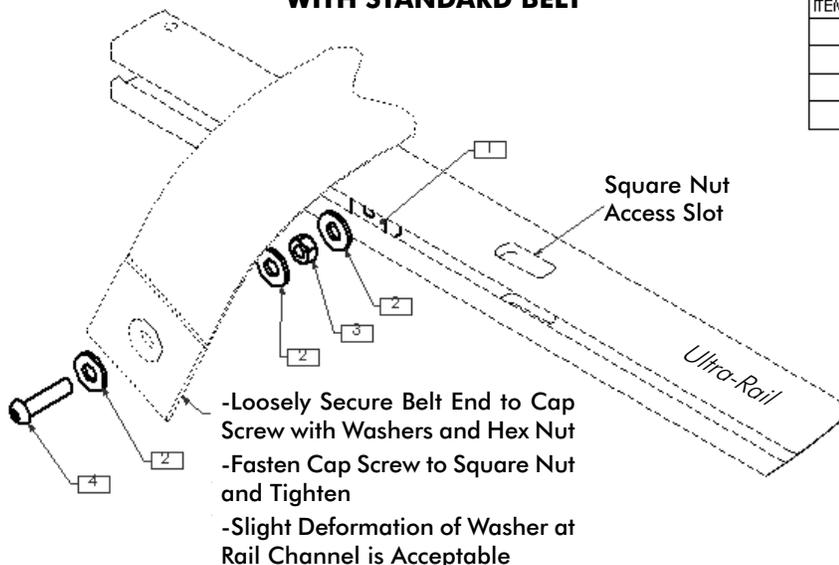
- Center-pull push button, padded lap belt
- Four points of attachment to the wheelchair
- Primary attachments position the belt; and Secondary attachments anchor it in position.
- Holds pelvis in place more aggressively for active users, or in situations where the user has a lot of movement.



5.14.2 POSTURAL BELT INSTALLATION:

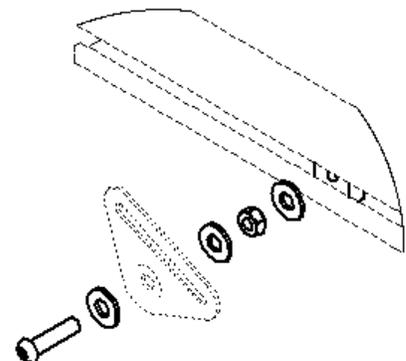
Your postural belt or seat positioning belt may be factory installed to the wheelchair or may be retrofitted by your specialist dealer. A retrofitted postural belt should only be installed by a Qualified Technician. Ensure your Dealer has informed you about proper fitting and usage of your postural belt.

WITH STANDARD BELT



ITEM NO.	QTY.	DESCRIPTION
1	2	METRIC SQUARE NUT
2	6	1/4" FLAT WASHER, SAE, BZ (M6 COMPATIBLE)
3	2	M6 HEX NUT, BZ
4	2	M6-1.0 x 25mm BUTTON SOCKET CAP, ALLOY STEEL, BZ

WITH BODYPOINT BELT

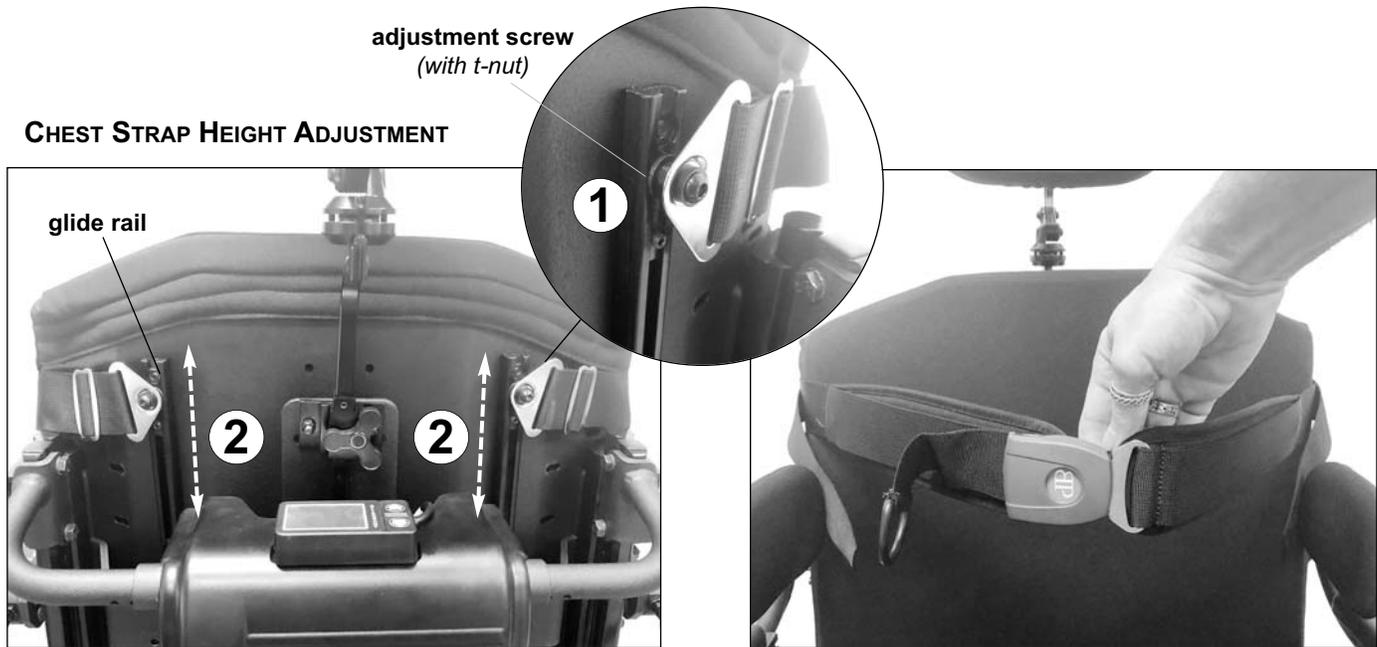


5.14.3 CHEST STRAP INSTALLATION & ADJUSTMENT:

The Chest Straps (left and right) are installed onto vertical glide rails located on the rear of the back shell. The straps are secured and adjusted via an adjustment screw and t-nut assembly (1). To adjust the height of the chest strap, loosen the adjustment screw and slide the t-nut (chest strap) up or down along the glide rail (2) to the desired position. Re-tighten the adjustment knob to secure the chest strap into position.

NOTE: the left and right chest straps should be adjusted to the same height/position.

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS



5.14.4 ADJUSTING YOUR POSTURAL BELT / CHEST STRAP

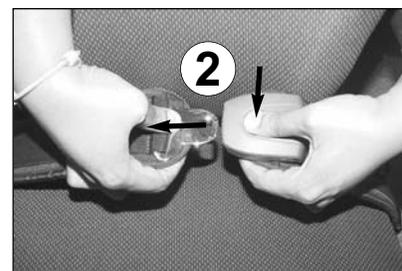
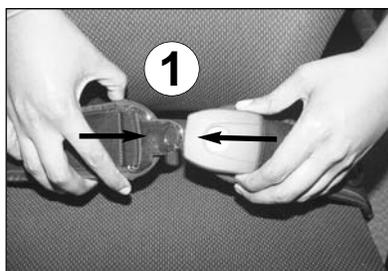
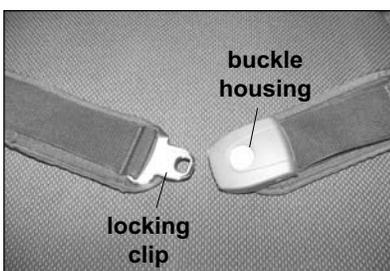
i IMPORTANT! If the overall length/size of your postural belt or chest strap is too large or too small, please contact your Dealer for assistance. **DO NOT** operate your wheelchair until your postural belt/chest strap is properly installed

BELT FIT AND ADJUSTMENT:

- Ensure that you are sitting correctly, which means that you are sitting right at the back of the seat, your pelvis is positioned erect and as symmetrically as possible, not to the front, to the side or at one edge of the seat.
- Position the postural belt so that your hipbones can be easily felt above the belt. **Note:** *Most hip belts should be angled more than 45 degrees (unlike automobiles/airplanes) to prevent slipping and bladder pressure.*
- Adjust the belt length as needed using the cinch-mount or flat-mount fittings. The belt should be adjusted so that you can fit a flat hand between the belt and your body when the buckle is fastened together.
- For a **padded postural belt**, the pads should touch each other when the belt adjustment straps are tightened.
- For a **standard (non-padded) postural belt**, the belt webbing should extend approximately 5-6" beyond the buckle when the straps are fully tightened.
- The buckle should be positioned as centrally as possible when the postural belt is secured. To accomplish this, belt adjustments should be made equally on both sides whenever possible.

5.14.5 OPERATING YOUR POSTURAL BELT/ CHEST STRAP

- To secure/lock your postural belt, insert the locking plate into the buckle housing until you hear a 'click' (1). Pull firmly on the locking plate (belt) to test that the lock mechanism is properly engaged.
- To release/unlock the postural belt, fully depress the push button on the top of the buckle housing and pull the locking plate (belt) out of the housing (2).



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.15 SHEAR REDUCTION AND RECLINE BACK HEIGHT ADJUSTMENTS:

The Recline Back on the Rovi-MPS System comes standard with **Extended Shear Reduction (ESR)**. The ESR is synchronized with the recline function to minimize the amount of shear between the user and the back rest when the system is reclined and/or when the system transitions to the standing position. Due to the unique system geometry and the range of recline travel when the system moves into a full standing position, the ESR linkages have been engineered to maximize the amount of shear reduction. (Providing approximately 5" (13cm) of shear reduction).

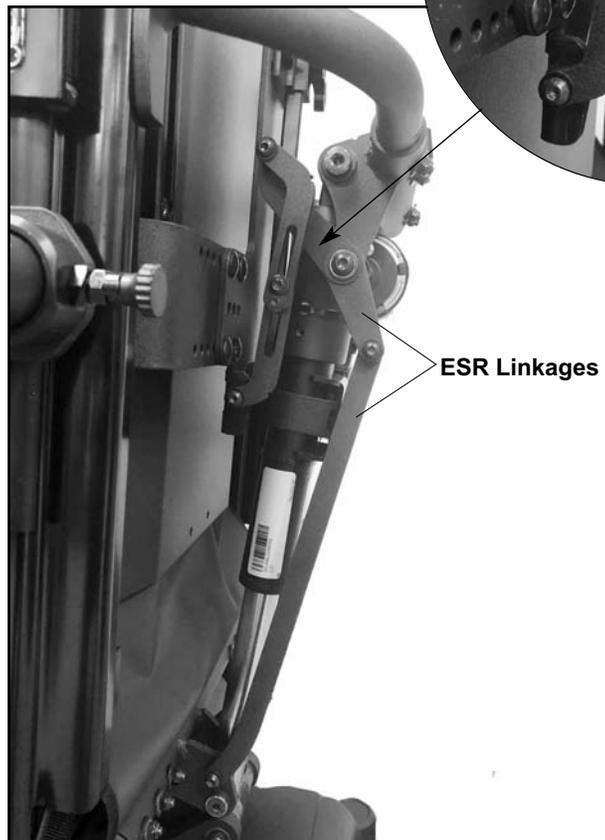
The upper linkages on the ESR assembly will allow for minor **Back Height Adjustments** (up to 1-1/8" (30mm)) if necessary. To adjust the height of the Recline Back, loosen the two linkage adjustment screws (1), and slide the linkages (back shell) up or down as required (2). (**Note:** the recline back will slide (up and down) along the glide blocks on the recline back canes). Re-tighten adjustment screws following adjustment.

**Loosen Linkages/Adjustment
Screws (x2) to Adjust Back Height**
(Adjustment Range = 1-1/8" (30mm))

Adjustment Screws

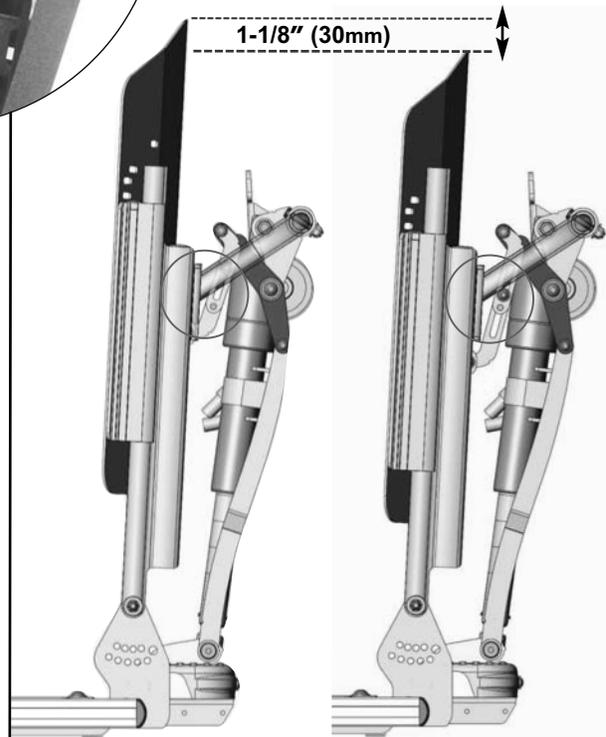
1

2



RECLINE BACK HEIGHT ADJUSTMENT

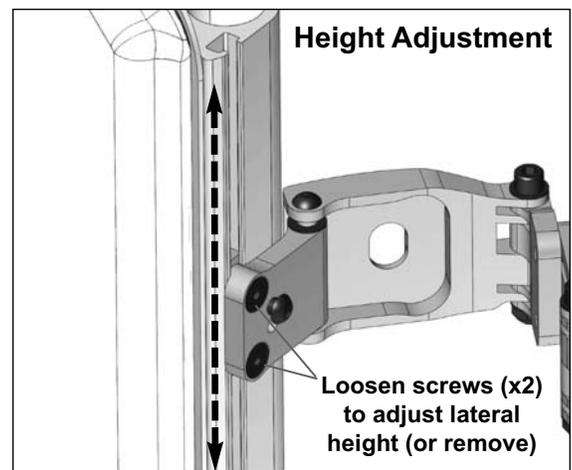
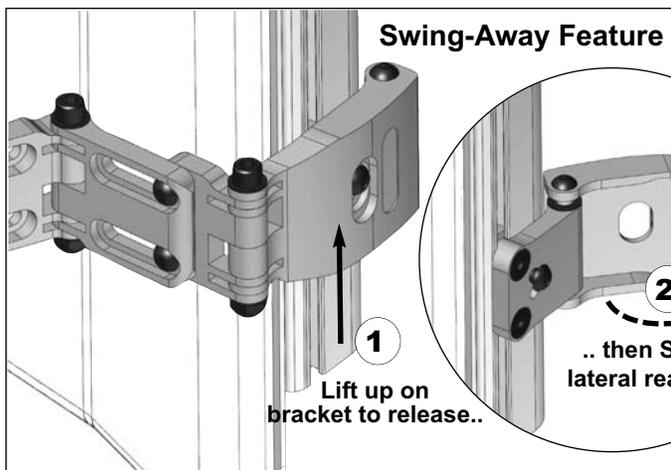
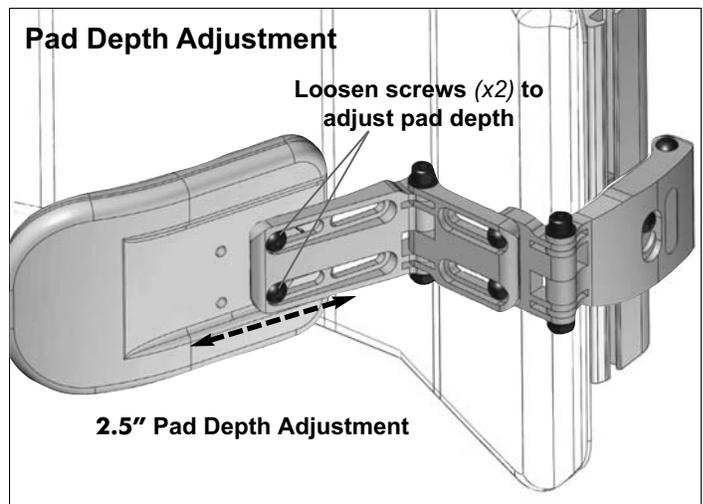
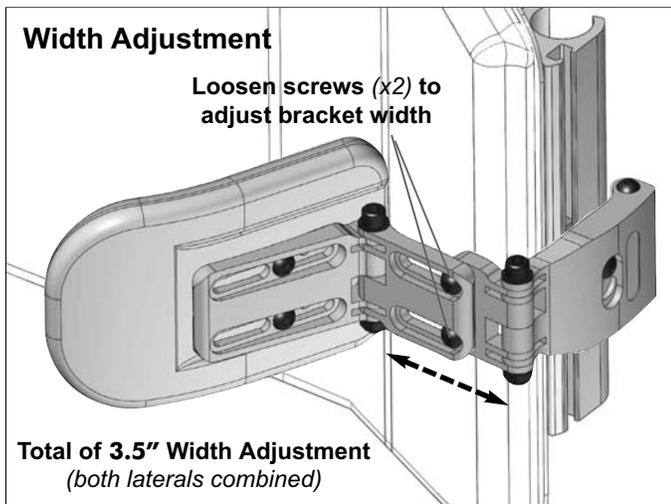
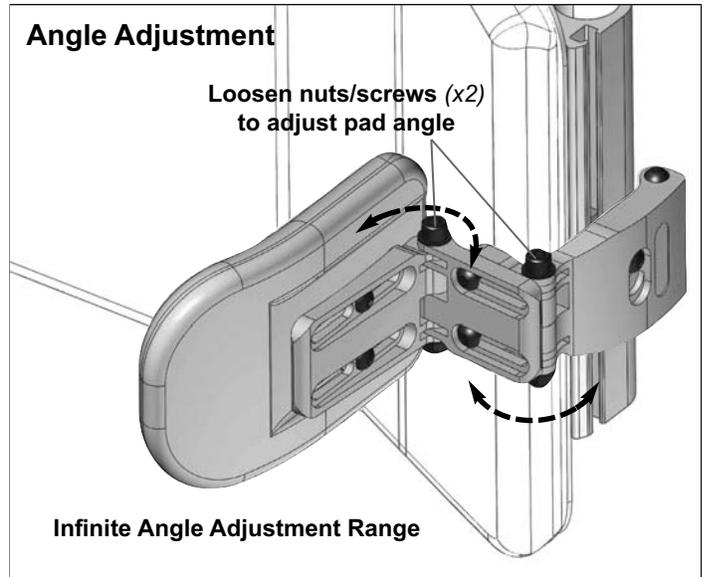
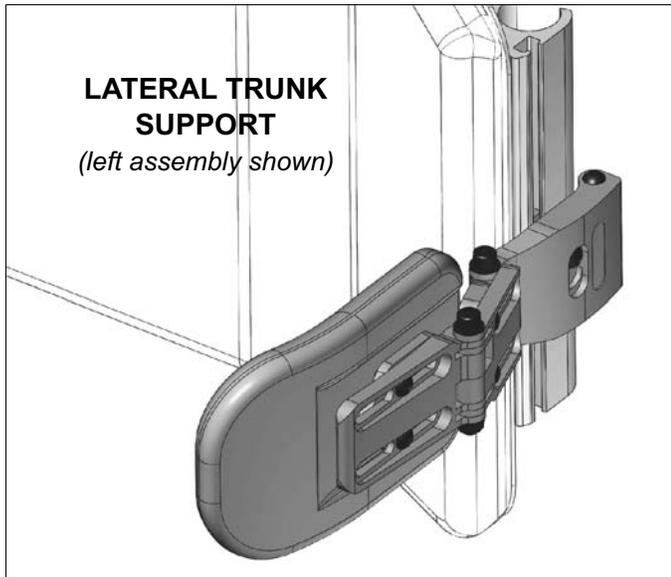
1-1/8" (30mm)



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.16 LATERAL TRUNK SUPPORT ADJUSTMENTS

5.16.1 MAXX LATERAL TRUNK SUPPORT



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

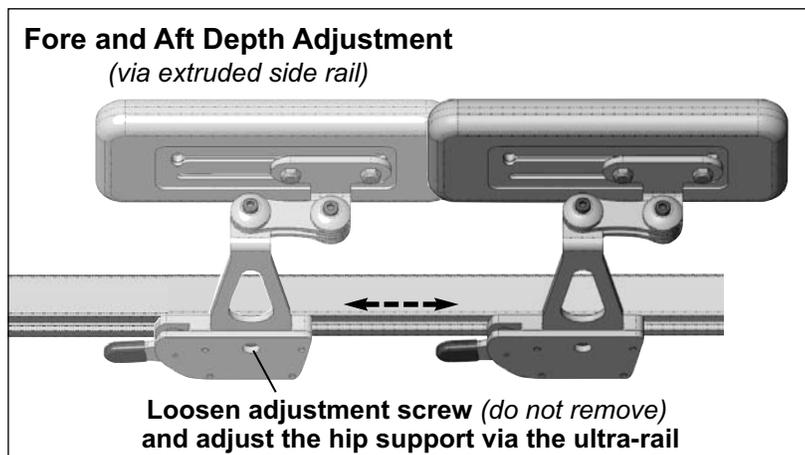
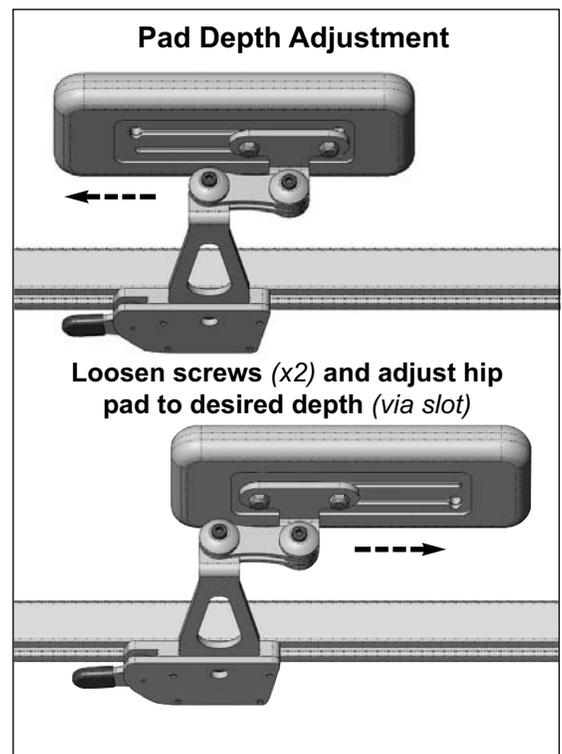
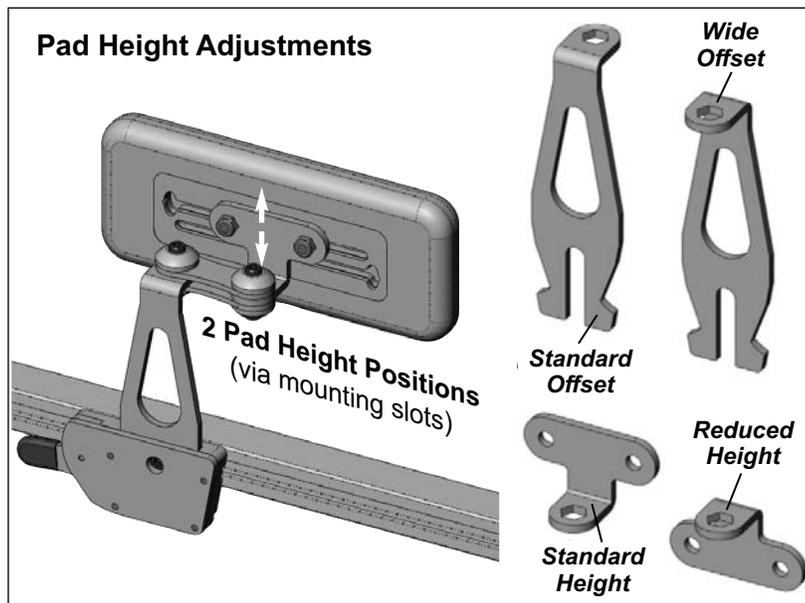
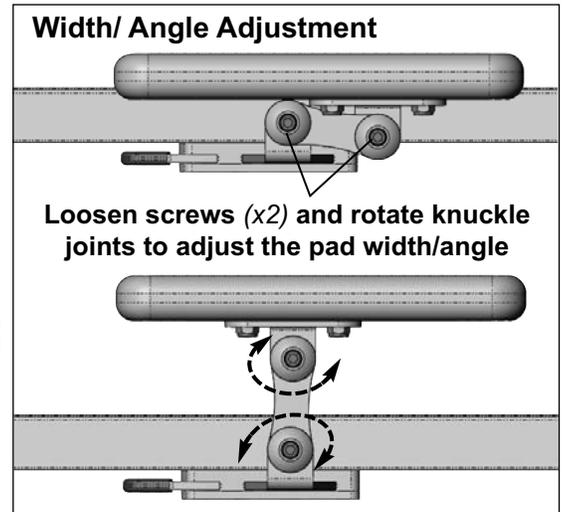
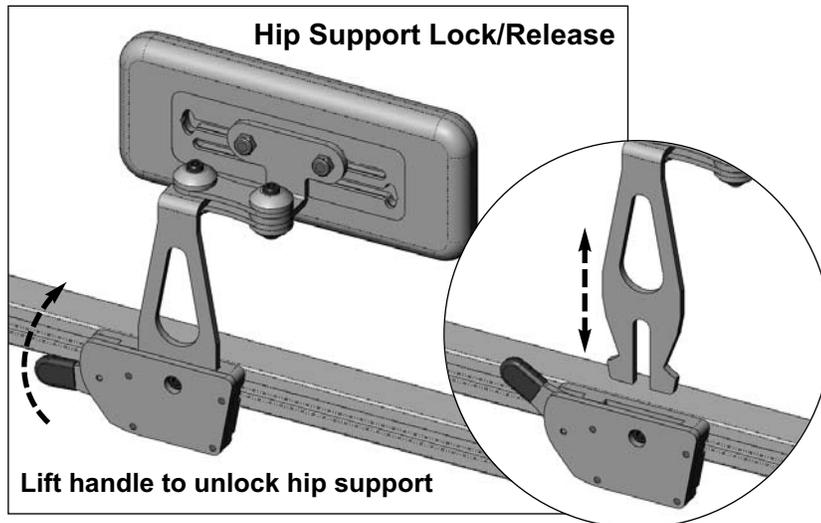
5.17 LATERAL HIP AND KNEE SUPPORT ADJUSTMENTS

5.17.1 MAXX QUICK-RELEASE LATERAL HIP AND/OR KNEE SUPPORT



WARNING! Risk of serious injury or damage.

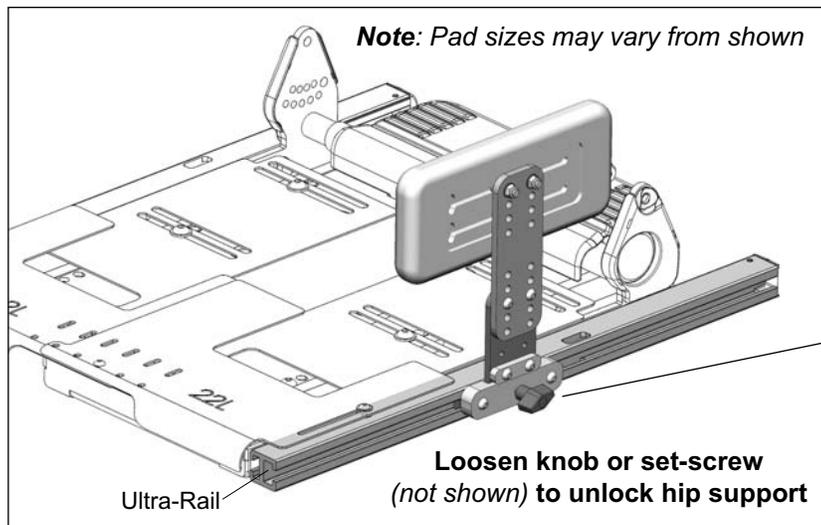
• When performing transfer activities into and out of the wheelchair, **DO NOT** use the Hip Pads/Knee Pads for load bearing support, otherwise serious injury and/or damage to the hip pads may occur.



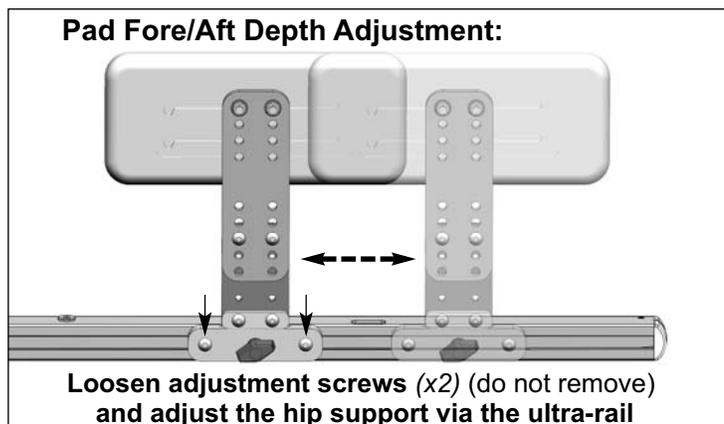
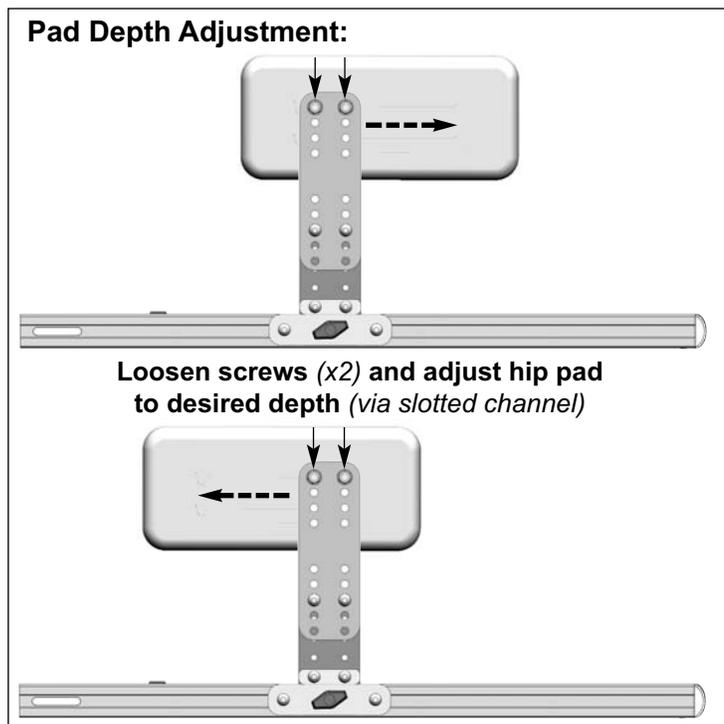
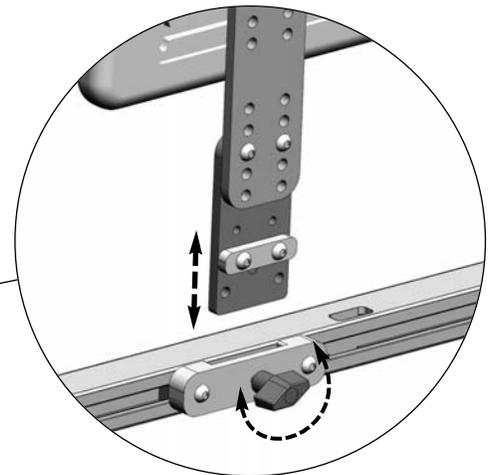
Note: Pad sizes may vary from shown

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.17.2 MAXX FIXED MOUNT LATERAL HIP AND/OR KNEE SUPPORT

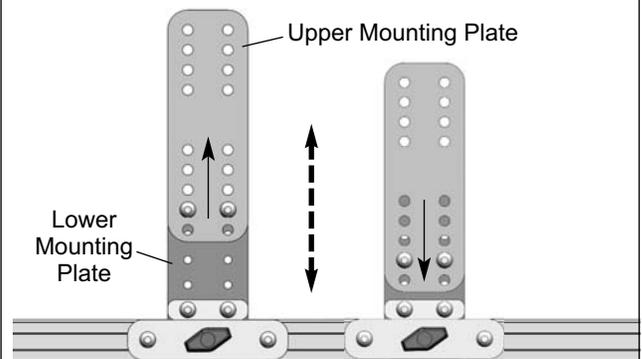


Pad Support Lock/Release:

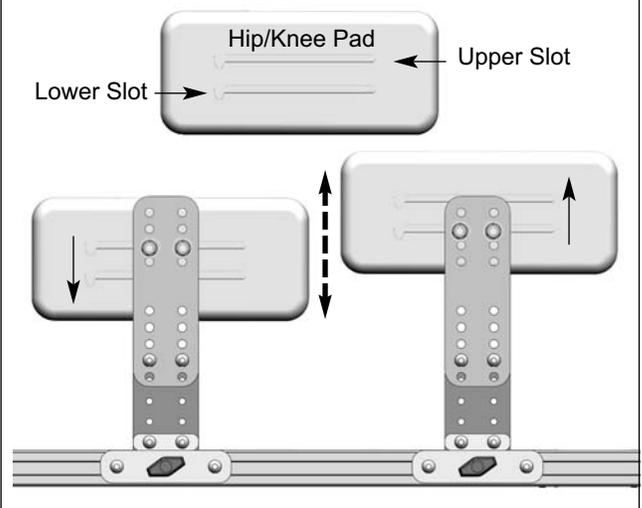


Pad Height Adjustments:

- i) Mounting Plate Height Adjustments (in 1/2" increments)



- ii) Pad Height Adjustments (via pad mounting slots and/or mounting plate)



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.18 HEADREST PADS AND HARDWARE

Our Matrix Elan Headrest Mounting Hardware is compatible with most industry standard headrests, and is designed for use with our line of Matrix Elan Headrest Pads. The headrest clamp hardware provided is designed to install into existing mounting holes on the Motion Concepts back pan. The following sections include set-up and installation instructions for the various headrest options available.



WARNING! Risk of Serious Injury

• Injury hazard during use of the wheelchair if a headrest is wrongly adjusted or not installed! This can cause the neck to be hyperextended in the event of a collision, or when the system is tilted or reclined.



CAUTION! Risk of System Damage

• 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.

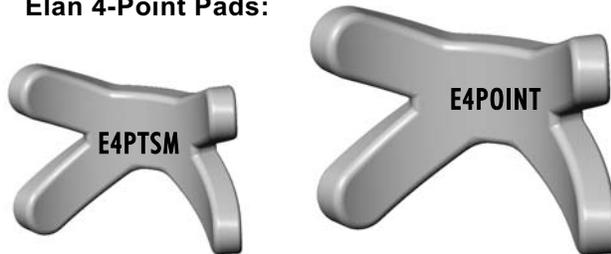
5.18.1. MATRX ELAN HEADREST PADS:

Our Matrix Elan Headrests Pads are designed using dual density moulded foam and lightweight aluminum backing plates. The aluminum backing plates may be further formed/re-shaped to meet the needs of the end user. The headrest pads can be carefully bent by hand over a knee, or using a similar contoured shape to reform the pad. The Elan Headrest Pads are compatible for use with our standard Matrix Elan Hardware (MEHW) or our Elan Mini Hardware (MEMH) (**Section 5.18.4**), and are also compatible for use with the Multi-Axis Headrest Hardware (**Section 5.18.3**)

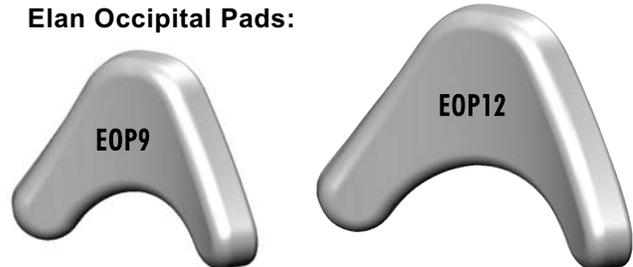
Elan Standard Pads:



Elan 4-Point Pads:



Elan Occipital Pads:



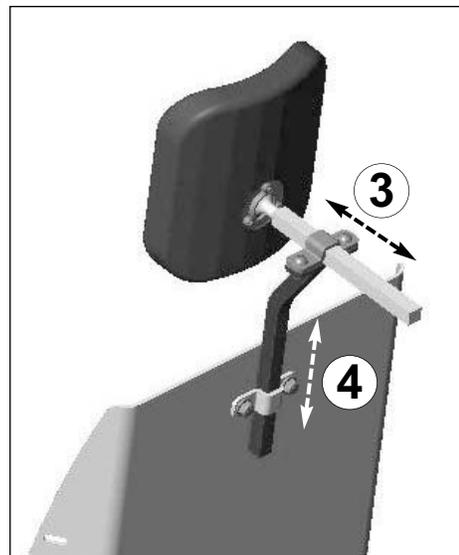
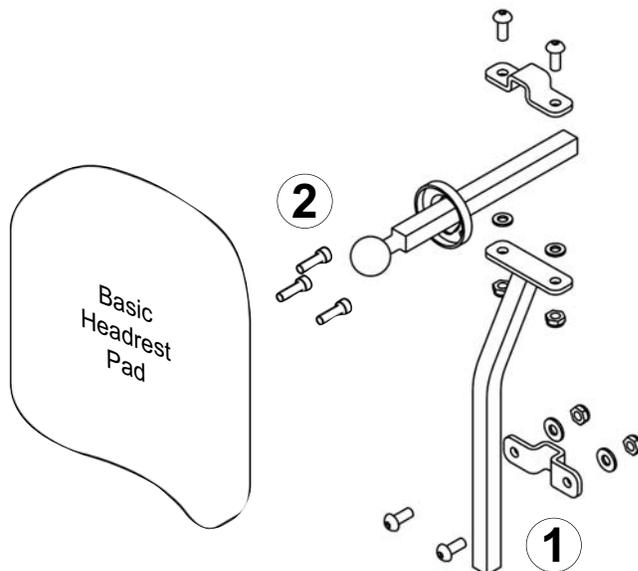
HEADREST PAD DESCRIPTION	MODEL#	
	Standard Fabric Cover	Infection Control (Wipeable) Cover
Elan Standard Pad 6" x 3.5" (15cm x 9cm)	ESP6	ESP6-IC
Elan Standard Pad 10" x 5" (25cm x 13cm)	ESP10	ESP10-IC
Elan Standard Pad 14" x 5" (36cm x 13cm)	ESP14	ESP14-IC
Elan Occipital Pad 9" x 7" (23cm x 18cm)	EOP9	EOP9-IC
Elan Occipital Pad 12" x 8" (30cm x 20cm)	EOP12	EOP12-IC
Elan 4-Point Pad-sm 9" x 7" (23cm x 28cm)	E4PTSM	E4PTSM-IC
Elan 4-Point Pad 11" x 10" (28cm x 26cm)	E4POINT	E4POINT-IC

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.18.2 BASIC HEADREST PAD AND HARDWARE:

Basic Headrest- Pad/Hardware Installation & Adjustment:

1. Using the hardware provided, align and install the headrest clamp assembly into the existing mounting holes in the back pan (1).
2. Secure the headrest pad to the horizontal headrest rod via the mounting hardware provided (2).
3. Adjust the headrest pad to the desired depth via the headrest rod by loosening and tightening the mounting hardware (3).
4. Adjust the overall height of the headrest pad/mounting post via the clamp assembly (4). For proper set-up the headrest should be adjusted to the user's ear height.



5.18.3 MULTI-AXIS HEADREST HARDWARE (MAHW):

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

MAHW- Installation & Adjustment:

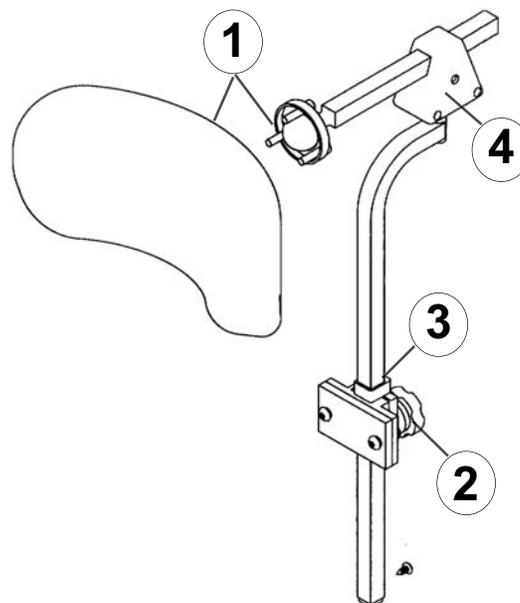
1. Using the hardware provided, align and install the headrest clamp assembly into the existing mounting holes in the back pan.
2. Secure the headrest pad to the horizontal headrest rod via the mounting ring and hardware provided (1).

NOTE: 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- see Section

3. Adjust the overall height of the headrest pad/mounting post via the clamp assembly (2). For proper set-up the headrest should be adjusted to the user's ear height.

4. Once the final height position is set, adjust the D-Ring (with set-screw) so that it rests flush with the top of the clamp assembly (to prevent slipping) (3).

NOTE: The headrest and rod can be further adjusted for depth and angle via the triangular multi-offset bracket (4). To make adjustments, loosen the hardware in the multi-offset bracket, set headrest to the desired position, then re-tighten hardware.



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.18.4 ELAN MOUNTING HARDWARE (MEHW) and ELAN MINI MOUNTING HARDWARE (MEMH)

The Elan Headrest Hardware may be combined with any OEM headrest pad fitted with standard lock-ball and collar hardware, including Motion Concepts Elan Headrest Pads (see **Section 5.18.1.**)

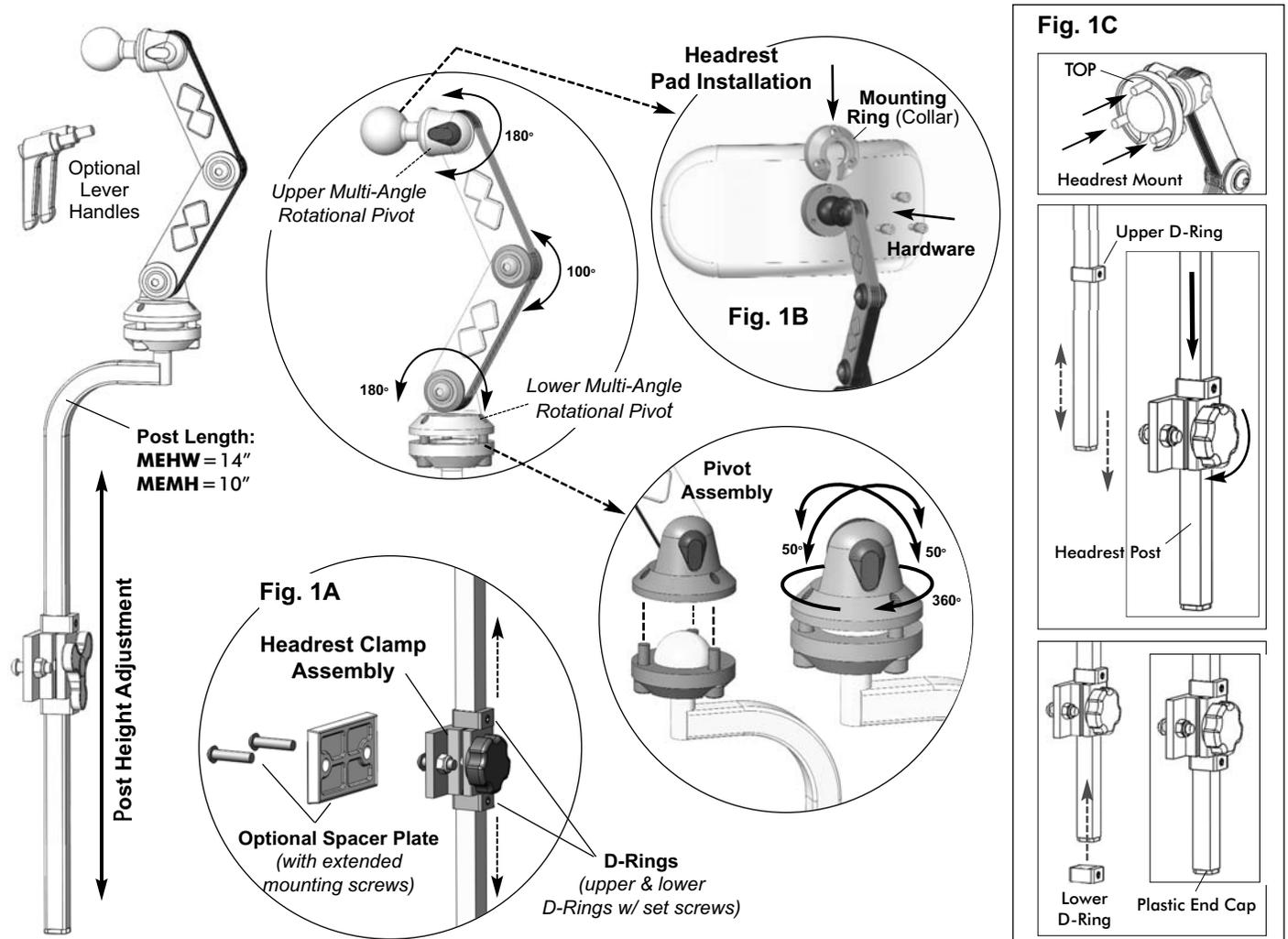
CAUTION! To ensure the Elan Headrest Hardware/Linkages remain secure following adjustment, be certain to adhere to the following Cautions.

- **DO NOT** fully disassemble the headrest linkage hardware.
- Adjust linkages using **ONLY** the **three (3)** designated **adjustment screws** (as indicated in **Fig 2.**).
- **DO NOT REMOVE** adjustment screws; To adjust linkages, loosen screws by only $\frac{1}{4}$ – $\frac{1}{2}$ a turn.
- **Lever Handle Installation (Optional)**: Carefully remove only the adjustment screw from the **UPPER** and/or **LOWER** pivot (leaving the hex insert in place), then thread the lever handle into the hex insert (see **Fig 3.**).

MEHW and MEMH Installation/Adjustment Instructions:

1. Secure the headrest clamp onto the back shell (or headrest adapter plate) using hardware provided. (**Fig.1A**)
2. Install the headrest pad onto the Elan hardware using the headrest mounting ring/hardware provided. (**Fig.1B**)
3. Loosen/remove the lower D-Clamp from vertical mounting post (using 2.5mm hex key). (**Fig 1C.**)

TOOLS REQUIRED: Hex Keys: 2.5mm, 4mm, 5mm (provided); Hacksaw; Power Drill; (1/4") Drill Bit



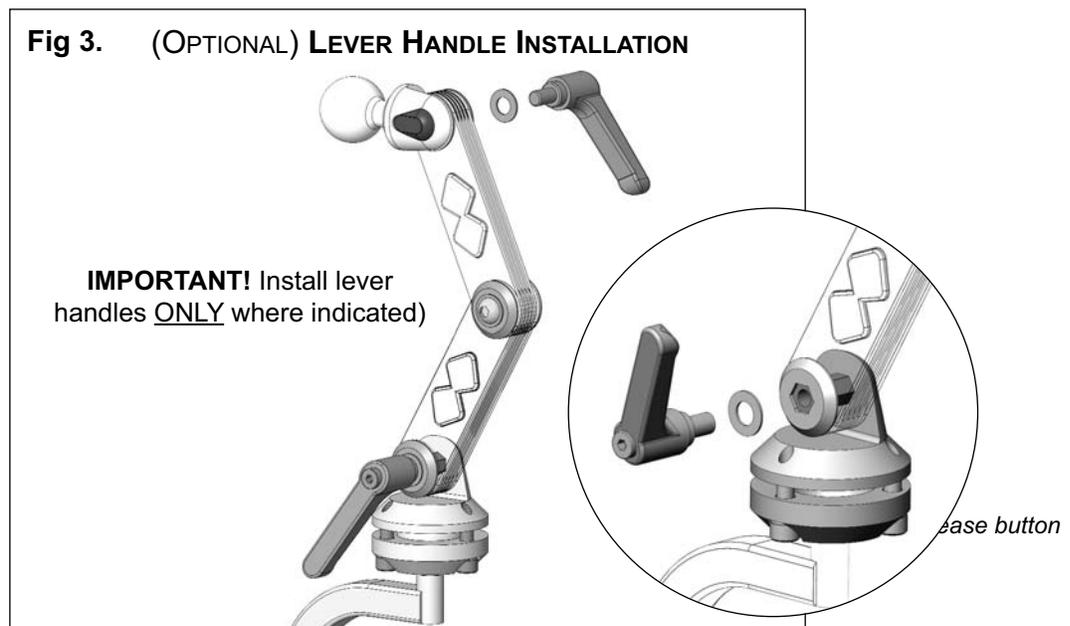
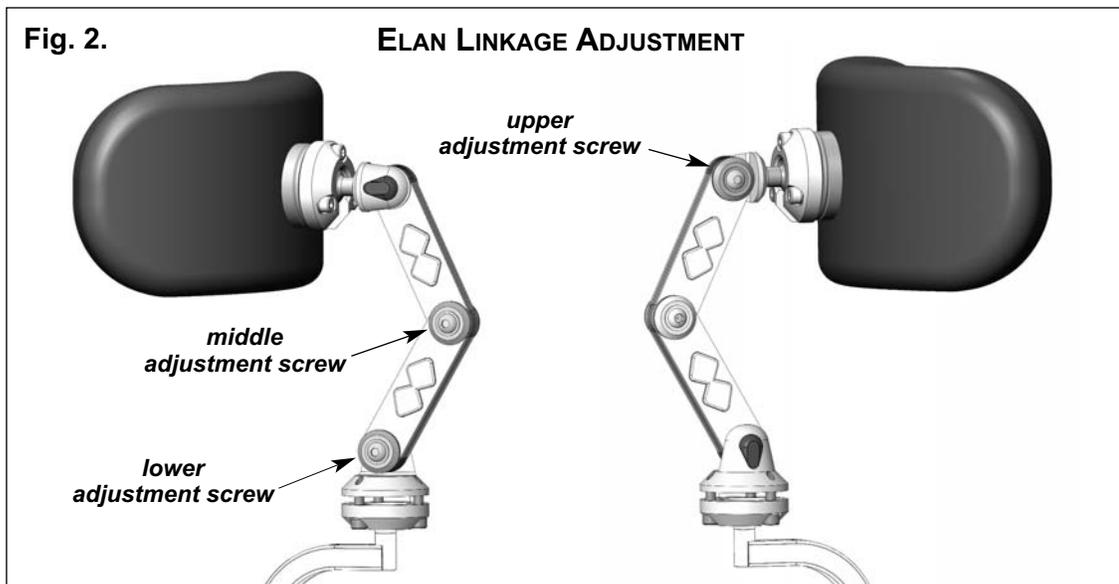
5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

MEHW and MEMH Installation/Adjustment Instructions:

- Slide the vertical mounting post into the clamp assembly and adjust the overall height of the headrest post pad to the desired position (adjust upper D-Ring position as required). Tighten the clamp (knob) to secure the headrest assembly in place. (Fig 1C.).
- Adjust the headrest position (depth/angle), as necessary, by loosening the three pivot/linkage adjustment screws¹ (see Fig. 2.). Once the final headrest position is established, fully tighten all adjustment screws.
- Secure the Lower D-Ring onto the vertical post so that it rest flush with the bottom of the clamp assembly (to prevent slipping)².

¹**NOTE:** If installing the optional **Lever Handles**, carefully remove the adjustment screws from the upper and/or lower pivot, then thread the lever handle into the hex insert (see Fig. 3.).

²**NOTE:** If necessary, the vertical headrest post can be modified (cut*) in order to prevent any collision interference along the back of the seating system. (*After cutting the post, the plastic end cap in the bottom of the post can be removed and re-installed into the newly cut post).



5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.18.5 HEADREST HARDWARE SET-UP: FOR RECLINE & ESR SYSTEMS

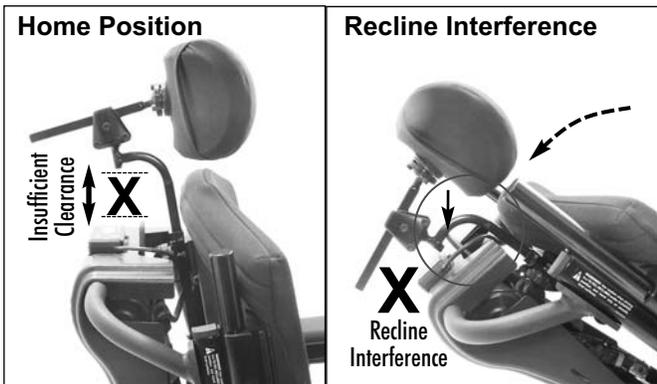


WARNING! Risk of System Damage During Recline/ESR. Improper installation of your headrest hardware may result in collision interference between the headrest post and the recline pushbar and/or remote attendant control

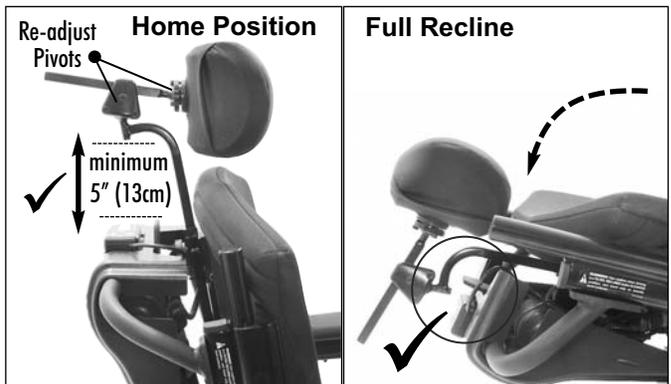
- Maintain a minimum of 5" (13cm) clearance between the bottom of the upper headrest post and the protector plate on the recline pushbar.
- Re-adjust the headrest pivots/linkages to compensate for the increased headrest post height.
- Following any headrest adjustments, ALWAYS test for collision interference over the full range of Recline/ESR. Make further adjustments as necessary.

i. Multi-Axis Headrest Hardware (MAHW):

IMPROPER SET-UP

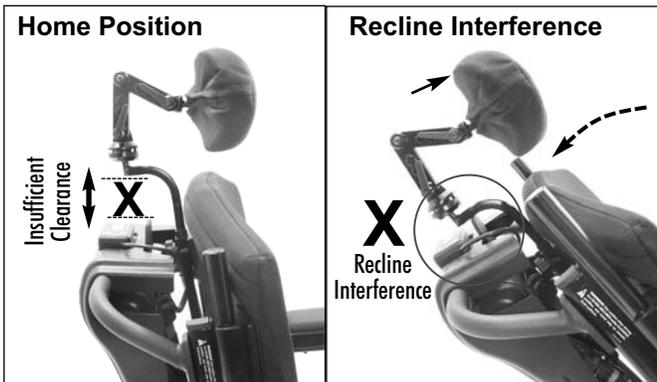


PROPER SET-UP

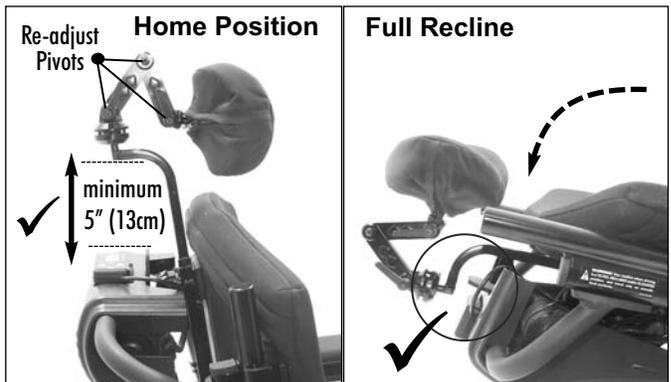


ii. Matrx Elan Headrest Hardware (MEHW/MEMH):

IMPROPER SET-UP



PROPER SET-UP



6.0 SYSTEM INSTALLATION/ ADJUSTMENT REVIEW

i IMPORTANT! Following any installation, set-up and/or adjustment related to the power positioning system always test the system over its full range of positioning functions to ensure all motors, safety limits are functioning correctly. Verify that all mounting hardware and critical components are also installed/adjusted properly.

The following checklist is provided as a reference when conducting a final review/ inspection of the wheelchair.

6.1 SYSTEM REVIEW CHECKLIST

1. Check all fasteners/mounting hardware to ensure that they have been properly tightened.
2. Check the drive lockout limit is functioning.
3. Check the reduced speed drive limit setting (if applicable)
4. Check the max. tilt (tilt/recline) limit (if applicable).
5. Check the full range of tilt and recline and elevate and stand (as applicable). Make certain that there is no interference. Make sure that the wheelchair is stable with the client in it over the entire range.
6. Check power legrest function (if applicable). Ensure there is appropriate ground clearance in the retracted position, and check for interference over the full range of travel.
7. Check all wires and cables over the complete tilt/recline/elevate/stand range for pulling, crushing or tight bends.
8. Check that all safety accessories (knee bolster, chest bar, postural support belt and chest strap) are working properly.
9. Check that the charger functions properly.
10. Check that the acceleration and deceleration of the wheelchair have been programmed to levels appropriate for the user.
11. Check all of the wheelchair drive functions.
12. Check the front anti-tipper mechanism (suspension lockout) is adjusted and functioning properly in the full standing position.
13. Test drive the wheelchair and operate the power positioning system.
14. Ensure the Owner's Manual is provided to the end user.

If you have any concerns or questions regarding your Motion Concepts Power Positioning System please contact our Technical Service Department for assistance.

USA: 888-433-6818 CAN: 800-680-4191

7.0 GENERAL SET-UP AND MAINTENANCE

 **IMPORTANT!** Motion Concepts disclaims all responsibility and liability for any personal injury or damage to property that occurs as a result of improper or insufficient maintenance, and/or any unauthorized Dealer or unqualified third-party repairs or modifications made to the power positioning system or the wheelchair on which the system is installed.

 **IMPORTANT!** Please be certain to also read and follow all maintenance and safety information provided separately in your **Wheelchair Base Manufacturer's Owner/Operators Manual**.



DANGER! Risk of Injury, Damage or Death

Improper set-up, service, adjustment or programming may result in injury, damage or death.

- *A Qualified Technician MUST set-up, service and program the wheelchair/power positioning system.*
- *DO NOT allow non-qualified technicians to perform any service repairs, modifications or adjustments on your wheelchair/power positioning system.*
- *Turn off power BEFORE adjusting or servicing the wheelchair/power positioning system.*
- *Ensure that all hardware is securely tightened after set-up, or following any maintenance or adjustments.*

7.1 MAINTENANCE AND INSPECTION SCHEDULE

 **IMPORTANT!** To ensure the optimal safety and reliability of your power positioning system, please adhere to the **Maintenance Checklist** provided in **Section 7.2**. In addition to the Checklist provided, please review the daily maintenance recommendations and additional safety warnings provided below to ensure your power positioning system is operating safely and efficiently.

DELIVERY INSPECTION:

- A full inspection should be performed by the Service Provider at the time of delivery/set-up.
- Initial adjustments should be made to safely meet your body structure, personal needs and preferences. Thereafter, monthly and periodic inspections should be performed by the end user/attendant between semi-annual (6 month) service inspection

DAILY MAINTENANCE:

- Check that the joystick and/or switches (push buttons/toggles) that operate your power positioning system are functioning properly
- Charge your batteries. (*Refer to the battery charging information provided (**section 7.5**), as well as your Power Base Owners Manual for important information on battery charging and proper battery care.*)

SEMI-ANNUAL SERVICE INSPECTION:

- To ensure your power positioning system is operating properly and safely, Motion Concepts recommends a complete system inspection be performed **every six (6) months** by a Qualified Service Technician. Contact your local Service Provider to schedule an inspection.

MAINTENANCE INFORMATION AND SAFETY WARNINGS!



IMPORTANT Information about Maintenance Work Tools/Equipment!

Some basic/periodic maintenance tasks identified in this manual can be carried out by the user without problems, but do require the correct tools. If you do not have the proper tool(s) available, or if you are not comfortable performing the maintenance task, we strongly recommend that you contact your local Service Provider to arrange for assistance.



IMPORTANT! Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your power positioning system/wheelchair. To operate safely and properly, your wheelchair seating system must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

7.0 GENERAL SET-UP AND MAINTENANCE

MAINTENANCE INFORMATION AND SAFETY WARNINGS! ...cont'd



WARNING! Risk of Injury, Damage and Loss of Warranty if proper maintenance is not followed.
• For reasons of safety, and in order to avoid potential injury or damage from unnoticed wear, it is recommended that under normal operating conditions your power positioning system undergoes a complete inspection every six (6) months.



DANGER! Risk of Death, Serious Injury, or Damage
Incorrect repair and/or servicing of this wheelchair performed by users/caregivers or unqualified technicians can result in death, serious injury, or damage.

- Users/Caregivers — **DO NOT** attempt to repair and/or service this wheelchair.
- Repair and/or service of this wheelchair **MUST** be performed by a qualified technician. Contact a dealer or our Motion Concepts Technical Service Department for further assistance.



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

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



WARNING! Risk of Serious Injury or Damage if maintenance is insufficient!

- Under difficult operating conditions such as daily travel on steep slopes, or in the case of use in medical care cases with frequently changing wheelchair users, it is recommended to carry out intermediate checks on the brakes, accessories and running gear.
- The wheelchair operator is responsible for ensuring that the power wheelchair and seating system remains in an operationally reliable condition. Inadequate or neglected care and maintenance of the mobility device will result in a limitation of the manufacturer's liability.



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.



DANGER! Risk of Death or Serious Injury.

Electric shock can cause death or serious injury

- Inspect connectors and cables for cuts and/or frayed wires. Replace any cut cables or frayed wires immediately



DANGER! Risk of Death, Serious Injury, or Damage

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

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



DANGER! Risk of Death, Serious Injury or Damage if incorrect or improper replacement (service) parts are used

- Replacement parts for your power positioning system **MUST** match original Motion Concepts parts
- **ALWAYS** provide the wheelchair serial number (see **Section 1.4 - System Identification**) to assist in ordering the correct replacement parts



WARNING! Risk of injury due to improper lifting or dropping of heavy components!

- When maintaining, servicing or lifting any part of your power wheelchair, take into account the weight of the individual components, especially the batteries. Be sure at all times to adopt the correct lifting posture and ask for assistance if necessary.
-

7.0 GENERAL SET-UP AND MAINTENANCE

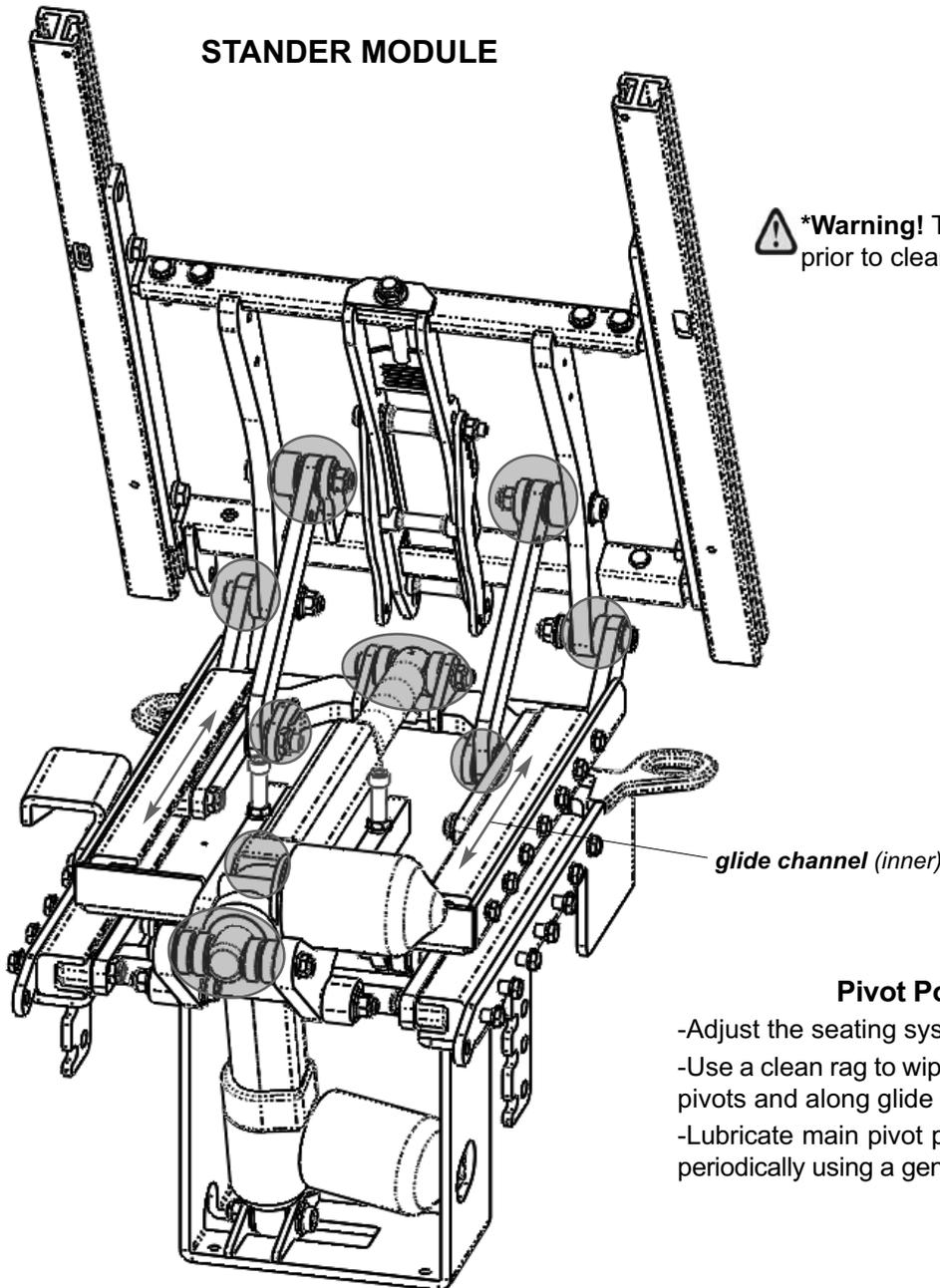
7.2 MAINTENANCE INSPECTION CHECKLIST

Task	Delivery	Monthly	Periodically	6 Months (Service)
Batteries				
Load test batteries (individually)	X			X
Ensure batteries are clean (free from corrosion/ moisture/ dirt)	X			X
Ensure connections are tight and clean	X			X
Electrical / Wiring Harnesses				
Check wire routing & cables for pinching or pulling (<i>over the full range of seating system functions</i>)	X	X		X
Inspect for wear & tear damage to wires/connectors	X	X		X
Ensure electronic connections are secure	X	X		X
Actuators (where applicable)				
Ensure feedback actuator limits are functioning properly	X			X
Ensure no interference/binding during system operation (<i>test all seating functions over their full range of travel</i>)	X		X	X
Inspect/listen for excessive motor noise or grinding	X		X	X
Hardware and Components				
Inspect mounting interface hardware (<i>seating system to powerbase</i>)	X		X	X
Inspect all adjustment hardware, and accessory hardware to ensure fasteners are secure (e.g.; back canes, recline module, legrests/foot plates/receivers, calf pads, armrests, arm pads, laterals, hip guides, etc...)	X	X		X
Inspect/listen for loose parts/rattling- ensure all fasteners are secure	X	X		X
Inspect that all pivot points are secured (do not overtighten) and operating smoothly/freely (lubricate as needed)	X		X	X
Inspect the Anti-Tipper (front suspension) lockout mechanism to ensure it is functioning correctly; Inspect mechanism for wear and/or damage.	X		X	X
Limit Switches				
Check all safety lockouts and limit switch settings	X	X		X
Ensure DLO functions correctly	X	X		X
Pivots and Slide Channel Maintenance				
Ensure slide channels are free from dirt/ dust/ grime			X	X
Lightly lubricate main pivot points, using a general purpose oil (<i>see Section 7.3 - Lubrication</i>)			X	X
General				
Clean/wipe down cushion and back upholstery and arm pads (<i>avoid the use of bleach and harsh solvents that may damage upholstery</i>)			X	
Ensure upholstery does not have any rips or tears.			X	X
Inspect the postural (seat positioning) belt and chest strap for any signs of wear. Ensure the buckle latches, and verify that the belt/strap mounting hardware is secure and undamaged	X	X		X

7.0 GENERAL SET-UP AND MAINTENANCE

7.3 SEATING MODULE LUBRICATION

i IMPORTANT! To maintain the smooth operation of your Rovi-MPS System, periodical lubrication of the main pivot points is recommended. Motion Concepts Seating Systems are pre-lubricated at the factory, however occasional lubrication using a general purpose oil will help to maintain optimal performance of your seating system. Avoid the use of heavy grease or high viscosity lubricants as this can cause a build-up of dirt and contaminates which could reduce overall performance.



⚠ Warning! Turn power off to the wheelchair prior to cleaning and lubricating

Pivot Point Lubrication

- Adjust the seating system to full stand*;
- Use a clean rag to wipe away any dirt, residue around pivots and along glide channels;
- Lubricate main pivot points of the positioning module periodically using a general purpose oil.

7.0 GENERAL SET-UP AND MAINTENANCE

7.4 CLEANING YOUR POWER POSITIONING SYSTEM

 **IMPORTANT!** For detailed information on cleaning your power wheelchair, please also be certain to read and follow the instructions/warnings provided (separately) in your wheelchair base Owners Manual.

 **IMPORTANT!** Regular cleaning will reveal loose or worn parts and can enhance the smooth operation of you power positioning system.

 **CAUTION! Risk of Damage**

- *Spraying your power positioning system with water or any type of liquid may permanently damage the electronics. Never spray the seating system with any type of water or liquid.*
 - *Cleaning solvents containing alcohols or phenols may cause damage to upholstery and plastic surfaces, and should be avoided.*
-

Cleaning Upholstery, Cloth, Vinyl:

Lukewarm water and a mild non-abrasive soap may be used to clean the upholstery as needed. For add-on devices (i.e. seat and back cushions, etc..) refer to the specific laundering instructions in the user manual provided with the device. *Contact the device manufacture directly for cleaning protocols related to severely stained/contaminated cushions and upholstery.*

Cleaning Metal Surfaces:

Hot water and a mild detergent on a soft cloth should be used for cleaning metal surfaces. Wipe down with a damp cloth. Dry surface by wiping surface with a dry cloth.

Cleaning Plastic Surfaces:

Hot water and a mild detergent on a soft cloth should be used for cleaning plastic surfaces. Wipe down with a damp cloth. Dry surface by wiping surface with a dry cloth.

7.5 BATTERY CHARGING

 **WARNING!** For detailed information on charging your powerbase batteries, please be certain to read and follow the instructions provided by the powerbase manufacturer & the battery charger manufacturer.

IMPORTANT INFORMATION ON BATTERY CHARGING:

- **Do Not** use the charge level indicator on a joystick display to determine the existing battery charge. The joystick display indicates surface voltage only, and may not be the true charge. *(This can be likened to charging a cell phone; if placed on its charger for a brief time, a cell phone display will often indicate that the batteries are fully charged, however the cell phone quickly goes dead once it is used).*
- Heavily depleted batteries require more time to recharge. Insufficient charge time may result in the supply of low voltage battery output to the electronics of the power positioning system. Low voltage output can produce longer duty-cycles and overheating, which will reduce the life-cycle of these electronics.
- Smaller **on-board chargers** are **not sufficient** to recharge rehab-style power products.
- Batteries that require more frequent charging or take longer to charge than normal, may need to be replaced.

RECOMMENDED CHARGING PROCEDURES:

NORMAL CHARGING:

Allow **8 hours** for normal charging. (*Note: To prolong the life of a battery, frequent charging is recommended, rather than only charging when necessary.*)

HEAVILY DEPLETED BATTERIES:

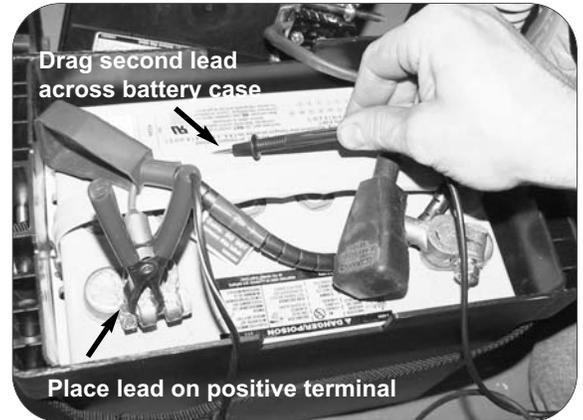
Severly discharged batteries may require in excess of **16 hours** to be properly charged and equalized. (*Note: be certain to understand the charge status indicators on the battery charger- refer to the charger manual.*)

7.0 GENERAL SET-UP AND MAINTENANCE

7.6 BATTERY TESTING

7.6.1 BATTERY CASE DRAW TEST

1. Inspect battery for signs of corrosion, moisture and/or dirt that could lead to unnecessary discharge of the battery.
2. Test with Voltmeter by placing one lead on the Positive (+) RED battery terminal
3. Drag the other lead across the battery case (in different locations).
4. Voltmeter should read **0 (zero)** if there is no discharge from the battery.



7.6.2 NO LOAD VOLTAGE TESTING

Test to determine the state of charge of the battery. Refer to the illustration below for testing instructions.



WARNING! Risk of Serious Injury or Damage

- NEVER attempt a voltage measurement with a test lead in the AMP (A) or MILLIAMP (mA) input terminal. You may be injured or cause damage to the voltmeter.

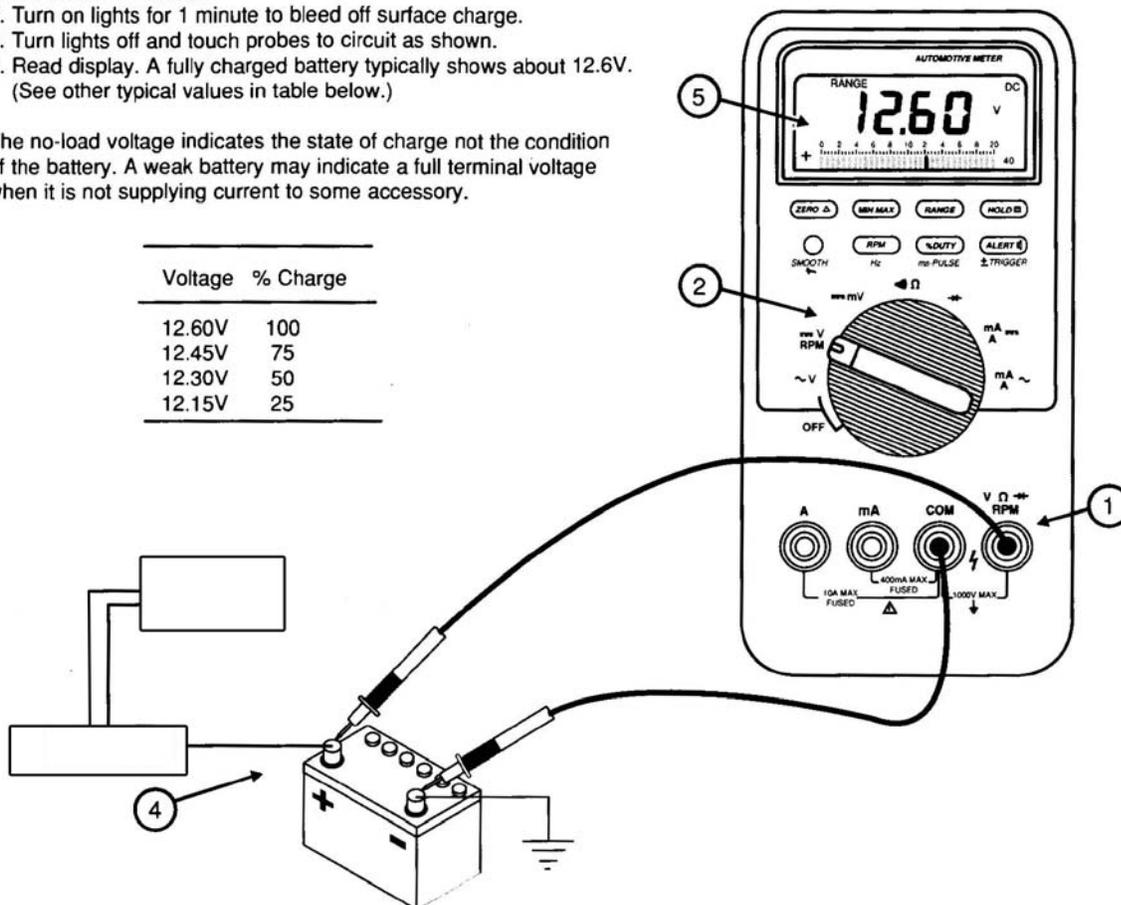
7.6.2 NO LOAD VOLTAGE TESTING (...cont'd)

TESTING INSTRUCTIONS:

1. Insert test leads in the input terminals shown.
2. Set switch to volts dc.
3. Turn on lights for 1 minute to bleed off surface charge.
4. Turn lights off and touch probes to circuit as shown.
5. Read display. A fully charged battery typically shows about 12.6V. (See other typical values in table below.)

The no-load voltage indicates the state of charge not the condition of the battery. A weak battery may indicate a full terminal voltage when it is not supplying current to some accessory.

Voltage	% Charge
12.60V	100
12.45V	75
12.30V	50
12.15V	25



8.0 TROUBLESHOOTING

i IMPORTANT! For additional troubleshooting information regarding the wheelchair powerbase and electronics, please refer to the Troubleshooting section of the **Power Wheelchair Base Owner's Manual** (provided separately)

8.1 PERFORMANCE TROUBLESHOOTING:

Symptom	Probable Cause	Solutions
<i>Wheelchair power is ON, but system does not Drive</i>	System tilted and/or elevated beyond the Drive Lockout (DLO) angle Drive Motors not engaged	Return seating system to neutral (home) position. Engage Drive Motors
<i>Seating System is not functioning</i>	Low batteries Loose/ Faulty electrical connection Blown fuse Interference/obstructions, Pinched wires	Check/ Charge/ Replace Batteries Check cable connections/ Check cable ties (too tight/ too loose) Inspect/ Replace fuse. Check for sources of interference or obstruction/ Inspect cables for pinch points
<i>Intermittent Seating System functions (day to day, during tilt, during recline...)</i>	Loose/ Faulty electrical connection Faulty Power Harness Faulty Limit Switch/ Tippy Sensor Spongy Battery (<i>fluctuating charge</i>)	Check cable connections/ Check cable ties (too tight/ too loose) Check/ Replace Power Harness Check/ Replace Limit switch or Tippy Sensor Check/ Replace Battery
<i>Drive Lockout (DLO) is not functioning</i>	Loose/ faulty electrical connection Tippy Sensor is not programmed DLO Limit Switch/ Mechanical Switch is not set-up properly Faulty Tippy Sensor Faulty DLO Limit Switch	Check connections. Reset & Re-program Tippy Sensor (refer to Section 4.3) Adjust DLO Limit Switch/ Mechanical Switch Check/ Replace Tippy Sensor Replace DLO Limit Switch/Mechanical Switch
<i>Tippy Angle Sensor not functioning properly</i>	Loose/ faulty electrical connection Faulty Tippy Sensor Tippy Sensor is not set-up properly	Check connections. Check/ Replace Tippy Sensor Reset & Re-program Tippy Sensor (refer to Section 4.3)
<i>Limit switch not functioning properly</i>	Loose/ faulty electrical connection Faulty limit switch Limit switch is not set-up properly	Check connections. Check/ Replace limit switch Adjust Limit Switch (refer to Section 4.3)
<i>System only operates in one direction</i>	Faulty limit switch Limit switch is not set-up properly Low Voltage/ Battery not charged	Check/ Replace limit switch Adjust Limit Switch (refer to Section 4.3) Test system power cable using Voltmeter/ Charge batteries
<i>Joystick will not function</i>	Joystick not plugged in Joystick not turned on Blown base fuse	Inspect cable connection Turn on power to the Joystick via the keypad Inspect/ Replace fuse
<i>Actuator keeps running</i>	Pinched switch harness Stuck switch/toggle	inspect/adjust harness position to prevent pinching Inspect/ Repair / Replace switch

i NOTE: For further assistance on these or any other performance issues, please contact our Technical Service Department. **USA:** 888-433-6818 **CAN:** 800-680-4191

9.0 ELECTRO-MAGNETIC INTERFERENCE (EMI) INFORMATION



ELECTRO-MAGNETIC INTERFERENCE WARNING

WARNING! It is very important that you read this information regarding the possible effects of electromagnetic interference (EMI) on your Motion Concepts Modular Power Standing System (MPSS) and your powered wheelchair base. Please also be certain to read the EMI Warnings provided in the user manual for your wheelchair power base.

In order to minimize the risks associated with electromagnetic interference, please review and follow the safety information and warnings provided herein.

9.1 ELECTROMAGNETIC INTERFERENCE (EMI) FROM RADIO WAVE SOURCES

9.1.1 What is EMI?



WARNING!

Electromagnetic interference (EMI) comes from radio wave sources such as radio transmitters and transceivers. (A "transceiver" is a device that both sends and receives radio wave signals). Powered wheelchairs including the power positioning system may be susceptible to electromagnetic interference emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios and cellular phones. EMI can also be produced by conducted sources or electrostatic discharge (ESD).

9.1.2 What are the effects of EMI?



WARNING! Risk of serious injury and/or wheelchair damage and/or property damage.

- ◆ Electromagnetic interference from radio wave sources can cause the powered wheelchair, without warning, to release its brakes, move by itself or activate/move in unintended directions.
- ◆ EMI can also permanently damage the wheelchair's control system.

9.1.3 What are the sources of EMI?



WARNING! There are a number of sources of electromagnetic interference in your everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. The sources of radiated EMI can be broadly classified into three categories:

i. Hand-Held Portable Transceivers* (*typically with an antenna mounted directly on the transmitting unit*)

Examples include:

- ◆ Mobile phones;
- ◆ Citizen band (CB) radios;
- ◆ "Walkie-talkies";
- ◆ Security, fire and police radios;
- ◆ Lap-top computers (with phone or fax);
- ◆ Electronic article surveillance systems;
- ◆ Other personal communication devices;

***NOTE:** *These devices can transmit signals while they are "ON", even when they are not being used.*

ii. Medium Range Mobile Transceivers- such as those used in police cars, fire trucks, ambulances, and taxis. These usually have the antennae mounted on the outside of the vehicle; and

9.0 ELECTRO-MAGNETIC INTERFERENCE (EMI) INFORMATION

9.1.3 What are the sources of EMI? (...cont'd)

iii. **Long Range Transmitters and Transceivers-** such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

 **NOTE: The following devices are not likely to cause EMI problems to your powered wheelchair:** Cordless phones, laptop computers (without phone/fax), AM/FM radios, TV sets, CD players, and small appliances, such as electric shavers and hair dryers.

 **WARNING! EMI from the Wheelchair**
Operation of your powered wheelchair and/or power positioning system can potentially disturb the performance other electro-magnetic fields, such as those emitted by the alarm systems of shops.

9.1.4 Immunity Levels

 **IMPORTANT!** The intensity of the interfering EM energy is measured in volts per meter (V/m). Each powered wheelchair system can resist EMI up to a certain intensity. This is called its "immunity level". At this time, an immunity level of 20 V/m is recognized as a generally achievable and useful immunity level to protect against most common sources of radiated EMI. The higher the immunity level, the greater the protection.

The following Motion Concepts MPSS configuration was tested and found to be immune to at least 20 V/m: 20" seat width, 18" seat depth, with tilt, recline, elevate, stand and power belt-drive center mount legrest with individual footplates. The power positioning system was configured with a multi-function M-Series (M610RL-STAND) seat control, M290 remote attendant control and 8-way switch control, in combination with an RNET base controller, right-hand mounted RNET LCD remote joystick and GP 34 gel cell batteries.

 **WARNING! Increased Risk of EMI/RFI**

- ◆ Adding additional input devices, such as specialty controls (e.g.; sip 'n puff, head arrays), proportional controls, and/or switch controls to your powered wheelchair system can affect the immunity level of the powered wheelchair. Parts not specifically tested or parts from other suppliers may increase the risk of EMI. Please refer to the EMI prevention recommendations and warnings provided in **section 9.1.5**
- ◆ Modification of any kind to the electronics of the modular power standing system as manufactured by Motion Concepts may adversely affect the radio frequency interference immunity (RFI) levels.
- ◆ Motion Concepts does not provide a Battery Charger with our modular power standing systems. Use only the approved and tested battery charger provided by the wheelchair base manufacturer with your Motion Concepts MPS system.

9.1.5 Recommendations to reduce the risk of EM interference with your powered wheelchair

 **CAUTION!** Electromagnetic radio waves become more intense as you get closer to the source. For this reason, extra caution should be exercised around portable hand-held devices. A person using one of these devices can unintentionally bring high levels of EM energy close to your wheelchair's control system, which can affect powered wheelchair movement and braking.

 **WARNING! Risk of Serious Personal Injury and Damage.**
The following warnings are recommended to prevent the risk of serious personal injury and to prevent possible interference with the control system of the powered wheelchair.

- ◆ Do not turn on personal communications devices, such as mobile phones, or operate hand held transceivers (transmitters- receivers), such as citizens band (CB) radios, while the powered wheelchair is turned ON.

9.0 ELECTRO-MAGNETIC INTERFERENCE (EMI) INFORMATION

9.1.5 Recommendations to reduce the risk of EMI with your powered wheelchair (...cont'd)



WARNING! Risk of Serious Personal Injury and Damage.

The following warnings are recommended to prevent the risk of serious personal injury and to prevent possible interference with the control system of the powered wheelchair.

- ♦ Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them.
- ♦ If unintended movement or brake release occurs, turn the wheelchair OFF as soon as it is safe to do so.
- ♦ Be aware that adding accessories or components, or modifying the power positioning system or powered wheelchair, may make it more susceptible to EMI. Parts not specifically tested or aftermarket parts from other suppliers have unknown EMI properties. **NOTE:** *There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair.*
- ♦ Promptly report all incidents of unintended movement of the power positioning system and/or powered wheelchair (including brake release), and note whether there was a source of EMI near the wheelchair at the time of occurrence. Contact:

Motion Concepts, Customer Service Department: **USA** (888) 433-6818 or **CAN** (800) 680-4191

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