MOTION CONCEPTS Ultra-Low Maxx Power Positioning Systems



(for UL Maxx MPPS & BPPS (Bariatric) SYSTEMS)



DEALER: This manual contains important safety, maintenance and operating information specific to the operation of the Motion Concepts Ultra Low Power Positioning System. This manual <u>MUST</u> be given to the USER of the product.

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





Important Information (Please complete this information for your records and for reference during any warranty claims.)	
Motion Concepts Serial Number:	
Dealer:	_
Address:	_
Phone #:	
Purchase Date:	_
Power Base (Model):	
	-(())

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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.

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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.

This user manual applies specifically to our Motion Concepts Seating 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.

A Important!

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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14150	Fax:	888-433-6834
	Tech Service:	888-433-6818

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 a potentially hazardous situation which, if not avoided, could result in significant non-reversible injury or death.



WARNING!

Warning indicates a potentially hazardous situation which, if not avoided, could result in serious personal injury, compromised safety or device damage



CAUTION!

Caution indicates a potentially hazardous situation which, if not avoided, may result in a minor injury and/or minor device damage.



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

PLEASE NOTE: This User Manual and other reference documents are available in PDFformat. 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.

1.2 Intended Use

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

- All positioning benefits associated with the tilt/recline product:

Comfort — as with any individual – able-bodied or disabled – changes in position are necessary to maintain a state of comfort.

Positioning — Individuals without adequate upper-body stability can be tilted to allow gravity to old them in position.

Pressure Relief or Reduction — Individuals who wish, from time to time, to redistribute pressure from one area of the body to another, can do so by tilting and/or reclining. By changing the individual's orientation in space, pressures caused by gravity will shift.

- **Positioning/Versatility** – individuals are able to reach higher elevations in a seated position, increasing their range of motion and accessibility.

Please be certain to review all safety warnings provided in **Section 2.0 - Safety Information**. Please also read all safety information and manuals provided (separately) with your wheelchair and wheelchair accessories, including but not limited to the **Power Wheelchair Base Owner/Operators Manual**.

1.3 Limited Warranty

Disclaimer

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.

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

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

Each Motion Concepts seating system is 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 our standard **Ultra-Low Maxx** Modular Power Positioning Systems (MPPS) and Bariatric Power Positionign System (BPPS) is located at the right rear corner of the seat frame, and at the rear of the seat frame on our narrower MPPS seat widths. Refer to **Fig. 1.0** below.



1.5 Service Life

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

READ ALL SAFETY INFORMATION THOROUGHLY BEFORE OPERATION!

Your Motion Concepts power positioning 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, Signficant Injury or Damage. Improper use of this product may cause death, significant injury or device damage

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 UL Maxx PPS 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.



DANGER! Risk of Death, Significant Injury, or Compromised User Safety.

Users that are physiologically immature and neurologically under-developed may be unable to understand safety warnings, operating instructions and device labeling,

• The user and primary caregiver must consult with their Dealer, Therapist and Physician to identify any individual limitations and needs, and to ensure the immature user is fit to operate the device.

• It is the responsibility of the Dealer and/or primary caregiver to educate immature users on the safety information/warnings, and guidelines provided here.

• It is the responsibility of the Dealer and/or primary caregiver to ensure immature users are competent to safely operate the wheelchair/power positioning system.



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 Warnings

Motion Concepts Modular Power Positioning 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.



DANGER! Risk of Death, Significant Injury or Device Damage.

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

• When operating/driving the wheelchair in a tilted and/or reclined, or elevated 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.

DANGER! Risk of Death, Significant Injury or Device Damage. Altering the mounting position or seat depth of your PPS could compromise wheelchair stability, reduce drive control and reduce traction, resulting in significant 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.



WARNING! Risk of Serious Injury or Device Damage. Missing or loosely secured hardware could result in serious injury or device damage.

· Ensure all mounting hardware is present and tightened securely

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



WARNING! Risk of Death, Significant Injury or Device 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 transferrring 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 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.

• NEVER transfer in or out of your wheelchair while in the elevated 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 Device 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.

DANGER! Risk of Death, Significant Injury or Device Damage.

By altering your seat position in the wheelchair (via power positioning functions such as tilting/ reclining/elevating), 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 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.

• 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, or elevated position.



DANGER! Risk of Death, Significant Injury or Device Damage.

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 Death, Significant Injury or Device Damage.

Operating your wheelchair with improperly set safety limits/lockouts could cause a loss of stability, resulting in damage, significant 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 power positioning system may be equipped with a reduced drive speed limit; ALWAYS be aware when this limit/lockout is engage, and proceed with caution when operating/driving your wheelchair in reduced drive speed; Travel on a smooth, level surface to ensure the wheelchair's stability is not compromised.



DANGER! Risk of Death, Significant Injury or Device Damage.

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 Death, Significant Injury or Device Damage.

Driving while on an incline could cause a loss of stability resulting in significant injury or death • 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 <u>6 degrees</u> for wheelchair travel (with the wheelchair in the upright 'home' position). (See **Section 2.2- Warnings When Travelling on Inclines**)

2.2 Guidelines for Travelling on Inclines

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.

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 Base User Manual and the Motion Concepts User Manual, the <u>lowest recommended incline angle</u> 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 the full upright and fully lowered position) **should not exceed 6**°.

Recommended Maximum Incline Angle (Ascending and Descending)

SAFETY WARNINGS WHEN TRAVELLING ON INCLINES!



DANGER! Risk of Death, Significant Injury or Device Damage. Failure to observe these warnings may result in death or significant 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, Significant Injury or Device Damage.

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

• DO NOT drive in an elevated 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 Death, Significant Injury or Device Damage.

Failure to observe these warnings when travelling on an incline may result in death or significant injury or device 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, etc..) while on an incline.
- When travelling up or down a ramp/incline, NEVER attempt to drive with power elevating leg rests in the fully extended position

• When travelling up or down a ramp/incline, ravel at a reduced, constant speed to maintain stability



DANGER! Risk of Death, Significant Injury or Device Damage. Braking hard and/or sudden stops while on inclines could cause loss of stability resulting in

death or significant 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 Death, Significant Injury or Device Damage.

Traveling on inclines with wet, slippery, icy or oily surfaces could cause a loss of traction resulting in death or significant 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 Device 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 understand the safety warnings provided in this section, as well as the other safety information identified throughout this Motion Concepts UL Maxx PPS Owners Manual; Please be certain to also read and understand the detailed safety warnings included in the **Power Wheelchair Base Owners Manual** (*provided separately*).

DANGER! Risk of death, significant injury or compromised safety.

, Users that are physiologically immature and neurologically under-developed may be unable to understand safety warnings, operating instructions and device labeling,

• The user and primary caregiver must consult with their Dealer, Therapist and Physician to identify any individual limitations and needs and to ensure the immature user is fit to operate the device.

• It is the responsibility of the Dealer and/or primary caregiver to educate immature users on the safety information/warnings and guidelines provided herein.

• It is the responsibility of the Dealer and/or primary caregiver to ensure immature users are competent to safely operate the wheelchair/power positioning system. (Prior to use, immature users must understand the function of the seating system controls, the wheelchair drive controls, and all associated safety limits/ lockouts).

• Under the supervision of the Dealer and/or primary caregiver, the immature user must demonstrate the ability to handle the wheelchair and operate the power positioning system.



DANGER! Risk of Death or Significant 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 Significant 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.

2.3.1 WARNINGS WHEN OPERATING YOUR POWER POSITIONING SYSTEM!



WARNING! Risk of Serious Injury or Device Damage The following guidelines should be adhered to while operating your Motion Concepts power positioning system to avoid serious injury or device damage, 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 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, or elevated position, OR under your power legrests while extended, otherwise damage to the system may occur.



WARNING! Risk of serious 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.



CAUTION! Risk of Injury or Device Damage or Property Damage Operating the wheelchair with insufficient ground clearance between the footplates and the ground/floor may cause injury, device damage 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.



WARNING! Risk of Serious Injury or Compromised User Safety

Not wearing your postural belt (seat positioning belt) could result in serious injury or compromised user safety.

• 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 <u>positioning strap only</u>; 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.

2.3.2 WARNINGS WHEN DRIVING YOUR POWER WHEELCHAIR!

IMPORTANT! The following section identifies several important safety warnings hat are critical to the safe operation of your power wheelchair. Prior to operating your wheelchair, please be certain to read and understand the complete list of safety warnings and transport guidelines included 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.



DANGER! Risk of Death, Significant Injury or Device Damage

Loss of traction or stability on rough or unstable terrain may result in signifcant injury or death • ALWAYS ensure the wheelchair is on a smooth level surface when driving or operating the system in a tilted or elevated 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 device damage, significant injury or death.

• ALWAYS be aware of motor vehicles when using the wheelchair.



DANGER! Driving the wheelchair outdoors, on roadways, or in areas of poor lighting may result in significant 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 Death or Significant Injury

Improper wheelchair operation may cause a loss of traction which can result in significant 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.



DANGER! Risk of death or significant 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).



DANGER! Risk of Death, Significant Injury or Device Damage 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.



DANGER! Risk of Death, Significant Injury or Device Damage 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 Serious Injury or Device Damage if the wheelchair is switched off while driving (e.g.; 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 <u>Joystick User Manual/Instructions</u> (provided separately) with your power wheelchair base).



WARNING! Risk of Serious 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 modules, always be aware of your surroundings, especially when children or pets are present.



WARNING! 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.



CAUTION! Impact with objects in the surrounding environment can result in device damage and/or minor injury

• ALWAYS check your surroundings before manoeuvering 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.



WARNING! Operating the wheelchair in rain or dampness may cause the wheelchair to malfunction electrically or mechanically, and may result in device damage or serious injury.

- 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 boot is torn or cracked, replace it IMMEDIATELY.



WARNING! Operating/Storing the wheelchair in extreme temperature conditions (below -15°C (5 F) and above 40°C (104 F)) may cause the wheelchair to malfunction electrically or mechanically, and may result in device damage or serious injury.

• 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

2.4 Transferring Guidelines



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



WARNING! Risk of Serious Injury or Device 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 Device Damage Improper transfer techniques may cause serious injury or device damage.

• NEVER transfer in or out of your wheelchair while in the elevated 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 Seating System, ensure that footplates are in a 'flipped-up' position

2.5 General Safety and Handling Warnings



DANGER! Risk of Death, Significant Injury or Device 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 significant 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.



DANGER! Risk of Death, Significant Injury or Device Damage

Misuse of the wheelchair may cause component failure and/or the wheelchair to start smoking, sparking, or burning. Device damage, significant 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.



WARNING! Risk of device 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 set-up, it is strongly recommended that the seating system be serviced by a qualified technician.



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.



DANGER! Risk of Death, Significant Injury or Device Damage

Wheelchair collisions or impact events may result in death, significant inury or device damage

• 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 you 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! Risk of Serious Injury or Device 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 Serious Injury or Device 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 1.6 - System Identification) to assist in ordering the correct replacement parts.



CAUTION! 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).



CAUTION! 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.



CAUTION! 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.



CAUTION! Risk of injury due to hot surfaces

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

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 permissable load, please contact our Technical Service Department immediately.



WARNING! Risk of Serious Injury or Device Damage

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

- 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.



WARNING! Risk of Serious Injury or Device Damage

Users may outgrow the size and weight capacity of their Power Positioning System

• It is the Dealer, Therapist, Physician and Primary Caregiver's responsibility to monitor the users growth and ensure the power positioning system is adjusted as necessary.

• It is the Dealer, Therapist, Physician and/or Primary Caregiver's responsibility to monitor the users weight to ensure it does not exceed the weight capacity limit for the power positioning system.

2.6.1 WEIGHT LIMITATION:

Weight limitation is the total weight (User weight <u>plus</u> any additional items that the user may require [ventilator, back pack, etc.]).

<u>Example</u>: If the weight limitation of the wheelchair is 300*lb*. (136*kg*) and the weight of the additional items equals 25*lb*. (11*kg*), then you must subtract 25*lb*. (11*kg*) from 300*lb*. (136*kg*); This means the maximum weight limitation of the user is 275*lb*. (125*kg*)

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 (i.e.; Tilt/Recline, Tilt/Lift, Lift-Only, etc..) and the type of power wheelchair base onto which the system/module is being interfaced.



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

Power Positioning System/PPS Module ¹	PPS Weight Capacity (see Warning! above)
MPPS Maxx Tilt (Recline), 50T Module	max 300 lb. (136 kg)
MPPS Maxx Tilt (Recline) with Vent, 50T Module	*max 225 lb. (102 kg)
MPPS Maxx Lift/Tilt Module, 45T12 Module	max 250 lb. (113 kg)
MPPS Maxx Lift-Only Module, 12L Module	max 250 lb. (113 kg)
BPPS Maxx Bariatric Tilt (Recline), HD50T Module	max 400 lb. (181kg)
BPPS Maxx Bariatric Tilt/Lift, HD45T10 Module	max 350 lb. (159kg)

***Note:** The weight of the ventillator unit has already been factored into the maximum MPPS weight capacity, however additional limitations may apply- see Important note below.



IMPORTANT! Our PPS weight capacities are 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 Device Damage.

Use of non-approved hardware may result in serious injury or damage.

• DO NOT substitute hardware. All hardware used 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 Device 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.

2.8 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 Death, Significant Injury or Device Damage.

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

• Wheelchair occupants are at particular risk of death or serious injury from these fires and resulting fumes because they may not have the ability to move away from the wheelchair.

- DO NOT smoke while using this wheelchair.
- 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.



DANGER! Risk of Death or Significant Injury.

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

- 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 Device Damage

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

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



DANGER! Risk of Death, Significant Injury or Device Damage. Pinched or severed cable(s)/harness(es) may present a shock or fire hazard and may result in death, significant injury or device damage.

• 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 Death or Significant Injury

Electric shock can cause significant 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



DANGER! Risk of Death, Significant Injury or Device Damage. 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 Power Positioning System that are not expressly certified by Motion Concepts for this purpose. Have all electrical installations performed by an authorized Dealer.



WARNING! Risk of Device Damage, Loss of Function or Compromised Device Safety Corroded electrical components due to water, liquid exposure, or incontinent users can result in device damage, loss of device function or compromised device safety

• 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.



WARNING! Risk of Serious Injury or Device 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 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. <u>NOTE</u>: 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. <u>Contact</u>:

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 positioning system.

2.11 Motor Vehicle Transportation

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warnings, and labels (provided separately) in your Wheelchair Power Base Owners Manual. wheelchair base. Please be certain to also read and understand the transportation safety instructions, is comprised of a Motion Concepts seating system and an OEM (Original Equipment Manufacturer) power transport of your mobility device in a motor vehicle. (For the purposes of this manual, the mobility device The following sections provide detailed information and safety warnings regarding Unoccupied and Occupied

2.11.1 GENERAL WARNINGS!

Concepts cannot and does not recommend any wheelchair transportation system. (mobility device) should be stored in a cargo area and/or secured in the vehicle during travel. Motion during travel and use the vehicle-manufacturer-installed restraint system. The unoccupied wheelchair Concepts position that, whenever feasible, wheelchair users should be transferred into the vehicle seat for transportation of a user while seated in a wheelchair, in a moving vehicle of any type. It is Motion As of the date of publication, the Department of Transportation has not approved any tie-down systems



WC18/IO10542 that is certified for the actual weight of the mobility device. (Consult the tie-down 400 lb (181 kg). Make certain to use an approved tie-down system compliant with AUSI/RESUA Deepste up of a mobility device (power wheelchair and seating system) can exceed Contact your vehicle's manufacturer for more information.

may result in death, significant injury or device damage DANGER! Failure to comply with the transportation safety warnings provided in this manual

- Please be certain to read and understand ALL safety warnings PRIOR to transporting your power
- recommends that you DO NOT transport it! • If you are unable to fasten your mobility device securely in a transport vehicle, Motion Concepts wheelchair/seating system (mobility device).
- to the most severe injuries and even death in the event of a traffic accident. Using a mobility device that does not meet the crash testing requirements for a vehicle seat can lead
- If you have any questions or concerns regarding the safe transportation of your mobility device in a motor.
- vehicle, please contact your Dealer/Service Provider for assistance,

WARNING! Risk of Serious Injury or Device Damage.

 DO NOT alter or substitute product parts, components or systems Alteration or substitution of OEM equipment/components may result in serious injury or device damage



WARNING! Risk of Serious Injury or Device Damage.

stop or collision may result in serious injury. Continued use of a mobility device for occupied transport after it has been involved in a sudden

• A sudden stop and/or collision may structurally damage your mobility device

beselder ed noisillos ni bevlovni esiveb vilidom Provider prior to use affer being involved in a sudden stop and/or collision. It is recommended that a A mobility device MUST be inspected for structural failure or damage by an authorized Dealer/Service

A risk of injury exists if a wheelchair power base that is not equipped with leak-proof batteries



CAUTION! Risk of Injury consent/authorization from the manufacturer



Ensure the wheelchair base uses only leak-proof batteries.



IMPORTANT SYMBOLS* ON THE MOBIITY DEVICE				
C	READ MANUAL			
ISO 7176-19	UNOCCUPIED TRANSPORT Refer to Section 2.11.2, Wheelchair Transport Brackets (TRBKTS)			
ISO 7176-19	OCCUPIED TRANSPORT (ISO 7176-19 or ANSI/RESNA WC19 Compliance) Refer to Section 2.11.3, Transport Ready Options (TRRO, TRRO-E)			

***NOTE:** Mobility device warning labels/symbols may differ slightly from those illustrated. Be certain to read the Wheelchair Transportation section of your **Wheelchair Power Base Owners Manual** (provided separately) to understand the labeling/ safety warnings specific to your power wheelchair.

2.11.2 WHEELCHAIR TRANSPORT BRACKETS (TRBKTS)

Wheelchair **Transport Brackets (TRBKTS)** are designed to secure an **UNOCCUPIED** mobility device during transport. TRBKTS provide four (4) designated anchoring points on the wheelchair.

Mobility devices configured with TRBKTS may NOT under any circumstances be used as a vehicle seat during transport. TRBKTS are labeled to indicate each of the 4 designated anchoring points used to secure the mobility device in a vehicle. (See section **2.11.5** - **Instructions for Anchoring A Mobility Device for Unoccupied Transport**). Examples of mobility device warning labels* for unoccupied transport are provided below.







***NOTE:** Tie-down warnings/labels may differ slightly from the examples shown, please be certain to read the Wheelchair Transportation section of your **Wheelchair Power Base Owners Manual** (provided separately) to understand the labeling/ safety warnings specific to your power wheelchair.



DANGER! Risk of Death, Significant Injury or Device Damage.

When travelling in a motor vehicle with TRBKTS you <u>must</u> be properly secured in a motor vehicle seat with vehicle safety belts securely fastened.

• DO NOT sit in your mobility device while it is in a moving vehicle. Although your chair is equipped with a positioning belt, this belt is not designed to provide proper restraint during motor vehicle transport.



DANGER! Risk of Death, Significant Injury or Device Damage. Improper use of wheelchair TRBKTS may result in death, significant injury or device damage.

• Wheelchair bases MUST be configured with Transport Brackets (TRBKTS) for safe transportation in a motor vehicle.

• TRBKTS have NOT been crash-tested in accordance with RESNA WC19 or ISO 7176-19, and must ONLY be used to secure an UNOCCUPIED mobility device during transport;

• Use the Transport Brackets ONLY for the purposes described in this manual, .

• NEVER allow any non-designated part of the Motion Concepts seating system to be used as a tiedown point to anchor the mobility device to the transporting vehicle.

• Use ONLY approved wheelchair tie-down systems to secure the TRBKTS at the designated/labelled anchoring points.

2.11.3 TRANSPORT READY OPTION (TRRO/TRRO-E)

The **Transport Ready Option** is designated for mobility devices that have been crash tested and approved for **OCCUPIED** transport in accordance with ANSI/RESNA WC19 or ISO 7176-19. There are two (2) Transport Ready Options (configurations) available depending on the type of seating system installed on the mobility device:

TRRO Brackets: applies to mobility devices/seating systems <u>without</u> an Elevate option. The TRRO configuration includes four (4) factory-installed transport brackets (securement points).

TRRO-E Brackets: applies to mobility devices/seating systems <u>with</u> an Elevate option. The TRRO-E configuration includes six (6) factory-installed transport brackets (securement points).

(For detailed instructions on securing TRRO and TRRO-E Brackets, refer to section **2.11.6 - Instructions** for Anchoring A Mobility Device (for Occupied Transport)).



IMPORTANT! Both Transport Ready Options (TRRO and TRRO-E) rely on vehicle anchored pelvic and upper-torso belts for safe transport. (Refer to **section 2.11.7** for detailed information on **Securing a User Within the Mobility Device for Occupied Transport**).

A mobility device designated with the 'Transport Ready Option' indicates the following:

- The mobility device has been crash tested in accordance with ANSI/RESNA WC19 or ISO 7176-19.
- The mobility device has been tested and approved for occupied transport in a motor vehicle with the original (factory installed) seating system and power base combination only.
- The mobility device has been dynamically tested in a forward-facing mode with the specified crash test dummy restrained by BOTH pelvic & upper-torso belt(s) (shoulder belts), and that BOTH the pelvic & upper torso belt(s) should be used to reduce the possibility of head & chest impacts with vehicle components.

Only mobility devices marked with the following symbols* are rated/approved for Occupied Transport.



***NOTE:** Transport Ready labels/warnings may differ slightly from the examples shown, please be certain to read the Wheelchair Transportation section of your **Wheelchair Power Base Owners Manual** (provided separately) to understand the labeling/safety warnings specific to your power wheelchair.

DDANGER! Risk of Death, Significant Injury or Device Damage.

Failure to observe and follow transport warnings and instructions for Transport Ready Option (TRRO/TRRO-E) configurations may result in death, significant injury or device damage.

• ONLY a mobility device (power base/seating system) configured and labeled with approved/tested TRRO/TRRO-E brackets can be used for occupied transport in a motor vehicle.

• Use the TRRO/TRRO-E brackets ONLY for the purposes described in this manual

• NEVER allow any non-designated part of the Motion Concepts seating system to be used as a tiedown point to anchor the mobility device to the transporting vehicle.

• Wheelchairs configured with Transport Ready Option brackets MUST be secured, at the designated anchoring points, using an approved Wheelchair Tie-Down and Occupant Restraint System (WTORS), that is in compliance with with ANSI/RESNA WC18/ISO 10542 standards

2.11.4 LOADING A MOBILITY DEVICE INTO A VEHICLE (with Occupant Seated in Chair)

To load a mobility device (power wheelchair base & seating system) into a transport vehicle, drive or push the mobility device into the transport vehicle using a suitable ramp, or load it into the vehicle using a suitable winch or platform lift. Be certain to read ALL safety warnings below PRIOR to loading the mobility device.



CAUTION! Risk of Injury or Device Damage. Mhen loading a mobility device into a vehicle for transport with the occupant seated in it, adhere to the following guidelines:

If you are unable to fasten your mobility device securely in a transport vehicle, we recommend that you
 DO NOT transport it!

The mobility device is at risk of tipping over if it is transferred to a vehicle while the user is still seated in the wheelchair. Whenever possible, transfer the mobility device to a vehicle without the occupant seated in it.

• The mobility device should always be transferred to a vehicle with the backrest in an upright position, the seat lifter lowered and the seat tilt in the upright position.

• If the mobility device 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- Guidelines for Travelling on Inclines for

the maximum recommended safe slope angle and additional safety warnings) • If the mobility device needs to be loaded using a ramp which exceeds the maximum safe slope, or if the wheelchair seat must be tilted or reclined to enter the vehicle, a winch must be used, and an attendant

As an alternative, a platform lift may be used to load the mobility device.

Ensure that the total weight of the mobility device does not exceed the maximum permissible weight
 Ensure that the total weight of the mobility device does not exceed the maximum permissible weight



CAUTION! Risk of Injury or Device Damage.

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

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

2.11.5 ANCHORING A MOBILITY DEVICE FOR UNOCCUPIED TRANSPORT

Your mobility device may be transported without restrictions, whether by road, rail or by air. However, individual transport companies have guidelines which can possibly restrict or forbid certain transport procedures. It is recommended that you consult with the transport company regarding guidelines, prior to arranging transport. To secure a mobility device (power wheelchair base & seating system) to a vehicle for unoccupied transport,

the mobility device must be configured with Transport Brackets (TRBKTS) (as per section 2.11.2).

IMPORTANT! The transporting vehicle must be professionally converted to anchor the mobility device	6
system manufacturer's documentation).	
WC18/ISO 10542 that is certified for the actual weight of the mobility device. (Consult the tie-down	
IMPORTAUT! The total weight of a mobility device (power wheelchair and seating system) can exceed 400 Ib (181 kg). Make certain to use an approved tie-down system compliant with AUSI/RESUA	Ð
IMPORTANT! Please refer to your Power Wheelchair Base Owners/Operators Manual (provided separately) for additional detailed information on anchoring the wheelchair base in a vehicle.	Ð

using a transit securement system. Contact your vehicle's manufacturer for more information.



DANGER! Risk of Death, Significant Injury or Device Damage. When travelling in a motor vehicle with TRBKTS you **must** be properly secured in a motor wohicle sates and the secured in a motor wohicle secured in a motor when the secured in a motor wohicle secured in a motor when the secured in a motor wohicle secured in a motor when the secured in a motor wohicle secured in a motor

- vehicle seat with vehicle safety belts securely fastened.
- DO NOT sit in your wheelchair while it is in a moving vehicle. Although your chair is equipped with a positioning belt, this belt is NOTdesigned to provide proper restraint during motor vehicle transport.

DANGER! Risk of Death, Significant Injury or Device Damage.

When travelling in a motor vehicle the unoccupied wheelchair must be properly secured using approved wheelchair tie-down straps.

• If you are unable to fasten your power wheelchair securely in a transport vehicle, Motion Concepts recommends that you DO NOT transport it!

• Wheelchair bases MUST be configured with approved Transport Brackets (TRBKTS) for safe wheelchair transportation in a motor vehicle.

• TRBKTS must ONLY be used to secure an UNOCCUPIED wheelchair during transport;

• Before transporting your wheelchair, make sure the motors are engaged and that the wheelchair power is switched off. It is strongly recommended that you disconnect or remove the batteries.

• Use the Transport Brackets ONLY for the purposes described in this manual.

• Use ONLY approved wheelchair tie-down straps to secure the wheelchair via the designated anchoring points (TRBKTS).

• NEVER allow any part of the Motion Concepts seating system to be used as a tie-down point to anchor the wheelchair to the transporting vehicle.

• If your wheelchair is fitted with an angle adjustable backrest, then it must be placed in an upright position.

• If equipped, height adjustable/elevating legrests MUST be fully lowered prior to transport.

• If equipped, the elevating actuator or lift module MUST be fully lowered prior to transport.

• Prior to transporting, always remove and secure any removable wheelchair accessories such as chin controls or trays.

INSTRUCTIONS FOR ANCHORING A MOBILITY DEVICE (FOR UNOCCUPIED TRANSPORT):

Mobility devices approved for Unoccupied Transport must have four (4) designated transport brackets (TRBKTS). Each securement/anchoring point will be identified on the mobility device using designated tie-down labels/ symbols (see **Fig.1** below).

- 1. Attach the tie-down straps* to the designated anchoring points (**A**) in accordance with the manufacturer's instructions.
- 2. Secure the tie-down straps to the vehicle (not shown) in accordance with the manufacturer's instructions. *NOTE: Use only approved tie-down systems (snap hooks or belt loops) for fixation.

Fig. 1 Examples of TRBKTS and Labeling.



NOTE: Tie-down symbols/warning labels for unoccupied transport may differ slightly from the examples shown, please be certain to read the Wheelchair Transportation section of your **Wheelchair Power Base Owners Manual** (provided separately) to understand the labeling/ safety warnings specific to your power wheelchair.

2.11.6 ANCHORING A MOBILITY DEVICE FOR OCCUPIED TRANSPORT

NOTE: It is Motion Concepts position that the user should be transferred into the vehicle seat during travel and use the vehicle-manufacturer-installed restraint system whenever feasible. The unoccupied wheelchair (mobility device) should be stored in a cargo area and/or secured in the vehicle during travel.

If it is necessary to secure a mobility device to a vehicle for occupied transport- Only a mobility device (power wheelchair base and seating system) configured with TRRO or TRRO-E brackets (per section **2.11.3**), and tested for compliance with ANSI/RESNA WC19 or ISO 7176-19, is approved fo use as a vehicle seat for transport.

IMPORTANT! A mobility device that has been approved for use as a vehicle seat has been dynamcially tested in accordance with ANSI/RESNA WC19 or ISO 7176-19, and has been designed and tested for use only as a forward facing seat in a motor vehicle. The anthropomorphic test dummy was secured using both pelvic and shoulder safety belts. Both pelvic and shoulder belt restraints should be used to reduce the risk of impact injuries to the head and/or upper body. (Refer to section **2.11.7** for detailed information on **Securing a User Within the Mobility Device for Occupied Transport**)

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IMPORTANT! The transporting vehicle must be professionally converted to anchor the mobility device using a transit securement system conforming to ANSI/RESNA WC19/ISO 7176-19 standards. Contact your vehicle's manufacturer for more information.

IMPORTANT! The mobility device must be secured using a Wheelchair Tie-Down and Occupant Restraint System (WTORS), consisting of a 4-point (or 6-point) strap-type tiedown, and vehicle-anchored three-point belt restraint, that complies with RESNA WC-18 or ISO 10542-2.

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

DANGER! Risk of Death, Significant Injury or Device Damage Crash Testing has NOT been conducted for all combinations of Motion Concepts seating systems and OEM wheelchair bases

• ONLY combinations of Motion Concepts Seating Systems and OEM (Original Equipment Manufacturer) power wheelchair bases that have been tested to the requirements of ANSI/RESNA WC19 or ISO 7176-19, may be used as a vehicle seat or to transport the user in a vehicle.

• Using a mobility device that does not meet the crash test requirements for a vehicle seat can lead to the most severe injuries and even death in the event of a collision

• Only mobility devices marked with the following symbols* are rated/approved for Occupied Transport



***NOTE:** Transport Ready labels/warnings may differ slightly from the examples shown, please be certain to read the Wheelchair Transportation section of your **Wheelchair Power Base Owners Manual** (provided separately) to understand the labeling/safety warnings specific to your power wheelchair.

DANGER! Risk of Death, Significant Injury or Device Damage

Safety restraint devices must only be used when the wheelchair user's weight is 51 lb (23 kg) or more.
When the user weight is less than 51 lb (23 kg), DO NOT use the wheelchair as a seat in a vehicle.



DANGER! Risk of Death, Significant Injury or Device Damage

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

• The actual weight of some power wheelchair systems can exceed 400 lb (181 kg). Make sure to use a 4-point or 6-point wheelchair tie-down and occupant restraint system (WTORS) approved in accordance with ISO 10542 or RESNA WC18, and certified for the actual weight of the power wheelchair. Consult the WTORS manufacturer's documentation.

DANGER! Risk of Death, Significant Injury or Device Damage

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

• When possible, it is strongly recommended that the user leave the mobility device to use a vehicle seat and the safety belts provided with the vehicle.

• Use ONLY approved WTORS (compliant with ANSI/RESNA WC18 or ISO 10542) to secure the mobility device using the designated TRRO/TRRO-E anchoring points.

• 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 operator manuals from the wheelchair base manufacturer and the Wheelchair Tie-Down and Occupant Restraint System (WTORS).

• Before transporting your wheelchair, make sure the motors are engaged and that the wheelchair power is switched off. It is strongly recommended that you disconnect or remove the batteries.

• We strongly recommend securing the wheelchair to the floor of the transporting vehicle.

• NEVER allow any non-designated part of the seating system to be used as a tie-down point to anchor the wheelchair to the transporting vehicle.

• ALWAYS remove and secure separately, any removable wheelchair parts/accessories such as chin controls or trays.

• If your wheelchair is fitted with an angle adjustable backrest, then it must be placed in an upright position.

• If equipped, height adjustable/elevating legrests MUST be fully lowered prior to transport.

• If equipped, the elevating actuator or lift module MUST be fully lowered prior to transport.

INSTRUCTIONS FOR ANCHORING A MOBILITY DEVICE FOR OCCUPIED TRANSPORT:

Mobility devices approved for Occupied Transport must have designated TRRO/TRRO-E tie-down brackets. Each designated securement/anchoring points and the mobility device will be identified using the designated Transport Ready labeling/symbols (refer to examples illustrated **Fig.1** below)

NOTE: 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 are compliant with ISO 10542 or RESNA WC18.

- 1. Secure the mobility device with the WTORS at the following locations:
 - a. <u>All Wheelchairs</u> 4 designated tie-down points (A) on the wheelchair base (2 at the front and 2 at the rear).

b. <u>Systems with Elevate</u> (TRRO-E) - 2 additional tie-down points (**B**) are required on either side of the seat at the front of the seat rails.

- 2. Attach/secure the WTORS (tensioning belts) to the tie-down brackets in accordance with the manufacturer's instructions.
- 3. Secure the WTORS to the vehicle (not shown) in accordance with the manufacturer's instructions.

Fig. 1 Examples of TRRO/TRRO-E Tie Down points.



NOTE: Your power wheelchair base and/or and seating system, as well as the device labelling may differ from those illustrated above. If you have any questions/concerns whether your mobility device is approved for Occupied Transport, please contact Motion Concepts for assistance. **CAN** 866-748-7943 **USA** 866-433-6818

2.11.7 SECURING A USER WITHIN THE MOBILITY DEVICE FOR OCCUPIED TRANSPORT

NOTE: It is Motion Concepts position that the user should be transferred into the vehicle seat during travel and use the vehicle-manufacturer-installed restraint system whenever feasible. The unoccupied mobility device (seating system/power base) should be stored in a cargo area and/or secured in the vehicle during travel.

In order to safely transport a user seated in a mobility device, the following requirements MUST be met:

• The mobility device must be tested for compliance with RESNA WC19 or ISO 7176-19; and

• The mobility device and end user must be secured in the vehicle using a Wheelchair Tie-Down and Occupant Restraint System (WTORS), consisting of a 4-point (or 6-point) strap-type tie down, and vehicle-anchored three-point belt restraint, that complies with RESNA WC-18 or ISO 10542.

DANGER! Risk of Death, Significant Injury or Device Damage

Risk of significant injury or death if the user is not properly secured within the mobility device

A postural belt is no substitute for an approved safety belt restraint. NEVER use a postural support belt as an occupant restraint in a moving vehicle; use only an approved 4-point or 6-point WTOR System
Belt restraints should be in contact with the user's shoulder, chest and pelvis. They must not be held at a distance away from the user's body by parts of the mobility device such as armrests or wheels.

- Belt restraints must be pulled as tightly as possible without causing the user discomfort.
- Belt restraints/webbing must not twisted when in use.

• Ensure that the third seat belt anchorage point is not fixed directly to the vehicle floor, but to one of the vehicle uprights.



WARNING! Risk of Serious Injury

Risk of serious injury during use of the mobility device as a vehicle seat if a headrest is improperly adjusted or not installed

• A headrest must be installed on the seating system. (Headrests options available from Motion Concepts are suitable for use during transport).

- Improper headrest set-up can cause the neck to be hyperextended during collisions.
- Ensure the headrest is adjusted to the user's ear height- see Fig. 1 below

SECURING THE USER FOR TRANSPORT IN THE MOBILITY DEVICE:

NOTE: The user must be secured using an Occupant Restraint Systems (WTORS) that has been installed in accordance with the manufacturer's instructions and is compliant with ISO 10542 or RESNA WC18.

1. Belt restraints must NOT be held at a distance away from the user's body by components on the mobility device such as armrests or wheels (see *Fig. 2*). Belt restraints should make contact with the shoulder, chest and pelvis

2. The pelvic-belt restraint should be worn low across the front of the pelvis, so that the angle of the pelvicbelt restraint is within the preferred zone of 30° to 75° to the horizontal. The ideal angle of the pelvic belt to the horizontal is between 45° and 75° . The angle should never be less than 30° . (see **Fig. 3**)



- 3. The shoulder belt restraint should be positioned over the shoulder as illustrated in Fig. 4.
 - Center line of the body (1)
 - Center of the sternum (2)



4. Care should be taken when applying the occupant restraint to position the seat belt buckle so that the release button will not be contacted by wheelchair components during a crash.

2.12 Technical Data

Our Motion Concepts Power Positioning Systems can vary significantly depending on the type of positioning system/module, the number of functions, and the type of accessories installed onto the system. The following section is provided to illustrate the overall range of dimensions for our power positioning systems, taking into account the various positioning options offered by Motion Concepts

IMPORTANT! The following dimensional information is provided for the Motion Concepts power positioning systems only. It does <u>not</u> include the power wheelchair base.

2.12.1 ULTRA-LOW MAXX POWER POSITIONING SYSTEMS (MPPS):

Parameters and Overall Dimensions (50T/45T12/12L):



UL MAXX MPPS Tilt/ Recline/ LNX Legrest

Accessories Shown: Rehab Back 2-Pt. Recline Arms Modular Arm Pads Maxx Trunk Supports WBH, 14" Headrest Maxx Hip Supports Libra Cushion



*NOTE: The TILT/LIFT(45T12) MODULE (not shown) has a Maximum Tilt Angle of 45°

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2.12.2 ULTRA-LOW MAXX BARIATRIC POWER POSITIONING SYSTEM (BPPS):

Parameters and Overall Dimensions (HD50T, HD45T10)





Note: All dimensions are +/- .50 inches unless otherwise indicated

3.0 PROGRAMMING AND OPERATING YOUR WHEELCHAIR



PLEASE READ ALL INSTRUCTIONS THOROUGHLY BEFORE OPERATING YOUR WHEELCHAIR and POWER POSITIONING SYSTEM

3.1 Programming your Wheelchair/ Power Positioning System

IMPORTANT! For detailed information on operating and configuring your power wheelchair base and/or joystick, please consult the **Joystick Operators Manual** and/or the **Power Wheelchair Base Owners Manual** - *provided separately by the power base manufacturer*.



Can I Modifiy the Program Settings for my Power Positioning System?

For safety purposes, programming 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.



DANGER! Risk of Death, Significant Injury or Device Damage

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

• 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, Compromised Safety or Device Damage Changes to the drive program can affect the driving characteristics & performance 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.



WARNING! Risk of Serious Injury or Compromised Safety Continued use of the wheelchair that is not set to the correct specifications may cause erratic

behavior of the wheelchair resulting in serious injury or compromised user safety
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 WHEELCHAIR JOYSTICK:

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 <u>M270 Remote Attendant Control</u> 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 togglemode depending on the number of functions installed, and/or the preference of the end user. (For instructions on how to operate your seating 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, compromised user safety or device damage

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


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

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



WARNING! An improperly connected joystick could cause sudden loss of power resulting in serious injury or compromised user safety

• Ensure the joystick is securely connected to the controller.

3.1.2 PROGRAMMING A SEPARATE TRX SWITCH

A specialized hand-held programmer may be required to program the seating functions into the TRx switch control. The <u>M270 Remote Attendant Control</u> 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. (For detailed instructions on how to operate your Seating System using a separate switch, please refer to **Section 3.5**).



DANGER! A malfunctioning switch could cause unintended/erratic movement resulting in death, significant injury or device 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, compromised user safety or device damage

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

3.2 Understanding Your Powerbase Joystick:

The model of the remote/joytsick installed on your Motion Concepts Power Positioning System will vary depending on the type of wheelchair powerbase, the type of seating system installed and the complexiity of joystick options selected at the time of order. The following section identifies some common joystick options available. For more detailed information on your specific remote/joystick, please refer to the **OEM Remote/Joystick Operators Manual** *(provided separately)*.

3.2.1 COMMON REMOTE/JOYSTICK OPTIONS:

I. IVC-LINX (EXPANDABLE) REMOTES/JOYSTICKS:



II. IVC-LINX ENHANCED REMOTES/JOYSTICKS



III. RNET LCD REMOTES/JOYSTICKS:



IV. RNET LCD ADVANCED JOYSTICK:



3.2.2 WHEELCHAIR DRIVE CONTROLS:

IMPORTANT! The following section covers instructions for basic wheelchair drive controls. Please read through the **OEM Remote/Joystick Operators Manual** and/or the **Powerbase Owner's Manual** (each provided separately) for more detailed safety, operating and troubleshooting instructions .



DANGER! Risk of Death, Significant Injury, or Device Damage.

A malfunctioning joystick could cause unintended/erratic movement resulting in death, significant injury or device damage

• If unintended/erratic movement occurs, stop using the wheelchair immediately and contact a qualified technician.



WARNING! Risk of Serious Injury or Compromised Safety An improperly connected joystick could cause loss of power resulting in serious injury or compromised user safety

• Ensure the joystick harness is securely connected to the controller.



DANGER! Risk of Death, Significant Injury, or Device 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:

Joysticks are designed to function as the wheelchair drive control when the joystick is set to **Drive Mode** (or **Drive Profile Mode**). The number of drive modes/drive profiles will vary depending on the type of joystick installed. Use the Drive Mode/Drive Profile Select button (1) to scroll through the available drive profiles- see examples provided below. 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 via the **Speed Control Adjustment (2)** on the joystick remote.

In Drive Mode, the Joystick Control (3) is used to drive, steer and stop the wheelchair. 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.



(ENHANCED, TOUCHSCREEN DISPLAY)

speed control display speed control display ©11: Profile 5 **Drive Profile Indicator** (There are 5 pre-programmed Drive Profiles available) $(\mathbf{2})$ 1 Joystick Joystick (Drive) Control (Drive) Control **RNET LCD JOYSTICK** RNET LCD ADVANCED JOYSTICK

e.g. RNET LCD JOYSTICK DISPLAYS (IN DRIVE MODE)

3.2.3 POWER POSITIONING SYSTEM CONTROLS:



IMPORTANT! The following section covers instructions for basic power seating system controls through the joystick/remote. Please read through the **OEM Remote/Joystick Operators Manual** (provided separately) for more detailed safety, operating and troubleshooting instructions.

POWER SEATING MODE:

The power positioning functions available on your UL Maxx Power Positioning System may be programmed to operate through the 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 typically appear in the joystick displaysee examples provided below. The activated power seating function will be highlighted/indicated on the joystick display along with a description of the seating function (2) (*i.e.; Tilt, Recline, 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. (For instructions on how to operate your Seating System using the joystick control, please refer to Section 3.4).

For a detailed summary of each of the power positioning functions available on our UL Maxx PPS please refer to **Section 3.3- Understanding your Power Positioning Functions**.

Note: to return the joystick display back to Drive Mode, re-press the applicable Mode Select Button or Drive Mode Select button.



e,g. IVC-LINX REMOTE DISPLAYS (IN POWER SEATING MODE):

e.g. RNET LCD JOYSTICK DISPLAYS (IN POWER SEATING MODE):



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.



DANGER! Risk of Death, Significant Injury, or Device Damage.

• Be certain to read through Section 2.0- Safety Information, <u>PRIOR</u> to operating your Modular Power Positioning 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 TILT FUNCTION

The Tilt function is designed to allow for a center of gravity (CG) shift as the power positioning 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:

NOTE: The maximum tilt angle will vary depending on the type of modular sub-system installed:

50T (MPPS) and HD50T (BPPS) Modules: 45T12 (MPPS) and HD45T10 (BPPS) Modules: Tilt Angle Range = up to 45° (max.)

Tilt Angle Range = up to **50°** (max.)

TILT - LOCKOUTS & LIMITS:

Our seating systems are programmed with a Drive Lockout (DLO) and an (optional) Reduced Drive Speed Limit (RDS) limit. The DLO limit prevents 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 RECLINE FUNCTION

The Recline function allows the seat-to-back angle on the power positioning system to be infinitely adjusted within an established recline range

RECLINE RANGE OF TRAVEL

NOTE: The maximum recline angle will vary depending on the type of modular sub-system installed:

50T and 45T12 (MPPS) Modules:	Recline Angle Range = from 93° up to 168° (max.)
HD50T and HD45T10 (BPPS) Modules:	Recline Angle Range = from 93° up to 150° (max.)



NOTE: 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.

RECLINE - LOCKOUTS & LIMITS:

Our seating systems are programmed with a **Drive Lockout (DLO)** and an (optional) **Reduced Drive Speed Limit (RDS)** limit. The DLO limit prevents the wheelchair from being driven when the seating system is Reclined (or Tilted)) 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.

3.3.3 ELEVATE FUNCTION

The ELEVATE function allows the power positioning system to be raised up above the lowest seat-to-floor height of the seating system.

DANGER! Risk of compromised stability resulting in death, significant injury, or device damage

• 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

- 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:

NOTE: The maximum range of seat elevation will vary depending on the type of modular sub-system installed:

12L and 45T12 (MPPS) Modules:	Elevated Seat Range = up to 12" (31cm) (max.)
HD45T10 (BPPS) Modules:	Elevated Seat Range = up to 10" (26cm) (max.)

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 <u>Elevated</u> 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 returned to its home position*).



IMPORTANT! The seating system MUST be in the <u>home</u> position PRIOR to elevating -see section **4.3.4 Elevating Seat Lockout Switch**. Once elevated, the Tilt and Recline functions may be further limited based on the weight of the end user. The established DLO limits will also remain in effect.

3.3.4 FRONT RIGGINGS (LEGRESTS)

Our power positioning systems may be configured with a wide range of Power and Manually operated front riggings/legrests to help secure and position the end users legs. Motion Concepts offers an wide range of legrest models, including individual legrests and center-mounted legrests/foot platforms, each with their own unique features and adjustments. Legrest features include calf pad options, footplate options, and knee-to-heel length adjustments. (Detailed adjustment/set-up instructions for standard legrest options are provided in Sections 5.11, 5.12).



CAUTION Risk of Injury or Device 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.

LEGREST RANGE OF TRAVEL:

The range of travel for Motion Concetps will differ depending on the type of legrest installed and the initial (starting) angle of the legrest in its home/fully etracted position.

LEGREST - LOCKOUTS & LIMITS

A ground clearance limit may be required on certain front riggings if there is insufficient ground clearance in the fully lowered position. A <u>Drive Lockout (DLO) Limit</u> will be set for footplates that can be lowered to less than 1" above the ground. A <u>Reduced Speed Drive (RDS) Limit</u> will be set for footplates that can be lowered to less than 3" above the ground but not less than 1" above the ground.

3.3.5 ADDITIONAL (OPTIONAL) POWER POSITIONING FUNCTIONS

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

POWER SLIDING BACK (PSB): PSB (power sliding back) allows the back pan to be adjusted vertically (up and down) as a separate seating function, independent of recline and/or in synchronization with recline.

LATERAL TILT: Lateral tilt modules enable a UL Classic (MCT) system to tilt laterally (from side to side) in either direction for pressure relief.

ANTERIOR ASSIST: Anterior assist is available with our UL Classic (MCT) systems and offers limited anterior tilt about a fixed axis. The rear position of the seat remains constant while the front lowers 5°- 10°.

ANTERIOR TILT: A separate power module designed to allow up to 45° of anterior tilt, while maintaining full posterior tilt capabilities (up to 45°). The rear of the entire system (ie: tilt or tilt/recline) is raised.

3.4 Operating the Power Positioning System - Thru the Joystick



DANGER! Risk of Death, Significant Injury, or Device Damage.

• Be certain to read through **Section 2.0- Safety Information**, <u>PRIOR</u> to operating your Power Positioning 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**, <u>BEFORE</u> operating your power positioning system for the first time.



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



Read ALL instructions thoroughly before operating your Power Positioning System.

In order to operate the power positioning system with the Joystick/Remote, put the the joystick into '**Power Seating Mode**', and scroll to select the desired power seating function on the joystick screen/display. To activate a power seating function, <u>press and hold</u> 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 <u>direct-mode</u> or <u>toggle-mode</u>. The following section illustrates the standard (factory default) configuration for thru joystick operation of our Power Positioning Systems.



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 I button (1) on the remote to switch the wheelchair/joystick into Seating Mode.

2. Press the joystick control to the left or right (2), to scroll through all the available power positioning options until the TILT function is highlighted in the display.

3. To tilt the seat <u>back</u>, *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 <u>forward</u>, *push forward* on the joystick control (**4**). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.

e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)



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 (**2**), or swipe left or right on the touchscreen, to scroll through all the available power positioning options, until the RECLINE function is highlighted in the display.

3. To recline the seat <u>back</u>, *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 <u>forward</u>, *push forward* on the joystick control (**4**). Hold the joystick control until you reach the desired position/angle; Release the joystick control to stop.

e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)



3.4.4 ELEVATE FUNCTION - THRU JOYSTICK

ELEVATE INSTRUCTIONS:

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

1. Press the Mode I button (1) on the remote to switch the wheelchair/joystick into Seating Mode.

2. Press the joystick control to the left or right (2), to scroll through all the available power positioning options until the ELEVATE function is highlighted in the display.

3. To <u>raise</u> 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 <u>lower</u> 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.

e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)



3.4.3 POWER LEGREST FUNCTION - THRU JOYSTICK

POWER LEGREST INSTRUCTIONS:

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

1. Press the Mode I button (1) on the remote to switch the wheelchair/joystick into Seating Mode.

2. Press the joystick control to the left or right (2), to scroll through all the available power positioning options until the LEGS function is highlighted in the display.

3. To extend the legrest <u>outward</u>, *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 <u>inward</u>, *push forward* on the joystick control (4). Hold the joystick control until you reach the desired legrest position; Release the joystick control to stop.

e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)



(optional) scroll thru seating functions via touchscreen

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3.0 OPERATING/PROGRAMMING the WHEELCHAIR/SEATING SYSTEM



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

Our power positioning systems use a programmable Tipsy 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** - **Tipsy Angle Sensor** for more detailed information on the recommended safety limit settings.

When operating your Power Positioning 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 INDICATORS:

The Reduced Drive Speed (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 adjusted into an elevated position.



e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)

When the seating system/wheelchair enters into reduced drive speed, the **RDS SYMBOL** will flash temporarily on the joystick screen display, and will remain visible in the upper right corner of the screen display. The RDS symbol remains visible whether the remote is in <u>Seating Mode</u> (1) or in <u>Drive Mode</u> (2).



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

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

II. DRIVE LOCKOUT INDICATORS:

The DLO limit prevents the wheelchair from driving when the seating system is tilted and/or reclined beyond a safe operating angle/position.

e.g. IVC REM400 REMOTE/JOYSTICK (ENHANCED, TOUCHSCREEN DISPLAY)



When the seating system/wheelchair enters into drive lockout, the **DLO SYMBOL** will flash temporarily on the joystick screen display, and will remain visible in the upper right corner of the screen display in <u>Seating Mode</u> (1). In <u>Drive Mode</u> the DLO Symbol remain will remain fully visible in the center of the screen display, as well as in the upper right corner (2).



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

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

NOTE: In order to return the wheelchair to <u>normal</u> drive speed, the affected power positioning function (*Tilt/Recline/Elevate*) must be returned to its established 'HOME' position. (The RDS and/or DLO Symbols are not visible on the joystick display when the seating system is in the safe operating/ 'HOME' position).

3.5 Operating the Power Positioning System Thru a Separate Switch

Motion Concepts offers a wide range of manually operated push buttons and toggle switches that may be utilized to operate specific motor functions on the power positioning system. *(see 3.5.1 below)*. **To activate a motor/seat function using a separate TRx switch:** simply <u>press and hold</u> the designated push button or toggle switch. The function will stop when the button is released.

IMPORTANT! The Joystick/Remote MUST be powered on to enable the designated Switch Controls

3.5.1 PUSH BUTTON/TOGGLE SWITCH OPTIONS:

Single Dual **Push Button Switches** (w/ slotted mounts) Feather Touch (quarter size) Standard dime sized push button switches are available in single, Single dual (2) and quad (4) button configurations. Optional feather touch push buttons are also available in the same configurations, along with an additional guarter sized single switch option (as shown). Two buttons are required to operate a seat function in "Direct" mode, and one button is required to operate a function in "Toggle" mode. Quad **Single Toggle** (w/ LED indicator) The single toggle switch is capable of operating one function in "Direct" mode and two functions in "Toggle" mode. **Heavy Duty Toggle** The heavy duty toggle switch utilizes a large top mounted toggle that is capable of operating one function in "Direct" mode and two functions in "Toggle" mode. The heavy duty toggle is not equipped with an LED indicator. **Dual Toggle** (w/ LED indicator) The dual toggle switch is capable of operating two functions in "Direct" mode and four functions in "Toggle" mode. IFD 4-Way Toggle (w/ LED indicator) The 4-way toggle switch is capable of operating two functions in "Direct" mode and four functions in "Toggle" mode. IFC LED 8-Way Switch (w/ LED indicators)

The 8-way switch control is capable of operating four functions in "Direct" mode and up to eight functions in "Toggle" mode.

3.5.2 CONFIGURING THE SEAT CONTROLS: DIRECT MODE VS. TOGGLE MODE

TRx Push Buttons, Toggle Switches and Joysticks can be configured to operate in "Direct" mode or "Toggle" mode. Motion Concepts power positioning systems are typically programmed at the factory to meet customer specifications. Changes to the original switch configurations should only be performed by a Qualified Technician.

- i) **Direct Mode:** *two switches or opposite joystick directions* are required for each function, one for each motor direction.
- ii) Toggle Mode: only one switch/button or one joystick direction is required for each motor function. In this mode, pressing the switch/joystick once will activate the function; releasing the switch/joystick, waiting for 2 seconds, then pressing it again will cause the reverse direction of the function to occur.

Tables A. and **B.** below show a comparison of Direct Mode vs. Toggle Mode when using a TRx Switch and/ or Joystick to control the Tilt function on a power positioning system.

Table A: e.g.; Using a TRx SWITCH to control the TILT function:	
DIRECT MODE	TOGGLE MODE
<u>Press & Hold</u> the assigned 'tilt back' switch/button to tilt the seat backward (1). Push the opposite switch/button to tilt the seat forward (2).	<u>Press & Hold</u> the assigned tilt switch/button to tilt the seat backward (1). Release the switch/button, pause 1-2 sec., then push the <u>same switch/button</u> (1) to tilt the seat forward. (<i>This configuration allows the second switch/button to be used for a different power positioning function (e.g. Recline)).</i>
e.g. Tilt Function in Direct Mode	e.g. Tilt Function in Toggle Mode



3.5.3 8-WAY SWITCH SAFETY INDICATORS (FOR Reduced Drive Speed & Drive Lockout):

Our Power Positoning Systems uses a programmable Tipsy Angle Sensor to set the 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 Tipsy Angle Sensor** for more detailed information on the recommended safety limit settings.

When operating your seating 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 function. When the seating 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 seating system is in drive lockout, the LED indicator lights are "**Solid RED**".



8-WAY SWITCH CONTROL

***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 Seating System is in the 'Home' position, the LED indicator lights remain **GREEN**).

3.6 Specialty Controls

Your wheelchair base and your Motion Concepts power positioning systems may be configured to operate via specialty controls such as a **Head Array, Sip** 'n **Puff Control, Mini-Proportional Joystick,** etc... If your seating system is configured with a specialty control device, please refer to the Owners/Operators Manual (provided by the device manufacturer) for detailed operating and programming instructions.

NOTE: Most Motion Concepts power positioning systems can be configured to operate with specialty controls if required. Please contact our Customer Service Department for additional information.

Your Motion Concepts power positioning 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.



DANGER! Risk of Death, Significant Injury or Device Damage Incorrect programming and set-up of this wheelchair performed by users, caregivers or unqualified technicians can result in death, significant injury or device 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.

Motion Concepts uses state of the art electronics to operate our power positioning systems and ensure the safe operation of your wheelchair seating system. Each power positioning system is configured with our **M-Series** Electronics. The type and number of electronic components will vary depending on the complexity of the seating system, the type of powerbase onto which the system is installed, and the specific needs of the end user. Our Motion Concepts electronics are designed to interface with all power base electronics platforms and specialty drive controls – including LiNX, RNet, Q-Logic, and DX2

There are three key components common to all our electronics: **Seat Control Boxes**, **Wiring Harnesses** and **Limit Switches/Sensors**. This chapter provides information and instructions related to each of the key electronic components.

4.1 Seat/Actuator Control Boxes

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..*).

4.1.1 M-SERIES SEAT CONTROL BOXES

I) BASIC ELECTRONICS:

For basic single or dual function seating systems, Motion Concepts offers the **M230R seat control.** Our basic seat control box is more limited in its programming capabilities. The M230R is programmed using a series of external dip switches, which are configured according to the available actuator/motor functions.





Single or Dual Function Box

II) ENHANCED ELECTRONICS:

Motion Concepts enhanced M-Series seat control boxes are designed for maximum programmability and function, which in turn allows for more simplified wiring of our seating systems. The enhanced electronics include the **M620 series** (multi-function) seat control boxes (*3 to 6 functions*), and the **M216 series** seat control boxes (*for single or dual functions*).

All enhanced seat control boxes come standard with our **M270 Remote Attendant Control**. The 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. *(refer to the following Feature Overview (p.32) for more detailed programming information).*

***NOTE:** M270 Program Options are accessible only to qualified Technical Service personnel (password protected). If you require programming changes beyond your existing set-up, please contact your authorized Dealer or Healthcare provider for assistance.



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.

III) M270 REMOTE ATTENDANT CONTROL: FEATURE OVERVIEW

• **Attendant Controls**- the M270 Remote operates as an attendant control (and LED display) utilizing the touch switches to scroll through and operate the desired motor functions on the power positioning system (see section *ii.* below).

• **Motor Speed Control**- The remote allows the individual actuator speeds to be adjusted/set independently for both Forward and Reverse directions (*see section ii. below*).

• **Configuring Switches & Joystick Functions**¹- The installed operator switches and/or joystick (ASM) 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 Tipsy Sensor to set the necessary safety limits and lockouts on the power positioning system (see Section 4.3)

• **LED Indicator Light**- an external LED light on the remote attendant control serves as a visual indicator to the position/ status of the seating system with respect to safety limits and lockouts:

Green Light = indicates that seating system is in the Home position;

Flashing Green = indicates that seating system is Out of Home;

Flashing Red = indicates that a Tilt/Recline and/or Elevating system is in Reduced Drive Speed (RDS); **Red Light** = indicates the seating system is in Drive Lockout (DLO).

1NOTE: Programming access into the M270 Remote is password protected. Programming of our M-Series seat controls using the M270 Remote Attendant Control) may only be performed by a Qualified Technician.

4.1.2 OPERATING YOUR M270 REMOTE ATTENDANT CONTROL



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In **Standard Mode** the M270 Remote Attendant Control functions as an attendant control switch/display for the power positioning system.



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

I) M270 ATTENDANT CONTROL - OPERATING THE MOTOR FUNCTIONS

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

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

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



II) ATTENDANT CONTROL - ADJUSTING THE MOTOR SPEED

NOTE: Motor speeds may be adjusted <u>independently</u> while in standard mode. The '**Exit/Back**' and '**Select/Save**' buttons function as '**SPEED DOWN**' and '**SPEED UP**' while operating a motor function.

1. Select the motor function and direction you wish to adjust.

2. To decrease the motor speed, press the <u>SPEED DOWN</u> button (left) while **simultaneously** pressing the motor function/direction button (**1**).

3. To increase the motor speed, press the <u>SPEED UP</u> button (right) while **Simultaneously** pressing the motor function/direction button (2).



Speed Up

e.g. Adjusting 'Tilt Backward' speed

Decrease Motor Speed





4.2 Wiring Harnesses

TILT

BACKWARD

Wiring Harnesses can be split into two categories: **Power Cables** and **Motor/Actuator Harnesses**. In the case of <u>power cables</u>, 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 <u>actuator harnesses</u> 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 Lockout and Limit Switches



IMPORTANT! Programming of the **Tipsy Angle Sensor** (via the M270 Remote Attendant Control) may only be performed by a Qualified Technician. Program access into the M270 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.



DANGER! Risk of Death, Significant Injury, or Device Damage.

• The angle at which the limit switches/lockouts are set is **critical** to the safe operation of your Power Positiing System. Improper set-up may result in significant 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.



DANGER! Risk of Death, Significant Injury, or Device Damage.

Operating the wheelchair with the seat back angle position beyond the recommended drive lock-out (DLO) angle can cause instability resulting in death or significant injury from the wheelchair tipping over.

• For wheelchair systems programmed <u>WITH reduced drive speed</u>, the maximum recommended <u>DLO</u> angle is 30° (refer to **Section 4.3.1**)

• For wheelchair systems programmed <u>WITHOUT reduced drive speed</u>, the maximum recommended <u>DLO angle is 25°</u> (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.



DANGER! Compromised wheelchair stability may result in death, significant injury or device damage
When operating/driving the wheelchair in a tilted and/or reclined or elevated position, ensure the wheelchair is on a smooth level surface (even at reduced speed).



WARNING! Risk of Serious Injury or Compromised User Safety

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



DANGER! Risk of Death or Significant Injury if 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 Compromised User Safety

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



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

4.3.1 TILT/RECLINE DRIVE LOCKOUT (DLO) LIMIT

All tilt or recline power positioning systems are equipped with a **Drive Lockout (DLO**) Limit to prevent the wheelchair from being driven when the seating system is <u>tilted</u> or <u>reclined</u> beyond a pre-determined safe angle. The DLO limit is configured using a programmable Tipsy Angle Sensor (see section 4.3.6).

Note: The **Tipsy Angle Sensor** offers a <u>reduced drive speed</u> setting that will trigger the wheelchair base to drive at approx. 25-30% of its maximum speed when the back angle extends beyond the home position. Reduced Drive Speed is typically set to engage between <u>10-20</u>° and will stop when the Max DLO limit is reached)



4.3.2 ELEVATE REDUCED DRIVE SPEED (RDS) OR ELEVATE DRIVE LOCKOUT (DLO) LIMIT

Seating systems that are configured with a Lift-Only module (12L) or a Tilt-Lift module (45T12 or HD45T10) may be configured with either a **Reduced Drive Speed** (RDS)* Limit or an **Elevate Drive Lockout (DLO)** Limit. Both limits utilize a microswitch to trigger the seating system into DLO or RDS as soon as the seating system is elevated beyond the home (fully lowered) position.

*NOTE: Reduced Drive Speed is the default setting





DANGER! Risk of Death, Significant Injury, Compromised Stability or Device Damage.

- **Always** ensure the wheelchair is on a smooth level surface when driving in an elevated and/or tilted and/or reclined position (even at reduced speed).
- Never drive up or down an incline while elevated, tilted or reclined.
- Never reach for items/objects, or shift body position (in any direction) while in an elevated position.
- Never transfer in or out of your wheelchair while elevated.

4.3.2 ELEVATE REDUCED DRIVE SPEED LIMIT OR ELEVATE DRIVE LOCKOUT (DLO) (...cont'd)



NOTE: To regain full drive function of the wheelchair, return the seat angle to a more upright position (when Tilt/Recline DLO is activated), or lower the seat to its home position (when Elevate DLO/ Elevate Reduced Drive Speed is activated).

4.3.3 MAXIMUM TILT (TILT/RECLINE) LIMIT

The Max. Tilt limit establishes the maximum back angle for the seating system at full Tilt or Recline or Tilt/ Recline combined. The function of this limit is to prevent the back angle from extending beyond the maximum recommended angle. Motion Concepts seating systems are typically preset at the factory to the maximum allowable angle and do not require any further adjustment unless the max. angle needs to be decreased.



CAUTION! Risk of Device 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.

MPPS/BPPS Tilt-Only (50T, HD50T): MPPS/BPPS Tilt-Lift (45T12): MPPS Tilt/Recline (50T, 45T12): MPPS Recline-Only: BPPS Tilt/Recline (HD50T, HD45T10): BPPS Recline-Only: Max. Tilt Limit = 50° Max. Tilt Limit = 45° Max. Tilt/Recline Limit = 168° Max. Recline-Only Limit = 168° Max. Tilt/Recline Limit = 168° Max. Recline-Only Limit = 150°



4.3.4 ELEVATING SEAT LOCKOUT SWITCH

Elevating seat systems, when combined with tilt and/or recline functions, are equipped with an elevating seat lockout switch to prevent the PES actuator from elevating (up or down) when the system is tilted or reclined beyond the established home limit.

All Users: User Weight \geq 175 lbs.: **No Elevate if Tilt/Recline "Out of Home"** (*Max. Home Limit* = 20°) **No Tilt* if PES "Out of Home"** (*PES Home = Fully Retracted*)

*system may be tilted up to a maximum 20° prior to elevate.



4.3.5 ANTI-TIP LATCH LIMIT SWITCH

Certain powerbases may come equipped, or may have anti-tip devices added to the wheelchair in order to ensure stability during tilt, recline or elevating functions. For these powerbases, our electronics are programmed to engage the anti-tips by means of a limit switch. The Anti-Tip devices are set to engage when the tilt, recline and/or elevate functions are extended beyond their established home position:

Tilt/Recline, Recline-Only systems:Max. Anti-Tip Latch Limit = 20° (regardless of pre-tilt angle)Elevate/Lift systems:Max. Anti-Tip Latch Limit = 1/2" Elevate

4.3.6 TIPSY ANGLE SENSOR

The Tipsy Angle Sensor is a programmable limit switch that utilizes a separate angle sensor mounted to the seating system (refer to images that follow). The **M11 Tipsy** angle sensor is utilized with our M-Series electronics and may be programmed (by a Qualified Technician) via the M270 Remote Attendant Control.

The tipsy 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**.

Home Position	Home Setting = 0° - 20° Max
Reduced DriveSpeed Limit	RDS Limit = 10° - 20° Max
Drive Lockout (DLO) Limit ¹	Max. DLO Limit = 30° (with Reduced Drive Speed)
	Max. DLO Limit = 25° (without Reduced Drive Speed)
Maximum Back Angle:	Max. Tilt Limit = 50° for 50T & HD50T module or 45° for 45T12 & HD45T10 module
	Max. Tilt/Recline Limit = 168° for MPPS, BPPS Tilt/Recline, MPPS Recline-Only
	Max. Recline-Only Limit = 150° for BPPS <u>or</u> 168° for MPPS,

¹**Note**: <u>DO NOT</u> exceed the maximum recommended DLO Limit.

4.3.6 TIPSY ANGLE SENSOR (...cont'd)

NOTE: The mounting position/location of the M11 Tipsy Sensor will vary depending if it is a tilt-only system, or a tilt/recline system



Tipsy Sensor for Tilt (MPPS/BPPS) (Outer Left Rear Drop Seat)



Tipsy Sensor for Recline (All) (Inner Left Recline Cane)

IMPORTANT! Programming of the **Tipsy Angle Sensor** (via the M270 Remote Attendant Control) may only be performed by a Qualified Technician. Program access into the M270 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.

Motion Concepts offers a wide range of positioning features/options and we are constantly coming up with new innovative products to address the needs of our customers. The following information is provided as a reference for our typical 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.



DANGER! Risk of Death, Significant Injury or Device 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.



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

5.1 Joystick Positioning and Adjustment

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 MOUNT

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 MAXX RESOLVE SWING-AWAY JOYSTICK MOUNT

I. SWING-AWAY FUNCTION:

To operate the 'swing-away' function on the Resolve S/A Mount, push outward from the inside/middle of the joystick (1). To return the joystick to its Home position, push forward and inward (2) on the outside of the joystick until the Resolve S/A Mount locks ('clicks') into position- see also **II. Tension Adjustment** below.



CAUTION! Risk of Device Damage

To ensure the swing-away mechanism operates smoothly and properly, gentle force should be applied to the middle of the joystick, closer to the pivot point of the swing away mechanism. Applying excessive force to the front of the joystick may cause damage to the internal belt-drive.

II. JOYSTICK TUBE OPTIONS

The Resolve Swing Away Joystick mount may be configured with a **straight** joystick tube or an **offset** joystick tube. Both joystick tubes are designed to allow for <u>depth adjustment</u> of the Resolve S/A Mount (Joystick), relative to the armrest pad (see **Fig. 1.**). The offset tube also provides an additional 1" (26mm) offset adjustment to the joystick position, if necessary. By rotating the offset joystick tube, the direction of the offset can be adjusted up/down/in/out (see **Fig. 2.**).



III. 'BREAK-AWAY' TENSION SETTING ADJUSTMENT:

The Maxx Resolve Joystick Mount uses a tension adjustable belt-drive to control the 'break-away' force required to re-position the Joystick. The tension can be adjusted via the cam wheel at the center of the joystick (using a 6mm hex key). There are four (4) tension setting options available to accommodate the users strength and mobility- see images below. The break-away tension should be set to best meet the needs of the end user.



HEIGHT AND ANGLE ADJUSTMENT: IV.

The Height/Angle* of the Maxx Resolve Joystick Mount is adjusted via two (2) ball clamp assemblies on the swing away mechanism. The upper and lower ball clamp assemblies can be independently adjusted to position the joystick mount at the height and/or angle that best meets the needs of the end user.

TO ADJUST THE BALL CLAMPS:

1. Using a 5mm hex key (not provided), loosen the mounting screws (x2) in each ball clamp, then pivot/rotate the swing-away joystick mount to the desired height/angle (see images below).

Fully tighten the mounting screws following final adjustment.

(*NOTE: When adjusting the height of the joystick mount upwards, the body of the swing-away mechanism will become angled upward. This raised/upward angle means that the when the joystick is re-positioned (swings) outward, it will swingaway to a lower position. The opposite effect will apply when the height of the joystick mount is adjusted downwards).

rear/lower front/upper ball clamp **Adjustment Screws** ball clamp (5mm hex key) 360° - 7 CROSS-SECTION VIFW 4" Height Adjustment Range (2"up or 2"down)

JOYSTICK MOUNT HEIGHT AND ANGLE ADJUSTMENT:

5.1.3 SWING-AWAY QUAD LINK JOYSTICK MOUNT

WARNING! Risk of Serious Injury or Device 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.

0

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





5.2 Cell Phone Holder

NOTE: The Cell Phone Holder is an optional accessory designed for use exclusively with the ROVI-X3 wheelchair powerbase in combination with the USB charger port.



WARNING! Risk of Damage to your Cell Phone/Electronic Device

The spring loaded holder is designed to safely secure most standard sized cell phones or electronic devices (over 2″(51mm) wide), when operating <u>under normal operating conditions</u>:

• <u>ALWAYS</u> ensure your cell phone/device is properly seated and secured inside the holder before driving your wheelchair or operating your power positioning system;

• <u>ALWAYS</u> remove your cell phone/device from the holder and store in a secure place when travelling on uneven or rough terrain. Failure to do so may result in damage to your cell phone or electronic device.

5.2.1 CELL PHONE HOLDER INSTALLATION:

The cell phone holder is mounted directly to the USB Charger and secured to wheelchair via the charger mounting bracket. (*Note:* The cell phone holder may be mounted/positioned to the left or right side of the Joystick Control). The charger bracket is secured between the joystick control and the joystick mounting plate using the existing hardware. (see **Installation Overview** below)

Cell Phone

Holder

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

Installation Instructions: (refer to Fig. 1 - Fig. 5)

1. Remove the existing joystick control from the joystick mount on the Rovi-X3 wheelchair (retain all hardware).

2. Remove the joystick mounting plate from the bottom of the joytsick control (retain all hardware)

3. Align & install the joystick mounting plate overtop of the charger bracket and secure both parts to the underside of the joystick control using original mounting screws.

4. Re-install the joystick onto the joystick mount using the original mounting screws.

5. Ensure all hardware is fully secure.



To complete the Cell Phone Holder Installation, remove the Joystick Control from its existing joystick mount on the Rovi-X3 wheelchair base, then remove the mounting plate from the underside of the joystick control (retain all original hardware). Refer to **Fig. 1** through **Fig. 5** to finish the installation.



Align charger bracket with mounting holes in bottom of Joystick



Align/install the joystick mounting plate on top of the charger bracket and secure the assembly using the orignal mounting screws (x2)



Right Mounting

Configuration

Shown

Secure Joystick to the joystick mount via the original joystick mounting screws (x2)

5.2.1 CELL PHONE HOLDER INSTALLATION: (...cont'd)



5.3 Armrests Adjustments

WARNING! Risk of Serious Injury or Device 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 (where applicable).

5.3.1 DUAL POST ADJUSTABLE HEIGHT ARMRESTS:

The dual post armrest has a telescoping upper armrest to allow height adjustments in 1/2" (13mm) increments.

To adjust height:

Release the lever lock (or detent pin) at the front of the armrest and slide the upper armrest (and arm pad) up/down as needed to the desired height (1). (*Note:* the lever lock/detent pin must be engaged in one of the preset adjustment holes to lock the armrest in place).

For side transfers, the tilt armrest can be rotated around the rear pivot pin on the seat side frame.

To rotate the armrest: disengage the lever lock at the front of the side frame, and lift the armrest upward so that it pivots back around the mounting pin (**2**).

To remove the armrest: unlock the lever lock at the front of the armrest and rotate the armrest backward. Pull outward on the plunger at the rear pivot of the armrest (3) and carefully slide the armrest assembly off of the pivot pin.



5.3.2 RECLINE ADJUSTABLE HEIGHT ARMRESTS:

WARNING! Risk of Serious Injury or Device 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.

Recline

Cane

The standard recline armrest has an adjustable pivot arm to allow height adjustments in 1/2" (13mm) increments.

To Adjust Height:

1. Remove the mounting hardware (2 screws) and slide the pivot arm

(1) up/down to the desired height and reinstall hardware.

2. Adjust the armrest receiver assembly to match the height adjustment of the pivot arm assembly (2); (Loosen the two screws/t-nuts (not shown) on the inside off the armrest receiver and slide the armrest receiver up/down the recline cane to the desired height & retighten screws.

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

To rotate the armrest: disengage the lever lock at the front of the side frame, and lift up on the armrest so that it pivots back around the armrest receiver/pin (3).

To remove the armrest: unlock the lever lock at the front of the armrest and disengage the pivot arm. Pull outward on the plunger at the rear pivot of the armrest (4) and remove the armrest assembly.

Ass'y Plunger HA 4 Lever Lock

Armrest Receiver

Pivot Arm

5.3.3 SEAT MOUNTED CANTILEVER ARMRESTS



WARNING! Risk of Serious Injury or Device 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.

Motion Concepts seat mounted cantilever armrests are mounted to the seat frame ultra-rail allowing optimal positioning and independent adjustment:



5.3.3 SEAT MOUNTED CANTILEVER ARMRESTS (...cont'd)



WARNING! Risk of Serious Injury or Device Damage.

• Before travelling in your wheelchair and/or operating your power positioning system, **always** ensure the armrests are securely locked in place.



Note: for more detailed adjustments for the Modular Arm Pad please refer to Section 5.4.1

v) Flip Back Feature: 1. lift release lever/handle to unlock armrest

V) Flip Back Feature:

C) Armest may be lifted upward to provide clearance and allow for side transfers

vi) **OPTIONAL Elbow Block Mount**

An optional Elbow Block Mount may be installed at the time of order, or may be added to an existing seat mounted Cantilever Armrest. Once installed the elbow block/elbow pad position can be adjusted for depth, height and angle. (Refer to the adjustment images below).



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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.3.4 CANE MOUNTED TILT-ONLY CANTILEVER ARMRESTS

WARNING! Risk of Serious Injury or Device 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.

Our tilt-only style Cantilever Armrests are secured to their respective tilt back canes and connected together by a stabilizing spreader bar assembly. The tilt-only cantilever armrests offer a variety of adjustment options to alter the armrest angle, width and height. There are two styles of cantilever armrests tubes available: <u>Straight</u> or <u>4</u>" <u>Drop</u>; and two different lengths: <u>desk length</u> and <u>full length</u>. Each cantilever armrests can also be manually lifted/ flipped backward to allow for side transfers into and out of the wheelchair, when required.



A. ARMREST HEIGHT ADJUSTMENTS:

i) Synchronized Cantilever Arm Height Adjustments (on Tilt Back Canes)

- 1. To adjust, <u>loosen</u> the left & right cane clamp assemblies (*3 screws per clamp*) (1), then slide the entire cantilever armrest assembly up or down along the tilt back canes (2) to the desired arm height.
- 2. Following adjustment, fully re-tighten the mounting hardware on both cane clamps assemblies.



ii) Offset Cantilever Arm Height Adjustments:

If desired, the left & right cantilever armrest can be offset from each other by up to 1.5'' (38 mm). (Adjustments are available in 3/4''(19 mm) increments).

- 1. To offset the armrest heights, first adjust the higher armrest height to the desired position on the tilt back cane (as per the instructions in section *i*) *Combined Arm Height Adjustment*).
- 2. To complete the offset adjustment, it will be necessary to disassemble the spreader bar hardware (1) from one (or both) of the cane clamp assemblies (1 screw per side).
- 3a. <u>For a 3/4" (19mm) Offset (not shown)</u>: remove the spreader bar hardware only from the armrest being lowered; Loosen the cane clamp assembly (3 screws) for the applicable armrest; Slowly lower the armrest (cane clamp assembly) until the **upper** hole in the rear cane clamp mount is aligned with the spreader bar; Reinstall the spreader bar mounting hardware and re-tighten the cane clamp hardware.
- 3b. For a 1.5" (38mm) Offset (illustrated below): remove the spreader bar hardware from <u>both</u> armrests; reinstall the spreader bar into the **lower** hole on the rear cane clamp mount for the upper armrest (2); Loosen the cane clamp assembly (3 screws) for the armrest being lowered; Slowly lower the armrest (cane clamp assembly) until the **upper** hole in the rear cane clamp mount is aligned with the spreader bar (3); Reinstall the spreader bar mounting hardware and re-tighten the cane clamp hardware.
- 4. Upon completing the adjustments, verify that all cane clamp and spreader bar mounting hardware is fully re-tighten.



5.3.4 CANE MOUNTED TILT-ONLY CANTILEVER ARMRESTS (...cont'd)

B. ARMREST ANGLE ADJUSTMENTS:

If desired, the left and right cantilever armrests can be independently adjusted to alter the angle of the armrest relative to the seat frame. The standard factory set-up will position the armrests parallel to the seat frame. The angle can of each armrest can be raised or lowered as necessary to meet the needs of the end user.

Adjusting the Cantilever Armrest Angle:

- 1. Working on each armrest separately; Hold/support the cantilever armrest tube in one hand, then loosen the adjustment screw in the cam mechanism (1).
- 2. Raise or lower the armrest tube to the desired angle and re-tighten the adjustment screw to lock the arm rest in position.

C. ARMREST WIDTH ADJUSTMENT (SPACER PLATES):

If additional seating space or armrest clearance is required, the cantilever armrests can be configured with an optional spacer kit which allows for independent armrest width adjustment (relative the the back canes). The addional spacer kit allows each cantilever armrest (left or right) to be extended outward by up to 1/2" (using 1/4" spacers).

Note: a new cam mechanism with an extended screw must be installed together with the spacers in order to compensate for the additional width.

Installing the Spacer Plate Kit:

1. Remove/disassemble the armrest tube and the existing cam mechanism from the cane clamp assembly.

2. Align and insert the spacer plates (1 or 2) between the adjustment weld and the cane clamp assembly (1).

3. Reinstall the armrest tube and install/secure the new cam mechanism (with extended screw) to the cane clamp assembly.



No Spacers



angle

adjustment

screw

cam mechanism

1

Armrest angles are controlled/

adjusted via the adjustment

screw in the cam mechanism

SIDE VIEW

Spacers Installed
D. SPREADER BAR WIDTH ADJUSTMENT:

The **spreader bar** assembly on the tilt-only cantilever armrest can be adjusted to compensate for a change in the seat width or back cane width (eg. endomorph back canes). There are four (4) spreadbar sizes/ configurations available to accomodate the range of seat/back cane widths available. Each spreader bar configuration provides a 3" (5cm) range of adjustment:

(13 "-15", (33cm-38cm)); (16"-18", (41cm-46cm)); (19"-21", (48cm-53cm)); (22"-24", (56cm-61cm))

The spreader bar assembly is designed to accommodate seat or back cane width adjustments in 1'' (26mm) increments. All spreader bar width adjustments should be made equally using the mounting holes in the left and right cross support bars (1/2'' (13mm) hole spacing). The middle crosstube should remain centered between the back canes following any width adjustment.

Note: If a width adjustment moves from one spreader bar configuration to the next (e.g. moving from a 15" (38cm) width up to 16" (41cm) width), then a new middle spreader bar will be required.

IMPORTANT! Spreader bar (width) adjustments that will require an adjustment to the overall width of the seating system should <u>only</u> be performed by a qualified technician (due to the complexity of the seat width adjustment). If the width of your seating system needs to be adjusted, please contact your Dealer or Local Service Provider for assistance.

Adjusting the Spreader Bar Width:

- 1. Remove the adjustment screws/hardware (x2) from the middle crosstube of the spreader bar assembly.
- 2. Slide the left and right support bars inward/outward inside the middle crosstube, aligning the adjustment holes in each support bar with the mounting hole in the middle crosstube.
- 3. Ensure the adjustments are made equally on both support bars, then reinstall the adjustment hardware to secure the middle crosstube in place.



5.3.5 OUTBACK TILT CANTILEVER ARMRESTS:

The Outback Tilt Cantilever Armrests are mounted onto our tilt back canes, and are designed to pivot/rotate 'out and back', allowing full clearance for side transfers in and out of the seating system. There are 2 unique mounting configurations for the Outback Tilt Cantilever Armrests, depending on the chosen back support (i.e.; **Tilt-Only REHAB/MATRX Backs <u>OR</u>** for the **Tilt-Only OMIT Back Option**). Both armrest configurations offer independent adjustments to achieve the desired arm pad height, angle, width and depth.



WARNING! Risk of Serious Injury or Device 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.



I. ARMREST HEIGHT ADJUSTMENT:

The range of armrest height adjustment will vary depending on the style of armrest tube installed, and the position of the mounting clamp assembly on the tilt back cane. There are 3 styles of armrest tubes available: Dropped, Straight and Raised. The range of height adjustment is dictated by the type of armrest tube installed:

<u>Dropped Armrest</u> = 5.5-12.5" (14-32cm); <u>Straight Armrest</u> = 8.5-15.5" (22-40cm); <u>Raised Armrest</u> = 11.5-18.5" (29-47cm)



NOTE: The Tilt-Only Matrx/Rehab Back configuration offers fully independent armrest height adjustment, while the Tilt-Only 'Omit Back' Option is limited to 1" (26mm) offset height adjustment between armrests - refer to **Fig. 3**

i) ARMREST HEIGHT ADJUSTMENT (FOR TILT-ONLY MATRX/REHAB BACKS) - see Fig 1. below

(Tools req'd: 5mm hex key).

- 1. Loosen the mounting clamp assembly (**clamping bar** (**1**) and **adjustment screws** (**2**)) on the armrest you wish to adjust. (*Do not fully remove hardware*)
- 2. Adjust the height/position of the cantilever armrest (mounting clamp assembly) along the slotted channel in the **glide block** (**3**).
- 3. Once the final height has been determined, re-tighten the mounting clamp hardware to secure the outback cantilever armrest into position, then repeat height adjustment steps for the opposite armrest.

Fig. 1. ARMREST HEIGHT ADJUSTMENT (TILT-ONLY MATRX/REHAB BACK CONFIG.)



ii) ARMREST HEIGHT ADJUSTMENT (FOR TILT-ONLY 'OMIT-BACK' OPTION) - see Fig 2. below

(tools req'd: 1/2" (13mm) wrench (socket)

- 1. Loosen the armrest clamp screws (1) on the left and right tilt back canes (2 screws per clamp). (Do not fully remove hardware).
- Adjust both armrest clamp assemblies together to the desired height along the tilt canes (2), and retighten the clamp screws. For standard (symmetrical) armrest height adjustments*, the spreader bar assembly (3) will move together with both armrests.

***NOTE:** The outback tilt cantilever armrests (for the Omit Back Option) are designed to allow for up to 1" (26mm) of <u>offset height adjustment (if desired</u>) via the spreader bar assembly- refer to **Section 1.1.3**.

Fig. 2. HEIGHT ADJUSTMENT (TILT-ONLY MATRX/REHAB BACK CONFIG.)



5.3.5 OUTBACK TILT CANTILEVER ARMRESTS: (...cont'd)

III) OFFSET ARMREST HEIGHT ADJUSTMENT (FOR TILT-ONLY 'OMIT-BACK' OPTION) - see Fig 3. below

(tools req'd: 3/8" (10mm) wrench (socket)

- 1. Loosen the left and right armrest clamp assemblies (**1**), and adjust both armrests to the desired height of the <u>'higher'</u> armrest (adjustments are made as per **Section 1.1.2**, **Armrest Height Adjustment**).
- 2. Secure the cantilever armrest (clamp assembly) onto the tilt cane at the higher offset armrest.
- HIGHER ARMREST: (If necessary) Adjust the spreader bar assy (2) so that it is in the lowest slot position on spreader bar mounting plate (3). <u>To Adjust</u>: loosen the spreader bar clamp screws (4) on the higher armrest, then slide the spreader bar downward along the slotted channel in the spreader bar mounting plate.
- LOWER ARMREST: Loosen the spreader bar clamp screws (4) on the 'lower' armrest, then adjust the armrest clamp assembly (1) to the desired 'lower' offset height on the tilt cane (up to a maximum 1" (26mm offset)*. Secure the armrest clamp assembly (1) into position for the lower armrest.
 *Note: Following an offset armrest adjustment, the spreader bar assy MUST remain in a horizontal position between the spreader bar mounting plates.
- 5. Tighten the spreader bar clamping screws (4) to secure the spreader bar assy to the spreader bar mounting plate (3) on the lower armrest.
- 6. Verify that all hardware is fully secured.

Fig. 3. OFFSET HEIGHT ADJUSTMENT (TILT-ONLY OMIT-BACK CONFIG)



II. ARMREST WIDTH ADJUSTMENT:

Each outback tilt cantilever armrest offers infinite width adjustment over a 4" (102mm) range of adjustment. The armrest (arm pad) can be positioned/adjusted up to 3" (76mm) inward (**1**) (narrowing adjustment) and/or up to 1" (26mm) outward (**2**) (widening adjustment).

WIDTH ADJUSTMENT: (tools req'd: 4mm hex key). The outback armrest position is adjusted inward or outward via the width adjustment screw (**A**)*- see **Fig 1a/1b**.





***NOTE:** width adjustments may require a compensating angle/rotational adjustment to 'straighten' the arm pad- refer to **Section 1.4 (ii) ARM PAD, ANGLE (ROTATIONAL) ADJUSTMENT**.

III. ARMREST ANGLE ADJUSTMENT:

The Outback Tilt Cantilever Armrest allows for +/- 15 degrees of infinite angle adjustment. Each Armrest can be independently adjusted via the **angle adjustment set-screw** (**B**) at the rear of the armrest mounting plate.

ANGLE ADJUSTMENT: (tools required: 4mm hex key)

The armrest angle can be raised or lowered by tightening or loosening set-screw (B) - refer to Fig 1. below.



5.3.5 OUTBACK TILT CANTILEVER ARMRESTS: (...cont'd)

IV. ARM PAD ADJUSTMENTS:

pad being installed. Arm pads may be adjusted for depth, angle (rotation) and/or width, where applicable*. of the armrest pad. The amount of adjustment will vary depending on the model and/or length of the arm Pads. Each arm pad is independently adjustable via the mounting hardware/clamping bar on the underside The Outback Tilt Cantilever Armrest is compatible for use with all available models of Motion Concepts Arm

*Note: Width adjustment is not available on Standard and Waterfall Arm Pads.

:тиэмтгиса нтчэа (і

channel- refer to Fig. 4 below. pad forward or rearward as needed along the adjustment Loosen the armpad mounting hardware and slide the arm

:тиэмтгиса (лаиоптатоя) элэиА (ii

pad to the desired position-refer to Fig. 5 below. Loosen the arm pad mounting hardware and rotate the arm

.wolad **a**. **b** is the structure of the to **Fig. 6** below. underside of the arm pad in order to alter the pad position ing bar can be installed in 1 of 3 optional channels on the Where applicable, the arm pad mounting hardware/clamp-(sbe9 llehateW & brebnet2 gnibuloxa) :TNAMT2ULDA HTDIW (iii

ened and the arm pad position is secured. -idpit fillut si ensure the adjustment hardware is fully tight-,(s)tnemtsujbs bsq mrs yns gniwollo I IINATROQMI

(tools required: 5mm hex key)



Arm Pad

e.g. Standard

screws adjustment

bar clamping

e.g. Flat Arm Pad



V. 'OUTBACK' ARMREST FEATURE:

The unique design allows the Outback Tilt Cantilever Armrest to be moved 'outward' (1) and then pivoted 'backward' (2) to provide full clearance for conducting side-transfers in and out of the seating system.



5.3.6 CANE MOUNTED RECLINE CANTILEVER ARMRESTS:

WARNING! Risk of Serious Injury or Device 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.

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.



RECLINE MAXX CANTILEVER ARMREST ADJUSTMENT / SET-UP:

The following section illustrates the basic cantilever armrest adjustments available. (*Please Note:* Armrest adjustments should be made with the seat placed in the full upright position):

- Adjust the armrest receiver mounts (left & right) independently to the desired height along the recline back canes. The receiver mounts control the overall height of each cantilever armrest, and may be set to different heights if preferred- see Figure 1.0, Step (Note: In order to achieve the desired height/armrest angle, it may be necessary to also adjust the push rod assembly- see step 2. below)
 To Adjust Armrest Height:
 - 1. Loosen the *t-nut* hardware securing the receiver mount to the recline back cane (*loosen only-do not remove*);
 - 2. Slide the armrest & receiver mount assembly upward/downward along the recline cane to the desired height.
 - 3. Tighten the t-nut hardware to secure in place. (Adjust push rod if necessary to achieve desired armrest angle).
- The push rod assembly can be adjusted *inward* or *outward*, as necessary, to set the initial angle of the armrest tube in the upright seat position. (*Typical set-up is 0° or horizontal as illustrated*)- see Figure 1.0, Step 2 . (*Note: Push rod adjustments may also be required as part of the armrest height adjustment in step 1. above*).

To Adjust Push Rod:

- 1. Loosen the *jam nut* on the push rod;
- 2. Rotate the threaded *adjustment nut* to extend/retract the push rod assembly to the desired length.
- 3. Tighten jam nut.
- The armrest tubes (arm pads) may be adjusted to one of three optional widths relative to the seat and back width. (*Default armrest width is fully inward (0")*). Each armrest can be adjusted independently up to 2" wider than the seat width if necessary see Figure 2.0, Step 3

To Adjust Armrest Width:

- 1. Loosen/remove the *adjustment screw* on the inside of the receiver mount;
- 2. Slide the armrest tubeinward/outward to the desired width;.
- 3. Re-install the adjustment screw.

RECLINE MAXX CANTILEVER ARMREST ADJUSTMENT / SET-UP (...cont'd)



5.3.7 OUTBACK RECLINE CANTILEVER ARMRESTS:

The Outback Recline Cantilever Armrests are mounted directly to our recline back canes, and are designed to pivot/rotate 'out and back' to allow full clearance for side transfers in and out of the seating system. The Outback Armrest is designed to allow for fully independent adjustments to the armrest height, angle, width and depth. An optional lock/release handle is also available (at time of order) to lock the armrest in place when it is in the fully lowered position. Detailed set-up and adjustment instructions are provided below.



WARNING! Risk of Serious Injury or Device 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.

I. ARMREST HEIGHT ADJUSTMENT: (tools required: 13mm wrench/13mm socket).

The final armrest height* is determined by the position of the armrest mounting clamp assembly on the recline back cane. The outback recline cantilever armrests are available in two styles (standard and offset) depending on the desired armrest height. Standard Armrests offer an adjustment range from 9" to 12" (23cm - 31cm); Offset Armrests offer an adjustment range from 12" to 15" (31cm - 38cm) - refer to **Fig. 1a/1b.** below

***NOTE:** height adjustments to the recline cantilever armrest will typically require a compensating adjustment to 'level' the armrest (arm pad)- refer to **Section III. ARMREST ANGLE ADJUSTMENT**.

- 1. Loosen the mounting clamp hardware (1) on the armrest you wish to adjust. (Do not fully remove hardware)
- 2. Adjust the height/position of the armrest (mounting clamp assembly) along the slotted channel in the recline back cane (2).
- 3. Once the final height has been determined, re-tighten the mounting clamp hardware to secure the armrest into position, then repeat height adjustment steps for the opposite cantilever armrest.



II. ARMREST WIDTH ADJUSTMENT:

The Outback Armrest is designed to provide infinite width adjustment over the established adjustment range. The Outback Armrest offers a 4" range of adjustment, which allows the armrest to be positioned 3" narrower or 1" wider (relative to the back cane). To adjust the armrest width, tighen or loosen the adjustment set-screw to move the armrest outward or inward- refer to **Fig 2**.



(tools required: 4mm hex key).



III. ARMREST ANGLE ADJUSTMENT:

IMPORTANT! <u>Prior</u> to making an angle adjustment, the locking nut on the turnbuckle mechanism must first be loosened off- see **Fig. 3a** below

The Outback Armrest allows for +/- 15 degrees of infinite angle adjustment. Each Armrest can be independently adjusted via the adjustment bolt at the rear of the armrest, To adjust the armrest angle tighten or loosen the adjustment bolt to raise or lower the armrest- refer to **Fig 3b.** When the adjustment is complete, retighten the locking nut to secure the armrest in position.

(tools required: 13mm wrench/ 13mm socket)







5.3.7 OUTBACK RECLINE CANTILEVER ARMRESTS: (...cont'd)

IV. LOCKING HANDLE (OPTIONAL):

The optional lock/release handle allows the outback recline cantilever armrest to be locked into place when it is in the lowered/down position. The spring-loaded latch mechanism will automatically lock when the armrest is fully lowered. To release/unlock the armrest, lift up on the lever handle (1), then lift upward on the armrest assembly (2).

CANTILEVER ARMREST LOCK/RELEASE HANDLE



V. ARM PAD ADJUSTMENTS:

The Outback Recline Cantilever Armrest is compatible for use with all available models of Motion Concepts Arm Pads. Each arm pad is independently adjustable via the mounting hardware/clamping bar on the underside of the armrest pad. The amount of adjustment available will vary depending on the model and/or length of the arm pad being installed. Arm pad adjustments for depth, width and angle (rotation) are available, where applicable*.

The arm pad adjustments on the Outback Recline Cantilever Armpads are identical to the Outback Tilt Canitlever Armrests. Please refer to **Section 5.3.5** (**IV. ARM PAD ADJUSTMENTS** for adjustment images).

*Note: Width adjustment is not available on Standard and Waterfall Arm Pads.

VI. 'OUTBACK' ARMREST FEATURE:

The unique design allows the Outback Recline Cantilever Armrest to be moved 'outward' (1) and then pivoted 'backward' (2) to provide full clearance for conducting side-transfers in and out of the seating system^{*}.

(*Note: if installed the Locking Handle (section IV.) must be unlocked in order to use the 'Outback' feature).



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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.4 Arm Pads

5.4.1 MODULAR ARM PAD - INSTALLATION/ADJUSTMENT:

1. Using the hardware provided, install the moulded arm pad tray onto the armrest tube in the pre-determined mounting orientation (see **Figure 1.0**) and arm pad position (see width & depth adjustments below)

2. Secure the modular armpad inside the moulded tray via the velcro tabs (not shown).



iii. Width Adjustment

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



5.4.2 OPTIONAL ARM PAD INSTALLATION:

Our tilt, recline and/or 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. Please refer to **Figure 1.0** and **Figure 2.0** below for examples of other armpad options 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.



Figure 1.0 - Optional Arm Pads Installations (examples shown on a cantilever armrest tube)

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

5.4.2 OPTIONAL ARM PAD INSTALLATION: (...cont'd)



*Note: 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. (It is recommended to install the hand pad onto the ergonomic arm pad first)

5.4.3 ARMREST EXTENSIONS:

Armrest extension tubes are also 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 armpad using the mounting hole in the extension tube & a mounting hole in the armrest tube (2).



5.4.4 OPTIONAL ARM ADDUCTOR SUPPORT INSTALLATION/ADJUSTMENT

Our optional Arm Adductor Supports are compatible with our **Standard Flat Arm Pads** (Desk or Full Length), as well as our **Modular Arm Pads** (Desk or Full Length). Arm Adductor Supports may be installed onto one or both (left and/or right) armrest assemblies as desired. The mounting location of the arm adductor support bracket is depth/width adjustable on underside of the arm pad, and the arm adductor support (pad) is also depth adjustable relative to the arm pad itself



I. ARM ADDUCTOR SUPPORT INSTALLATION:

The **lower adductor support brackets** (**A**) are secured to the underside of the applicable arm pads using T-Nut hardware. Refer to the applicable arm pad installation instructions that follow:

i) ADDUCTOR SUPPORT BRACKET INSTALLATION - FLAT ARM PADS:

- 1. Insert T-Nuts into the open end of the extrusion on the Flat Arm Pad (see Fig. 1).
- 2. To install the arm adductor support, align the slots in the lower adductor support bracket (**A**) with the T-Nuts, then secure the bracket in place using the hardware (screws/washers) provided.



ii) ADDUCTOR SUPPORT BRACKET INSTALLATION - MODULAR ARM PADS:

- 1. Remove the foam arm pad from the moulded tray (disengage velcro tabs)
- 2. Insert the T-Nuts into the desired slot on the top (inside) of the Modular Arm Pad (see Fig. 2).
- 3. To install the Arm Adductor Support, align the slots in the lower support bracket with the T-Nuts, then secure the bracket in place using the hardware (screws/washers) provided.



i) ADJUSTING THE LOWER ADDUCTOR BRACKET:

Loosen the lower adductor bracket hardware (**B**), then adjust the **width/depth*** of the bracket (via slots). Once the final bracket position is set, fully tighten hardware. (***note:** width & depth adjustments are made simultaneously).



ii) ADJUSTING THE ARM ADDUCTOR SUPPORT PAD:

Loosen upper adductor bracket hardware (**C**), then adjust the **depth/height*** of the bracket to the desired position (via slots). Fully tighten hardware following adjustment. (***note:** depth & height adjustments are made simultaneously).



5.5 Multi-Axis Upper Extremity Support

The Multi-Axis Support may be installed onto any existing armrest tube to provide end users with infinite angle and rotational adjustments. The Multi-Axis Support is designed to interface with Motion Concepts Multi-Position Flat Arm Pads and Ergonomic Arm Pads. (*Note: Arm pads are sold separately*)



WARNING! Risk of Serious Injury or Device Damage.

<u>NEVER</u> use the Multi Axis Support (Arm Pad) as a support when transferring in or out of seating system.
 <u>DO NOT</u> substitute hardware. All hardware used in the assembly of Motion Concepts seating systems and accessories is high strength. Use only the hardware provided.



Note: The Multi-Axis Support may be mounted on either the left or the right armrest tube as desired.

A. MOUNTING BRACKET INSTALLATION: (Refer to Fig. 1a/1b below)

- 1. Align the upper clamping plate at the desired position on the armrest tube, then install the lower clamp around the armrest tube so that the tab on the lower plate overlaps the upper plate (see **Fig. 1a**)
- 2. Secure the clamp ass'y onto the armrest tube using the mounting screws (x2) provided (see Fig. 1b.)



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B. ARM PAD INSTALLATION: (Refer to Fig 2a/2b below)

- 1. Install the clamping bar into the extruded track* in the bottom of the selected arm pad (see Fig. 2a). *Note: three optional mounting tracks (Fig. 3) are available to achieve the desired arm pad position.
- 2. Using the mounting screws provided, secure the arm pad into place via the clamping bar (see Fig. 2b)



Fig. 5b

E. ARM PAD ANGLE AND ROTATIONAL ADJUSTMENT: (Refer to Fig. 6 below)

- 1. Loosen* the lever handle on the underside of the Multi-Axis Support and rotate/pivot the arm pad to the desired position angle relative to the arm rest tube. (**note: do not fully remove lever handle*)
- 2. Re-tighten the lever handle to secure the arm pad into position.



5.6 Maxx Transfer Arm (Manual and Power)

WARNING! Risk of Serious Injury, Compromised Safety or Device Damage

• The Maximum Weight Capacity for the Transfer Arm is **175Ib** (**79kg**); DO NOT exceed the maximum weight capacity.

- When performing transfer activities, ALWAYS have an attendant present.
- PRIOR to performing transfers, ALWAYS turn the wheelchair power OFF to prevent accidentally putting the wheelchair into motion.

• PRIOR to performing transfers, ALWAYS ensure the wheelchair motor locks are engaged to prevent the wheelchair from moving accidentally.

• ALWAYS ensure the gap between the transfer surface and the wheelchair (transfer arm) is reduced to the minimum distance neccessary to perform the transfer.

- DO NOT drive the wheelchair with the Transfer Arm in the down (transfer) position
- DO NOT jump or bounce on the Transfer Arm when it is in the down (transfer) position.



WARNING! Risk of Serious Injury, Compromised Safety or Device Damage

• Set screws located at the front and rear pivots are factory set to ensure the proper range of motion for the transfer arm and should not be adjusted. If a set-screw adjustment is required, it must ONLY be performed by a qualified technician.

5.6.1 MAXX TRANSFER ARM- MANUAL

The Maxx Manual Transfer Arm can be mounted onto the left or right side of the wheelchair and is compatible with Tilt and/or Recline Seating Systems. It provides a stable transfer platform with a <u>weight capacity of up</u> to 175 lb 79 kg).

The manual transfer arm is controlled via a mechanical strut that is operated using a lever control and cable mounted onto the seating system. (*The mounting position of the lever handle will vary depending on the needs of the end user*). Squeezing (and holding) the lever control releases/unlocks the strut, allowing the transfer arm/platform to be manually raised and lowered into the desired position.



5.6.2 MAXX TRANSFER ARM - POWER

The Power Transfer Arm can be configured to operate via a separate switch or through the joystick control. It can be mounted onto the left or right side of the wheelchair and is compatible with Tilt and/or Recline Seating Systems. It provides a stable transfer platform with a <u>weight capacity of up to 175 lb (79 kg)</u>.



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5.6.3 MAXX TRANSFER ARM HEIGHT ADJUSTMENT:

Note: Arm Height Adjustments are performed the same way for both Manual and Power Transfer Arms.

To Adjust the Armrest Height:

1. Lift upward on the armrest lever at the front of the armrest assembly to disengage the locking pin.

2. Gently pull up or push down on the armrest tube (arm pad) to raise or lower the armrest to the desired position. (*Note: height adjustments can be made in 1/2" (13mm) increments*)

3. Press the lever handle downward to tock the armrest into position (ensuring the locking pin is properly aligned and fully engaged).



5.7 Flip and Fold Lap Tray

The Flip and Fold Lap Tray can be mounted onto the left or right armrest* of the wheelchair, and is compatible with Tilt and/or Recline Seating Systems. It provides a stable working surface with a <u>weight capacity up to a maximum of 10lb (4.5 kg)</u>.

When not in use, the lap tray may be flipped upward to allow clearance at the front of the seatig system, and/or folded (stowed) away along the side of the wheelchair/armrest. When necessary and/or during wheelchair transportation, the lap tray assembly can also be fully removed from the wheelchair.



*Note: Lap Tray is not recommended for use with Cantilever-Style Armests

WARNING! Risk of Serious Injury and/or Device Damage

- DO NOT place heavy objects on the tray surface. The Maximum Weight Capacity for the Flip & Fold Lap Tray is **10Ib** (**4.5kg**); Do Not exceed the maximum weight capacity.
- DO NOT apply excessive downward force on the surface of the lap tray.
- NEVER use the Lap Tray as a support when performing transfer activities.
- ALWAYS ensure the plunger locks are engaged and the lap tray is properly secured during use and/ or when stowed away on the wheelchair.

• DO NOT drive or operate the wheelchair when the Lap Tray is not secured/locked in position, or properly stowed away.

CAUTION! Risk of Property Damage or Minor Injury

• Use caution when driving your wheelchair, or when operating your seating system with objects on the tray surface.

• Loose items may accidentally tip over or fall off the tray during use. Objects/devices should be centered on the tray to reduce the risk of them falling; Beverages should always be placed inside the cup holder.

• DO NOT place hot items directly on the tray surface, otherwise damage may occur.

• To prevent damage or injury, hot beverages should be placed in the cup holder, and stored in sealed/ covered containers whenever possible.

5.7.1 LAP TRAY DEPTH ADJUSTMENT

The depth of the lap tray relative to the armrest may be adjusted if necessary to best meet the needs of the end user. (**Note:** if necessary, the arm pad position along the armrest tube may also be adjusted separately).

1. To adjust the lap tray depth, loosen the mounting screws (x2) that secure the mounting plate to the mounting tube (**1**), and slide the tube along the slotted channels in the mounting plate until the desired depth is achieved. 2. If additional depth adjustment is required, it may be necessary to select an alternative mounting hole in the mounting tube in order to increase the range of adjustment (**2**).



5.7.2 FLIP-UP AND FOLD-AWAY INSTRUCTIONS:

The pivoting mechanism on the lap tray has factory preset stops that control the position of the tray in the 'flipped up' position and the 'folded-away' position.

1. To 'flip-up' the lap tray, manually raise/lift the tray upward. The tray will pivot/rotate until it reaches its preset stop position perpendicular to the armrest (1).

2. To continue lowering the lap tray down to its 'fold-away' position, release the plunger pin on the underside of the tray (2), and carefully lower the tray <u>forward</u> until it reaches its established stop position along of the outside the wheelchair/armrest (3).

3. To return the tray to its original position, reverse steps 1. and 2. above, ensuring that the plunger pin for the lap tray is properly engaged when the tray is in use.



Note: Left Lap Tray Installation Shown

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5.7.3 REMOVING THE LAP TRAY:

When required and/or during wheelchair transportation, the entire lap tray assembly can be easily removed from the armrest of the wheelchair.

1. To remove the lap tray assembly, pull downward on the plunger pin located on the underside of the armrest mounting tube (1).

2. Once the plunger has been disengaged, pull/slide the lap tray outward (2) to release the mounting pin from its housing at the end of the mounting tube.

3. To reinstall the lap tray, align the mounting pin with the opening of the mounting tube, pull down on the plunger pin and slide the slide the tray inward until the plunger pin engages ('clicks'). ALWAYS ensure the tray is locked in position prior to use.



5.8 Seat Width Adjustment

Motion Concepts power positioning systems are designed to allow for width adjustments when necessary, and/or to accommodate growth over the expected service life of your seating system. The range of available seat width adjustment varies depending on the size of seat frame installed:

Medium Adult Drop Seat:WIDTH ADJUSTMENT RANGE= 14"-17" (36cm-43cm)Standard Adult Drop Seat:WIDTH ADJUSTMENT RANGE= 16"-20" (41cm-51cm) OR 19"-22" (48cm-53cm)

PLEASE NOTE: A seating system width adjustment will require additional adjustments to the seat pan and back assembly. Due to the increased complexity of a seat width adjustment, this adjustment must be performed a qualified service technician. Should you feel a seat width adjustment is necessary, please contact your Local Sevice Provider for assistance.

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technician or healthcare professional. depth (and seat pan) to determine if the intended adjustment requires the services of a qualified We strongly recommend contacting your service provider prior to making any adjustment to the seat also be necessary to ensure the safe operation and performance of the wheelchair/seating system. IMPORTANT! When a significant depth adjustment is required, a compensating system adjustment may



and reduce traction & drive control. If you require a seat depth adjustment, please contact your Local Altering the seat depth of your Motion Concepts seating system may compromise wheelchair stability. DANGER! Risk of Death, Significant Injury, Compromised Stability or Device Damage

NOT easily tip forward or backward. electronic harnesses or any other component of the seating system, and ensure the wheelchair DOES the full range of power positioning functions to ensure there is no interference with the front riggings, Following an adjustment to the seating system depth, ALWAYS carefully test the seating system over stability & driveability of the wheelchair, and must ONLY be performed by a Qualified Service Technician. · Seat depth adjustments (including legrest adjustments) can have a significant effect on the overall Service Provider for assistance.

Service Provider immediately to resolve the issue. adjustment, keep the wheelchair in an upright stable position and contact your authorized Dealer/ If you have any concerns with the stability of your wheelchair, upon delivery or following a seat depth

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DANGER! Risk of Death, Significant Injury, or Device Damage.

ONLY be performed by a qualified Service Technician. blook canes. Seat depth adjustments can alter the overall stability of the seating system and should Ultra-Rail depth adjustments will modify the overall seat depth of the seating system relative to the





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of the seating system, by adjusting rear back cane assembly along the ultra-rails. (see Fig. 1) 46cm). Unlike our Standard Drop Seat, depth adjustments for the Medium Drop Seat are performed at the rear The Medium Drop Seat is designed to allow an infinite range of depth adjustment between 14"-18" (36cm-

DANGER! Risk of Death, Significant Injury, or Device Damage.
 Adjusting the back cane position (seat depth) on a medium adult drop seat can alter the overall stability of the seating system and should ONLY be performed by a qualified Service Technician.



5.10 Seat Pan Adjustments

Our adjustable seat pans may be configured as a basic one-piece pan or an adjustable four-piece assembly (depending on the type and size of seating system installed). Accordingly, the seat pan adjustments may vary from simple fore/aft depth adjustment to a full range of width and depth adjustments (refer to **Fig. 1A** and **Fig. 1B** below).



DANGER! Risk of Death, Significant Injury, or Device Damage.

• Seat depth adjustments (including legrest 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 your service provider prior to making any adjustments



WARNING! Risk of Serious injury or Device Damage

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

• Seat pan depth adjustments will often require further adjustments to the legrest(s) and/or legrest receivers to compensate for the change in seat depth.

• Following any adjustment ALWAYS inspect the wheelchair to ensure the front rigging DOES NOT interfere with the front casters.



5.11 Independent Legrests

Motion Concepts offers several styles of independent legrests for use on our modular power positioning systems, ranging from basic manually operated legrests to power operated articulating legrests. The following information is provided as a general reference for the common features and adjustments found on our various legrests. For more detailed instructions please refer to the instruction manual provided separately with your legrests.



DANGER! Risk of Death, Significant Injury, Compromised Stability or Device Damage

• Following an adjustment to your seat angle, elevate module (if applic.) and/or your legrest depth, a compensating seating system adjustment (i.e.; seat depth/ legrest knee-to-heel length) may also be required. Please consult your service provider prior to attempting any adjustments. To ensure proper set-up, we recommend that adjustments only be performed by a qualified technician or healthcare professional.

• NEVER leave legrests in a fully extended position when travelling up or down ramps or slopes



CAUTION! Risk of Injury or Device 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 <u>prior</u> to driving the wheelchair.

• If the wheelchair dips forward and the footplates touch the ground while in motion, please contact your Dealer for immediate assistance and/or inspection, and avoid use of the wheelchair until corrected.



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

5.11.1 INDEPENDENT LEGREST DEPTH ADJUSTMENT

INDEPENDENT LEGREST DEPTH ADJUSTMENT FOR UL MAXX SYSTEMS

Loosen the legrest receiver screws (x2) at the front of the left and right **ultra-rails** (1). Adjust the overall legrest depth by sliding the legrest receiver within the slotted channel of the receiver assembly (2). The left and right legrest receiver can be adjusted independently if desired. Once the final legrest depth is set, re-tighten the receiver screws to secure each legrest into position.



5.11.2 REMOVING INDEPENDENT/MANUAL LEGRESTS

When necessary, our manual legrests may also be completely removed from the wheelchair, by placing the lever handle in the unlocked position (1) and lifting the entire legrest assembly upward (2). To reinstall the legrest, insert the legrest pin inside the legrest receiver and return the lever handle to the locked position.



5.11.3 INDEPENDENT SWING-AWAY LEGREST ADJUSTMENT:

The swing-away legrest feature is available on certain models of Motion Concept's individual legrests to provide the clearance necessary for forward transfers in and out of the chair. Our swing-away legrests utilize a user friendly lever handle that locks and unlocks the legrest (**1**), allowing the legrest pin to pivot/rotate about the legrest receiver (**2**) (see examples illustrated below)



5.11.4 FOOTPLATE ADJUSTMENTS (for Independent Legrests):

I. FOOTPLATE ADJUSTMENTS FOR HD SWING-AWAY LEGRESTS AND MAXX PIVOT PLUS LEGRESTS

i) Independent Legrests: Flip-Up Footplate Adjustment

All independent legrests available from Motion Concepts provide a flip-up footplate feature to provide leg and foot clearance when transferring to and from the front of the wheelchair. The footplates can be manually raised/flipped-up (1) so that they remain perpendicular to the ground as indicated below.

WARNING! Risk of Serious Injury or Device Damage

• Footplates are designed to support your legs and feet from a seated position in the wheelchair; NEVER stand on footplates when transferring in or out of the wheelchair

• <u>Before operating your wheelchair</u>, ALWAYS ensure footplates are in their full down position and your feet are properly supported by the heel straps.



e.g.; Flip-up Footplate shown on the Heavy Duty Swing Away Legrest





ii) Independent Legrests: Footplate Width/Depth/Angle Adjustment:

1. By altering the mounting position* of the clamping block (1), the footplate can be adjusted forward or backward (relative to the legrest extension tube) in 1" (26mm) increments. (**note:* the clamping block can also be <u>inverted</u> (rotated 180 degrees), in order to achieve a variation in fore/aft adjustment).

2. By loosening the clamping block, the entire footplate can be adjusted inward or outward (in relation to the extension tube) along the pivot bracket post (**2**).

3. The heel strap position can be adjusted front to back as necessary via mounting holes in the footplate (3); Adjustments are in 1" (26mm) intervals.

4. The footplate angle (front to back) can be adjusted by loosening the clamping block and rotating the clamp around the pivot bracket post (**4**).

5. The lateral (side-to-side) footplate angle can be adjusted^{**} via the nylon set-screw located inside the pivot bracket (5). By adjusting the set screw depth, the footplate angle can be adjusted to achieve an angle greater than or less than 90 degrees as needed. (**note: set-screw adjustment requires a standard screwdriver).



5.11.5 KNEE-TO-HEEL (KTH) LENGTH ADJUSTMENTS (for Independent Legrests):



CAUTION! Risk of Injury or Device Damage

• Improper KTH length adjustments can cause collision interference with the wheelchair chasis or front casters; and/or may result in insufficient ground clearance. It is highly recommended that KTH length adjustments be performed by a qualified technician.



CAUTION! Risk of Injury or Device 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 (76mm), or the minimum ground clearance stated by wheelchair base manufacture (whichever is greater).

 If necessary, elevate the front rigging or tilt seat to achieve proper ground clearance prior to driving the wheelchair.

I. MAXX PIVOT PLUS LEGREST- KTH ADJUSTMENT

Each legrest extension bar is independently adjustable to accommodate a wide range of knee-to-heel (KTH) lengths. The set screw slides up and down inside the adjustment slot on the upper legrest housing to allow infinite KTH adjustment within the slot length. There are four extension bar lengths available to accommodate a KTH range from $8\frac{1}{2}$ " - 20" (22-51cm). The adjustment range for each individual extension bar is as follows:

Short: 81/2 - 12" (22-31cm), Med: 10 - 14" (26-36cm) Long: 13 - 17" (33-43cm) X-Long: 16 - 20" (41-51cm)



Adjusting the KTH Length: (Tools Required: 5mm hex key)

Note: When possible, the client should be seated in the chair during the legrest set-up/ KTH adjustment.

1. Working on one legrest at a time, loosen the locking clamp assembly so that the legrest extension bar will slide freely up and down.

2. Adjust the legrest (extension bar) to the desired KTH Length*, then retighten the clamp assembly to secure the legrest extension bar into place.

***Note:** The final KTH length may be affected by the set-up/angle of the footplates. Additional fine-tune KTH adjustments may be required following final footplate set-up. Refer to **Section 5.12.2** for footplate adjustments.

II. HD Swing-Away Legrest- Short KTH Length

The Short HD Swing-Away legrest is designed with a one-piece downtube. The footplate assembly can be independently adjusted, in 1/2" (13mm) increments along the downtube, that provides a KTH adjustment range from **6-11**" (**16-28 cm**).

KTH Adjustment Instructions:

1. Determine the applicable mounting holes in the legrest downtube, to achieve the desired KTH Length.

2 Align the footplate pivot mount and **curved spacers** (1) with the applicable mounting hole, then secure into place with the **mounting hardware** (screw/lock nut) (2). to the desired KTH length*, then re-tighten the legrest clamping screw to secure the extension tube into position.



III. HD Swing-Away Legrest- Standard KTH Length

The extension tubes on the Standard HD Swing-Away legrests are independently adjustable to accommodate KTH lengths ranging from **10-22**" (**26-56 cm**). Each HDSA Legrest offers infinite KTH adjustment within the 4" adjustment slot on the (upper) legrest downtube. There are four extension tube sizes available on the to achieve the full KTH range.

Short: 10 -14" (26-36 cm) Medium: 12"-16" (31 -41 cm) Long: 15 -19" (38 -48 cm) X-Long: 18-22" (46-56 cm)

KTH Adjustment Instructions:

IMPORTANT! The **set-screw** in the upper legrest extension bar is designed to maintain the legrest alignment within the adjustment slot. Ensure the set-screw protrudes enough to prevent the extension tube from rotating.

Note: When possible, the client should be seated in the chair during the legrest set-up/ KTH adjustment.

1. To adjust the KTH Length, loosen the legrest clamping screw (1) on the down tube.

2. Adjust the extension bar (2) to the desired KTH length*, then re-tighten the legrest clamping screw to secure the extension tube into position.

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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

STANDARD HDSA LEGREST: KTH ADJUSTMENT



5.12 Center Mount Front Riggings

Motion Concepts offers several styles of center mount front riggings for use on our power positioning systems, ranging from basic fixed CM legrests, to power actuated articulating CM Legrests. The following section is provided as a general reference for the common adjustments found on our various center mount legrests. For more detailed set-up/adjustment information, please refer to the legrest instruction manual provided separately.



IMPORTANT! While some basic adjustments may be performed by the end user or attendant, to ensure the center mount legrest is safely and properly adjusted, always consult your service provider prior to any adjustments. Please review the **Safety Warnings** in **Section 2.2**, as well as the Warnings! listed below



DANGER! Risk of Death, Significant Injury, Compromised Stability or Device Damage

• Following an adjustment to your seat angle, elevate module (if applic,) and/or your legrest depth, a compensating seating system adjustment (i.e.; seat depth/ legrest knee-to-heel length) may also be required. To ensure proper set-up, we recommend that center mount adjustments only be performed by a qualified technician or healthcare professional.

• NEVER leave legrests in a fully extended position when travelling up or down ramps or slopes



CAUTION! Risk of Injury or Device Damage

• Following any legrest adjustment ALWAYS inspect the wheelchair to ensure the front rigging DOES NOT interfere with the wheelchair chassis or front casters, and that the footplates do not collide with the ground.



CAUTION! Risk of Injury or Device 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 (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 footplates touch 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 Serious 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 Serious Injury, Compromised User Safety or Device 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 or in the fully lowered (powerdown) position (when applicable).



5.12.1 CENTER MOUNT LEGREST DEPTH ADJUSTMENTS



DANGER! Risk of Death, Significant Injury, Compromised Stability or Device Damage

• Adjustments involving the legrest depth and seat depth may effect the overall stability of the wheelchair. The final set-up should be determined based on the stability and driveability requirements of the end user. We recommend depth adjustments only be performed by a qualified technician or healthcare professional.

I. CM LEGREST DEPTH ADJUSTMENTS: (ALL MODELS):

The overall depth of our CM Legrests is controlled via the adjustable Maxx Legrest Hangers (using 5mm hex key).

A. Legrest Depth Adjustment Instructions (refer to Fig. 1 & Fig. 2 below)

1. Loosen the adjustments screws (x2) on the underside of each legrest hanger (left & right) (1).

2. Carefully slide the LNX CM Legrest (legrest hangers) inward or outward along the Maxx Ultra-Rails* (2), until the desired depth is achieved.

***Note:** The depth adjustable Maxx Legrest Hangers offer infinite adjustment within the available channel length on the Maxx Ultra-Rails. ALWAYS ensure the both Maxx legrest hangers are adjusted equally along each ultra-rail. 3. Re-tighten ALL adjustment screws (x4) to secure both legrest hangers into place.



WARNING! Risk of Serious Injury and/or Device Damage • <u>DO NOT</u> remove the safety set-screw located inside the adjustment slots. The set-screw helps to prevent the UL Maxx CM Legrest from disengaging from the wheelchair in the event of an impact or collision.

5.12.2 CENTER MOUNT LEGREST: FOOT PLATFORM & FOOTPLATE ADJUSTMENTS:

The following section provides adjustment instructions for both Individual Footplates and Center Mount Foot Platforms. Adjustments will differ depending on the type foot support installed.

I. INDIVIDUAL FOOTPLATE- ANGLE ADJUSTMENT

The angle* of each individual footplate is adjusted via a **button head screw** in the mounting bracket at the rear of each footplate (*refer to images below*). To set the maximum upward footplate angle, fully extend the set screw (ensure there is adequate screw thread remaining in the footplate to hold it in place). (*to maximize the downward footplate angle, the screw may be completely removed*).



I. CM FOOT PLATFORM- ANGLE ADJUSTMENT

Our center mount foot platforms are angle adjustable via a set screw at the rear of the foot platform. Increasing or decreasing the screw depth will alter the angle of the platform as illustrated below.



II. INDIVIDUAL FOOTPLATE- ANGLE ADJUSTMENT

As with the center mount platform, our individual footplates may also be angle adjusted (independently) via a set screw at the rear of each footplate. Increasing or decreasing the screw depth will alter the angle of the foot plate accordingly (Refer to image at right).



III. INDIVIDUAL FOOTPLATE- WIDTH ADJUSTMENT

The width of each individual footplate can be adjusted relative to its corresponding extension bracket by varying the orientation of the mounting hardware. The adjustable mounting hardware consists of a main bolt and four (4) 1/4" (6mm) spacers. Each footplate may be adjusted independently by changing the location/ position of the spacers along the mounting bolt- as illustrated in **images a. - e.** below.



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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

III. INDIVIDUAL FOOTPLATE- WIDTH ADJUSTMENT (...cont'd)



b. Medium Narrow (+1/4'' (6mm) per side)

c. Medium (+1/2" (13mm) per side)

d. Medium Wide (+3/4" (19mm) per side)

e. Wide (+1" (26mm) per side)

IV. INDIVIDUAL FOOTPLATE AND CM FOOT PLATFORM- FLIP-UP ADJUSTMENT

All center mount legrests available from Motion Concepts provide a flip-up footplate/foot platform feature to provide leg and foot clearance when transferring to and from the front of the wheelchair. The footplates or foot platform can be manually raised/flipped-up to remain perpendicular to the ground as indicated below.



WARNING! Risk of Serious Injury or Device Damage.

Footplates and foot platforms are designed to support your legs and feet from a seated position in the wheelchair; NEVER stand on footplates/platforms when transferring in or out of the wheelchair
<u>Before operating your wheelchair</u>, ALWAYS ensure footplates/platforms are in their full down position and your feet are properly supported by the heel straps.





5.12.3 CENTER MOUNT LEGREST KNEE-TO-HEEL (KTH) ADJUSTMENT:



CAUTION! Risk of Injury or Device Damage

• Following any legrest adjustment ALWAYS inspect the wheelchair to ensure the front rigging DOES NOT interfere with the wheelchair chassis or front casters, and that the footplates do not collide with the ground.



CAUTION! Risk of Injury or Device 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 <u>prior</u> to driving the wheelchair.

• If the wheelchair dips forward and the footplates touch the ground while in motion, please contact your Dealer for immediate assistance and/or inspection, and avoid use of the wheelchair until corrected.
I. FIXED CENTER MOUNT LEGREST

The Fixed CM Legrest is designed to provide a total range of knee-to-heel (KTH) adjustment of 9" to 19". There are two sizes/lengths of extension brackets (long and short) available to produce the desired KTH length. The knee-to-heel (KTH) length is adjusted via two adjustment screws (1 screw per side) on each extension bracket.

The extension brackets offer infinite knee-to-heel adjustment within the available slot length. (refer to **Fig. 1A** and **1B** below)

Short KTH Range = 9"-13" (23cm-33cm) Long KTH Range = 13"-19" (33cm-48cm)

KTH ADJUSTMENT INSTRUCTIONS - MAXX FIXED CM LEGREST:

1. Loosen the adjustment screws (x2) on the extension bracket, and slide/adjust the extension bracket/foot platform to the desired KTH Length.

2. Fully tighten all adjustment screws on the extension bracket to secure the foot platform into position.



• The KTH position is adjusted via the legrest extension bracket. The slotted channels in the extension bracket(s) allow for infinite KTH adjustability (within the available slot length). The method of adjustment will vary depending if the LNX Legrest is configured with a Center Mount Foot Platform (A), or Individual Footplates (B).







КТН

Adiustment

Range

SHORT

Extension Bracket

КТН

Adjustment

Range

(13" - 19")

LONG Extension Bracket





Individual Footplates Extension Brackets

(A) KTH Adjustments - Maxx LNX CM Legrest (w/ CM Foot Platform):

The Standard and Short models of the Maxx LNX Legrest configured with a CM Foot Platform use a **one-piece** extension bracket, with a single adjustment screw on each side of the extension bracket.

- 1. Start with the Maxx LNX Legrest in the Home (fully retracted) position
- 2. Loosen the left and right adjustment screws;
- 3. Slide the extension bracket up or down to the desired KTH Length (see Fig. 1a/1b/1c (Short LNX) and Fig. 2a/2b/2c (Standard LNX)).
- 4. Ensure ALL hardware/screws are fully secured following adjustment.

CAUTION! Risk of Device Damage

• The adjustment screw for the CM extension bracket must ALWAYS be installed in the uppermost <u>visible</u> mounting hole in the main body assembly. If access to the uppermost mounting hole is blocked by the CM extension bracket, the next lowest mounting hole may be used- see **Fig. 1c/2c**. below

i) KTH Adjustments: SHORT LNX Legrest with CM Foot Platform



KTH Adjustment Holes

ii) KTH Adjustments: STANDARD LNX Legrest with CM Foot Platform



(B) KTH Adjustments - Maxx LNX CM Legrest (w/Individual Footplates):

Standard and Short models of the Maxx LNX Legrest that are configured with Individual Footplates utilize two separate extension brackets with <u>four</u> adjustment screws (2 per extension bracket), as well as a <u>spacer</u> <u>block</u>* installed between the footplates. The KTH length is typically set with both footplates together in a uni-level position (see section **i**) **UNI-LEVEL Footplate Adjustments**). If necessary, the left and right extension brackets may be adjusted independently to achieve a bi-level (offset) footplate configuration (see section **ii) BI-LEVEL Footplate Adjustments** for detailed instructions).

*the spacer block must be removed (not required) at the lowest KTH length on the Short LNX.

NOTE: Depending on the desired KTH Length and the slot position on the extension brackets, it may be necessary to fully remove and re-install one or more adjustment screws (hardware) to complete the KTH Adjustment.



UNI-LEVEL Footplates, KTH Adjustment

- 1. Start with the LNX Legrest in the Home (fully retracted) position.
- 2. Loosen the two adjustment screws on the left and right extension brackets (4 screws total).
- 3. Slide/adjust both extension brackets up or down to the desired height/position* (refer to **Fig. 3a/3b/3c** (Short LNX) and **Fig. 4a/4b/4c** (Standard LNX))).
- 4. Ensure all hardware/screws are fully secured, following adjustment

***NOTE:** In order to achieve the <u>lowest KTH Length</u> on the Short LNX, the **spacer block** must first be removed from between the footplates. To remove the spacer block, loosen/disassemble the spacer block hardware (screws x2) and slide the block out. Once removed, adjust the KTH Length as per steps 1-3 above.



STANDARD LNX (UNI-LEVEL Footplates)



CAUTION! Risk of Device Damage

• The individual footplate extension brackets MUST ALWAYS have 2 adjustment screws installed (per bracket). One screw must always be installed into 1 of the 2 <u>upper</u> mounting mounting holes in the main body assembly (i.e.; the uppermost visible hole), and the second screw must be installed in the <u>lowest</u> available mounting hole)

BI-LEVEL Footplates, KTH Adjustments

Please Note: For a bi-level footplate configuration, it is recommended that the footplates be first set to the <u>shortest</u> KTH Length; The spacer block MUST remain aligned with the higher footplate (i.e.; shorter KTH length)as indicated in **Fig. 5a** below.

- 1. Start with the LNX Legrest in the Home (fully retracted) position.
- 2. Loosen the adjustment screws on the left and right extension brackets (4 screws total).
- 3. Adjust the left & right extension brackets/footplates (together) up or down (via slots) to the desired <u>shorter</u> KTH Length* (See **Fig. 5b** (**1**) below).
- Secure the extension bracket hardware (screws x2) for the footplate/bracket that will remain at the <u>shortest</u> KTH Length.

5. Loosen the screw in the spacer block on the extension bracket being adjusted for the longer KTH

- length, then adjust the extension bracket/footplate downward (via slots) to the longer KTH height/position* (see Fig. 5c (2) below).
- 6. Secure the extension bracket hardware (screws x2) for the footplate/bracket at the <u>longer KTH Length</u>, then re-tighten the spacer block mounting screw.
- 7. Verify that all hardware/screws are fully secured, following adjustments

***NOTE:** Depending on the desired KTH Length and the slot position on the extension brackets, it may be necessary to fully remove and re-install one or more adjustment screws (hardware) to complete the KTH Adjustment.



CAUTION! Risk of Device Damage

• The individual footplate extension brackets MUST ALWAYS have 2 adjustment screws installed (per bracket). One screw must always be installed into 1 of the 2 <u>upper</u> mounting mounting holes in the main body assembly (i.e.; the uppermost visible hole), and the second screw must be installed in the <u>lowest</u> available mounting hole)

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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

III. MAXX POWER DOWN LNX CENTER MOUNT LEGREST:

The Power Down LNX Legrest is designed to provide a total range of knee-to-heel (KTH) adjustment of 13" to 19". There are two sizes/lengths of extension brackets (long and short) available to produce the desired KTH length. The knee-to-heel (KTH) length is adjusted via the four adjustment screws (*2 per side*) on the extension bracket. Each extension bracket offers infinite knee-to-heel adjustment within the established range. (*see also Fig. 1A and 1B below*)

<u>Short KTH Range</u>= 13"-16" (33cm-41cm) <u>Long KTH Range</u>= 16"-19" (41cm-48cm)

i) Maxx Power Down CM Legrest: Foot Platform KTH Adjustments:

The center mount foot platform is installed onto a *one-piece* extension bracket. The extension bracket/kneeto-heel (KTH) length is adjusted via four adjustment screws on the extension bracket. The range of adjustment will vary depending on the size of the extension bracket installed, and the location of the screws inside the adjustment slots. (Refer to **Fig. 1A** and **1B** below, for examples of the associated screw and slot locations).

CAUTION! Risk of Injury or Device Damage

• Following any legrest adjustment ALWAYS inspect the wheelchair to ensure the front rigging DOES NOT interfere with the wheelchair chassis or front casters, and that the footplates do not collide with the ground.

CAUTION! Risk of Injury or Device 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 (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 <u>prior</u> to driving the wheelchair.

• If the wheelchair dips forward and the footplates touch the ground while in motion, please contact your Dealer for immediate assistance and/or inspection, and avoid use of the wheelchair until corrected.

1. Loosen the 4 adjustment screws (2 per side) on the extension bracket, and slide/adjust the extension bracket/foot platform to the desired KTH Length.

2. Fully tighten the 4 adjustment screws on the extension bracket to secure the foot platform into position.







ii) Maxx Power Down CM Legrest: Power Down Foot Platform Adjustment:

The Maxx Power Down LNX CM Legrest allows for up to a maxiumum of 4" (10cm) of power down extension. The power down distance is factory programmed based on the configuration of the seating system (*i.e.; based on the knee-to-heel length and the available ground clearance at the home (fully retracted) position* (1). The power down function may also be activated when the legrest is in an extended/raised position to assist with pressure relief if necessary (2). Should you require any further modifications/adjustments to your power down distance, please contact your local service provider for assistance.



5.13 Calf Pad Adjustments

5.13.1 CALF PAD ADJUSTMENTS FOR THE MAXX PIVOT PLUS LEGRESTS

i) **Maxx PPL- Calf Pad Depth Adjustments:** The depth of each calf pad can be adjusted independently, relative to the legrest extension tube. The calf pad mounting plate can be mounted in one of three optional positions along the calf pad mounting bracket (1).



ii) **Maxx PPL- Swing-Away Calf Pad Adjustments:** A lock/release mechanism (lever) allows each calf pad to be swivelled around the legrest in order to improve leg clearance during transfers in and out of the wheelchair. To release the calf pad latch, pull the lever inward (4), then swing/rotate the calf pad inward (5) to provide leg clearance. (*Note: the calf pad will automatically lock into place when it is returned to its original position*).



5.13.1 CALF PAD ADJUSTMENTS FOR THE MAXX PIVOT PLUS LEGRESTS. (...cont'd)

iii) **Maxx PPL- Mounting Plate Height Adjustment:** Altering the mounting position of the calf pad mounting plate on the actuator mount, will adjust the height of the calf pad up or down relative to the footplate (2).

iv) **Maxx PPL- Mounting Bracket/Calf Pad Adjustment:** By changing the screw/slot positions in the mounting bracket, and/or by changing the mounting hole locations on the calf pad itself, each pad can be independently adjusted to meet the specific needs of the end user (3). (refer to section <u>5.13.5- Calf Pad Mounting</u> <u>Bracket Configurations</u> for available calf pad mounting options)



5.13.2 CALF PAD ADJUSTMENTS FOR THE MAXX FIXED CM LEGREST

i) Maxx Fixed CM Legrest- Calf Pad Adjustment for Short KTH Lengths (9"-13" (23cm-33cm))

A. CALF PAD ASSEMBLY (SHORT KTH)



B. CALF PAD DEPTH ADJUSTMENT (SHORT KTH):

The depth of the calf pads can be independently adjusted via their mounting position on the Calf Pad Mounting plate. The calf pads may be configured in one of three optional mounting positions (depths) along the side of the mounting plate (1).

(Refer to section <u>5.13.5-</u> Calf Pad Mounting Bracket Configurations, for an illustration of the available calf pad mounting options)



ii) Maxx Fixed CM Legrest- Calf Pad Adjustments for Long KTH Lengths (13"-19" (33cm-48cm))

A. CALF PAD ASSEMBLY & HEIGHT ADJUSTMENT (for Long KTH Lengths):

For <u>long</u> KTH lengths, the overall calf pad height/position on the Fixed CM Legrest can be adjusted via the calf pad mounting plate (both pads are adjusted at once). To adjust the calf pad height, loosen the two mounting screws on the front shroud, and slide the calf pads up or down via the adjustment slots in the mounting plate (1).



3/8" (10mm) increments

5.13.3 CALF PAD ADJUSTMENTS FOR THE MAXX LNX CM LEGREST (STANDARD & SHORT)

i) Maxx LNX CM Legrest- Calf Pad Height Adjustment

calf pad mounting options)

The calf pad height/position on the Maxx LNX CM Legrest is adjusted via the calf pad mounting plate (both pads are adjusted at once). <u>To adjus height</u>: loosen the 2 mounting screws on the front shroud, and adjust calf pads up/down via the adjustment slots (1). The standard LNX mounting plate offers a 1-1/4" (32mm) range of adjustment.

Plate



The individual calf pads are installed via a **mounting bracket** into the side tabs of the calf pad **mounting plate**. The calf pads may be configured (*independently*) in one of three mounting positions (depths) on the mounting plate (3/8" (9.5mm) increments) as illustated in the images below.



5.13.4 CALF PAD ADJUSTMENTS FOR THE MAXX POWER DOWN LNX CM LEGREST

i) Maxx Power Down LNX CM Legrest- Calf Pad Depth Adjustment

The independent curved calf pads are installed onto the Power Down LNX legrest via the **calf pad mounting bracket (1).** The depth of the LNX calf pads can be independently adjusted via their mounting position on the calf pad Mounting Plate. The calf pads may be configured in one of two* optional mounting positions (depths) along the side of the mounting plate (2). Adjustments are available in 3/8" (10 mm) increments.

***Note:** The rearmost hole in the mounting bracket can not be used due to interference with the power down actuator. (Please refer to section <u>5.13.5</u>- Calf Pad Mounting Bracket Configurations, for an illustration of the available calf pad mounting options)



5.13.5 CALF PAD MOUNTING BRACKET CONFIGURATIONS

The following calf pad mounting configurations are applicable to the following legrests: **Pivot Plus Legrests**, **Fixed CM Legrest**, **LNX CM legrest**, and **Power Down LNX CM Legrest**.

The calf pads may be adjusted independently on their respective mounting bracket using the mounting screws at the rear of the calf pads. Each calf pads can be adjusted (for depth, height and angle) to achieve a variety of different configurations. Refer to sample configurations are illustrated below.



5.13.6. MALLEABLE CALF PANEL (OPTION ONLY AVAILBLE WITH MAXX LNX CM LEGREST)

The malleable calf panel provides a greater level of support without the need for a multitude of adjustments. This unique one-piece calf panel consists of a molded polyurethane foam outer surface and utilizes a steel 'inner skeleton' which allows the pad to be manipulated/shaped (by hand) to match the contour of the clients legs. The malleable calf panel installs in a fixed position on the legrest assembly. See images below.



5.14 Back Adjustments

5.14.1 BACK ANGLE ADJUSTMENTS FOR TILT ONLY SYSTEMS

The tilt back cane angle can be manually adjusted to one of nine preset angles (see image below). There is a total available adjustment range of 40° from the most posterior position to the most anterior position. The pre-set (factory default) mounting position is **96°**.

i) Adjusting the Back Cane Angle:

1. Loosen the upper mounting screw (1) and remove the lower mounting hardware from both the right and left tilt back canes.

2. Tilt the canes in either the posterior or anterior direction so that the lower hole in the back cane is aligned with the desired mounting hole in the triangular mounting bracket (**2**).

3. Reinstall the lower mounting hardware through the chosen mounting hole and secure it in place; Re-tighten the upper mounting screw.



5.14.2 BACK HEIGHT ADJUSTMENTS FOR REHAB BACKS

For systems equipped with standard Motion Concepts Rehab Backs, the back height can be easily adjusted along the length of the tilt back canes if necessary. Height adjustments can be made by adjusting the overall height (position) of the mounting rail on the tilt back canes.



CAUTION! Risk of Injury or Device Damage.

• The crossbrace assembly (see **Fig. 1** below) must ALWAYS remain in place on the Rehab Back for proper support.

• Further adjustment of the crossbrace is not typically required, but when necessary, the height of the crossbace may be adjusted via the crossbrace mounting hardware (screws x4).

i) Adjusting the Rehab Back Height:

IMPORTANT! When adjusting the back height, **DO NOT** fully remove adjustment screws. Loosen the mounting clamp assembly (screws x2) just enough to allow the mounting rail to slide along the back canes. (*The clamp assembly may be difficult to reassemble if the screws are fully removed*)

1. Loosen the left & right mounting clamp assembly (2 screws) that secure the Rehab Back mounting rails onto the tilt back canes (1). (*Note: The back pan must be supported when loosening hardware*)

2. Adjust the back pan (mounting rails) vertically along the back canes until the desired back height is achieved (2).

3. Fully secure (retighten) both mounting clamp assemblies to secure the Rehab Back into position.



5.14.3 EXTENDED SHEAR REDUCTION (ESR) FOR RECLINE SYSTEMS

CAUTION! Risk of Device Damage.

• Improper adjustment, may cause damage to the ESR linkages and/or recline actuator. Following any adjustment, always test the ESR function over the full range of recline to ensure that no binding or collision interference occurs with any part of the seating system (including headrest hardware).

Extended Shear Reduction (ESR) is synchronized with the recline function to minimize the amount of shear between the client and the back rest. This is accomplished using a series of linkages that allow the back rest to slide along the back canes as the system is reclined.

The ESR Linkages may be adjusted in one of two locations to better meet the needs of the end user:

- i. **Shear Range Adjustment-** By changing the mounting hole location on the upper ESR link, the range of shear (travel distance) can be altered (refer to **Fig. 1**.)
- ii. **Back Height Adjustment-** Minor back height adjustments can also be made using the height adjustment linkages (refer to **Fig. 2**.); Loosen screws (x2) and slide linkages/backrest up or down as required.



5.14.4 SINGLE POST BACK ADJUSTMENT



CAUTION! Risk of Injury or Device Damage

• Following any back angle adjustments, and before operating your wheelchair, always ensure the release handle is returned to the down/locked position, and the back is secured in place.

Our Single Post Back is adjusted manually, and provides a total available **adjustment range of 43°**. The back angle ranges from **116°** in the most posterior/reclined position, up to **73°** in the most anterior/precline position. Adjustments can be made in **6° increments**, with the initial (factory preset) back angle set at **91°**- refer to **Fig. 1.** below. The single post back is also designed to fold down onto the seat pan, if necessary, to assist with loading and transportation of the wheelchair

i) Adjusting the Single Post Back Angle:

1. Lift the release handle to unlock the hinge mechanism on the single post back (1).

2. Manually adjust the back to the desired angle/position. There are seven preset positions/back angles available for adjustment as illustrated (**2**).

(**Note:** the angles shown are measured relative to the seat frame and may differ slightly depending on the final set-up of the seating system).

3. When the desired angle is established, return the handle to the locked position.







5.14.5 POWER SLIDING BACK (PSB) ADJUSTMENT

CAUTION! Risk of Injury or Device Damage.
 Improper adjustment, by unqualified personnel, may cause damage to the seating system and/or accessories. If adjustments are required, contact your Local Serivce Provider for assistance.

The Power Sliding Back (PSB) option utilizes an actuator to adjust the back height position over a 3" (8 cm) range of adjustment. Our unique ultra-track allows the back to slide smoothly up and down the wheelchair back canes. The PSB can also be synchronized with the recline function (to operate similar to the ESR function and minimize the shear effect). The power sliding back is ideally suited for quadriplegics or clients with neurological conditions such as ALS, and will allow the client to pull up, reposition or shift their body weight.

The PSB function can be programmed to operate via a single switch (toggle mode), a two-way switch (direct mode), or where applicable, it may also be programmed for operation via the joystick in powered seating mode. The initial back height is set at the factory based on the client specifications. Changes to the factory set-up must only be performed by a qualified technician. If an adjustment is required, please contact your local Dealer or Healthcare Provider.



5.15 Lateral Trunk Support Adjustments



WARNING! Risk of Serious Injury or Device Damage.

• When performing transfer activities into and out of the wheelchair, DO NOT use the Lateral Trunk Supports for load bearing support, otherwise serious injury and/or damage to the laterals may occur.

5.15.1 MAXX LATERAL TRUNK SUPPORT



5.16 Lateral Hip Support Adjustments

WARNING! Risk of Serious Injury or Device 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.

5.16.1 MAXX QUICK-RELEASE LATERAL HIP SUPPORT



5.16.2 MAXX FIXED MOUNT LATERAL HIP SUPPORT



5.17 Maxx Transfer Handles



WARNING! Risk of Serious Injury or Compromised Stability.

PRIOR to performing any transfer activities, ALWAYS ensure the transfer handle(s) are locked into position (with the 'pull-pin' fully inserted); NEVER attempt a transfer when the pull-pin is removed.
The transfer handle mounting hardware should be inspected regularly to ensure it remains secured to the seat side rail and does not slide of shift during use.

LONG

SHORT

Transfer Handles are available in two different sizes/heights.

Short Handle: Height Range= 4"-6.5" (102mm -165mm) **Long Handle:** Height Range= 9"-11.5" (229mm - 292mm) Range of Adjustment= 2.5" (64mm) *(in 1/2" (13mm) increments)*



To Adjust Handle Height:

1. Remove the pull-pin from the transfer handle housing on the seat side rail.

2. Raise or lower the handle to the desired height by aligning the adjustment hole in the transfer handle with the pull-pin hole in the housing.

3. Once aligned, re-install the pull-pin to lock the handle into position. (*The pin will 'click' into place when properly installed*)

B. ROTATING THE TRANSFER HANDLE:

To Rotate the Handle:

1. Remove the pull-pin from the transfer handle housing on the seat side rail.

2. Rotate the handle 180°, and re-align the adjustment hole in the transfer handle with the pull-pin hole in the housing.

3. Re-install the pull-pin to lock the handle into position. *(The pin will 'click' into place when properly installed)*

C. HANDLE DEPTH ADJUSTMENT:

To Adjust Handle Depth (Along the Side Rail):

1. Loosen (<u>Do Not</u> Remove) the mounting hardware (screw/t-nut) that secures the housing to the side rail.

2. Carefully slide the housing (transfer handle) forward or rearward to the desired position along the side rail.

3. Re-tighten the mounting hardware (screw/ t-nut) to secure the housing to the seat side rail.









5.18 Headrest Pads and Hardware

and installation instructions for the available headrest options. existing mounting holes on the Motion Concepts back pan. The following sections include hardware set-up with our line of Matrx Elan headrest pads. The headrest clamp hardware provided is designed to install into and Matrx Elan headrest hardware is compatible with most industry standard headrests, and is designed for use adjustable headrest hardware and contoured foam headrest pad if preferred. Our Matrx LOXX headrest hardware Our basic headrest hardware and pad is available for all seating systems, with the option to upgrade to a more

WARNING! Risk of Serious Personal Injury or Device Damage

- cause the neck to be hyperextended in the event of a collision, or when the system is tilted or reclined. Injury hazard during use of the wheelchair if a headrest is wrongly adjusted or not installed! This can
- This product must be fitted by an experienced clinician or technician.
- Before each use, check that all mounting/adjustment hardware is securely fastened.



CAUTION! Risk of Device Damage

. Yuesesəsən ze bəitibom əd teum ədut for possible interference over the full range of recline. If interference occurs, the length of the down For systems equipped with power recline and ESR, always inspect/ test the headrest (down tube)



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



-			
		Elan 4-Point Pad 71" x 10" (28cm x 26cm)	
		Elan 4-Point Pad-sm 9" x 7" (23cm x 28cm)	
	449TG143	Elan Occipital Pad 12" x 8" (30cm x 20cm)	
EOP12-IC EOP9-IC	EOb3	Flan Occipital Pad 9" x /" (23cm x 18cm)	
0.0001			
ESP14-IC	ESP14	(Ct /C/ //3 ///t cd color/13/0/13	
ESP10-IC	0LdS3	Elan Standard Pad 10" x 5" (25cm x 13cm)	
ESP6-IC	5992	Elan Standard Pad 6" x 3.5" (15cm x 9cm)	
(Wipeable) Cover	Fabric Cover		
Infection Control	Standard	HEADREST PAD DESCRIPTION	
WODEF#			

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 & 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 LOXX HEADREST HARDWARE:

The Loxx 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.**). The following installation instructions are applicable to the following LOXX mounting hardware options: **LXSH** (Loxx Standard hardware; **LXMH** (Loxx Mini Harware); and optional Extended Horizontal Mounting Bar (**LXSH-EX, LMHW-EX**)

LOXX Headrest Hardware Installation/Set-up Instructions:

Optional Locking Screw (see **Fig 1**): The locking lever (**A1**) may be replaced with the optional 30mm locking screw (**A2**) provided. Remove/unscrew the lever from the upper clamp housing and <u>retain the original washer (**a**</u>). Being careful to keep the clamping block (**b**) in position inside the upper pivot, use the 5mm hex key (provided) to install the replacement locking screw (with washer)

Mounting Clamp Installation (see **Fig 2**): Secure the mounting clamp assembly (E) onto back shell* using hardware provided. If additional clearance is required, install the spacer plate and long screws (c) provided. (*note: the mounting clamp hardware is installed from the inside of the back shell)

LOXX[™] Hardware Installation Instructions (see Fig 3):

- Loosen set-screw (d) and remove the lower D-Ring (D2) from the headrest post (1).
- Install the headrest post (F) into the mounting clamp assembly (E), and adjust the headrest post to the desired height/position (2). (*note: loosen upper D-Ring if necessary*)
- Tighten the mounting clamp (E) to secure the headrest post in position (3).
- Adjust the upper D-Ring (D1) so that it rests flush with the top of the mounting clamp (4), then secure the D-Ring into place via the set-screw (d).
- Reinstall and secure the Lower D-Ring (D2) onto the headrest post (5) so that it rests flush with the bottom of the mounting clamp assembly.

Headrest Post Modifications: If necessary, the headrest post (**F**) can be cut (shortened) to prevent any collision interference along the back of the wheelchair/seating system. (*Note: After cutting the post, the plastic end cap* (**G**) *can be removed and re-installed into the newly cut post*).

Headrest Pad Adjustment (see **Fig 4**): Loosen the locking lever (A1) or locking screw (A2) on the upper pivot assembly (B). Slide the horizontal bar (C) to the desired depth inside the upper pivot (1), and adjust the headrest angle by pivoting/rotating the upper pivot to achieve the desired headrest position (2). Re-tigthen the locking lever/locking screw (B) to secure the headrest into position.



Elan Headrest Pad* Installation (see Fig 5):

Position the headrest mounting collar over the pivot ball on the horizontal bar (1); then align and secure the mounting collar to the headrest pad (2).



5.18.4 ELAN HEADREST MOUNTING HARDWARE and INSTALLATION:

Our Matrx Elan Headrest Hardware may be combined with any OEM headrest pad fitted with standard lock-ball and collar hardware, including our Motion Concepts Elan Headrest Pads (see **Section 5.18.1**). The installation instructions provided below are applicable to the following Elan mounting hardware options:

- MEHW: Matrx Elan Mounting Hardware, standard-dual link, post length 14" (356mm);
- MEMH: Matrx Elan Mini Hardware, standard-dual link, post length 10" (254mm);
- MEHW-EXT: Matrx Elan Mounting Hardware, extended-3-link, post length 14" (356mm)

CAUTION! During the Elan Headrest Installation/Set-up, adhere to the following warnings: • DO NOT fully disassemble the headrest linkage hardware.

• For angle adjustment loosen only the designated adjustment screws in the linkage assembly by approx. 1/2 turn. (see **Fig. 2** for an overview of the Elan Linkage Adjustments)

i) MEHW / MEMH / MEHW-EXT Installation/Adjustment Instructions:

TOOLS REQUIRED: Hex Keys 2.5mm / 4mm (provided); Hacksaw, Power Drill, 6mm Drill Bit

1. Secure the headrest clamp onto the back shell (or headrest adapter plate) using hardware provided (Fig.1(A))

2. Install the headrest pad onto the Elan hardware using headrest mounting ring/hardware provided. (Fig.1(B))

3. Loosen/remove the lower D-Clamp from vertical mounting post² (*using 2.5mm hex key*). (Fig, 1(C)).

4. Slide the vertical mounting post into the clamp assembly and adjust the overall height of the headrest post pad to the desired position (by adjusting the upper D-Ring position as needed). Tighten the clamp (knob) to secure the headrest assembly in place. (**Fig 1(C**)).

5. Adjust the headrest pad to the desired depth and angle according to the needs of the user by adjusting the three pivot points (adjustment screws²) on the standard (dual-link) assembly, or the four pivot points (adjustment screws²) on the extended (3-link) assembly, in combination with the upper and lower rotational pivots (refer to **Fig. 2- Elan Linkage Adjustment**).

6. Once the final headrest position is established, ensure all pivots and headrest hardware are fully tightened.

7. Secure the Lower D-Ring onto the vertical post so that it rest flush with the bottom of the clamp assembly (to prevent slipping).

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).

²**NOTE:** Optional **Lever Handles** (x2), may be installed in place of the adjustment screws for easier adjustment of the Elan hardware- refer to the Installation Instructions provided below, and **Fig. 3** for an overview of the proper Lever Handle Installation.

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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

Fig. 1 MEHW / MEMH / MEHW-EXT Installation/Adjustment:



Fig. 1B Headrest Pad Installation



Fig. 1C D-Ring Adjustment/Installation





ii) Optional Lever Handle Installation:

CAUTION! Risk of Injury or Device Damage

• When installing the Lever Handles, remove <u>only</u> the adjustment screw, while leaving the hex insert in place; then thread the lever handle into the hex insert (see **Fig 3.** below).

Installation on the Dual-Link Hardware:

Carefully remove the adjustment screw from the upper and/or lower pivot only (leaving the hex insert in place), then screw the lever handle (and washer) into the hex insert. (refer to **Fig. 3A**)

Installation on the Extended (3-Link) Hardware:

Ensure the lever handles are offset by at least one pivot point to avoid interference. Carefully remove the adjustment screw from the desired pivot point (leaving the hex insert in place), then screw the lever handle (and washer) into the hex insert. (see **Fig. 3B**)





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



CAUTION! Risk of Device 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.

A. Multi-Axis Headrest Hardware (MAHW):

IMPROPER SET-UP



B. Matrx Elan Headrest Hardware (MEHW/MEMH): **IMPROPER SET-UP**

PROPER SET-UP



5.19 Postural Belts

Your postural 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 Technican. Ensure your Dealer has informed you about proper fitting and usage of your postural belt.



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 5.19.3** for instructions on proper belt adjustment.



WARNING! Risk of Serious Injury or Compromised User Safety Not wearing your postural belt could result in serious injury or compromised safety.

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 postural belt is properly secured to the wheelchair and is adjusted for comfort before each use.

• <u>Postural Belts are NOT designed for use as a seat belt in a motor vehicle</u>. 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 or Compromised User Safety

- Improper care & maintenance of your postural belt/chest strap could result in 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 or other chemicals.



CAUTION! Risk of Device Dmage due to crushing 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.

5.19.1 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.



5.19.2 POSTURAL BELT INSTALLATION (FOR UL MAXX SYSTEMS):



5.19.3 ADJUSTING YOUR POSTURAL BELT

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

5.19.4 OPERATING YOUR POSTURAL BELT

• 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**).



5.20 IV Poles (for Tilt-Only or Recline Systems)

Motion Concepts IV Poles are designed to interface with our tilt-only seating systems as well as our recline seating systems. The IV Poles are height adjustable and fully removable for convenience when transferring to and from your wheelchair.





WARNING! Risk of Serious Injury or Device Damage

- ALWAYS ensure the IV Pole (clamping mechanism) is fully secured/tightened PRIOR to operating your seating system and/or driving the wheelchair.
- ALWAYS ensure that all IV lines/tubes are safely routed and free from interference or pinching/ pulling PRIOR to operating your seating system and/or driving the wheelchair
- The IV Pole is designed to support IV bags and any ancillary equipment <u>only</u>; DO NOT hang large or heavy objects such as coats or backpacks from the IV pole, otherwise damage may occur.
- The weight capacity of the IV Pole is up to a maximum of 5lb (2.3kg).

5.20.1 REMOVING AND RE-INSTALLING THE IV POLE:

Note: The process for installing/removing an IV Pole to/from your Motion Concepts seating system is identical for both the articulating and non-articulating IV Poles:

To Remove the IV Pole from the Wheelchair:

1. Loosen each clamp assembly (via the knob) on the upper and lower mounting brackets (1). (*Note: the knob remains attached to the clamp on the IV Pole (do not fully remove the knob)*)

2. Being careful to support/steady the IV Pole, slide the pole assembly outward along the slotted channel in the clamping plate as illustrated (2).

To Re-install the IV Pole onto the Wheelchair:

3. To reinstall the IV pole, reverse Steps 1. and 2. above and ensure both clamp assemblies (knobs) are fully tightened prior to operating the wheelchair/seating system.





e.g. shown with Articulating IV Pole Removed



5.20.2 IV POLE HEIGHT ADJUSTMENTS:

A. UPPER IV EXTENSION TUBE (HEIGHT) ADJUSTMENT:

Note: The upper extension tube is adjustable in 2" (5cm) increments. Extension tube adjustments are identical for articulating and nonarticulating IV Poles.

To Adjust the Extension Tube:

1. Locate the push button spring pin on the lower tube housing (1).

2. Depress the push button while simultaneously adjusting the upper extension tube to the desired height relative to the lower tube housing (**2**).

3. Re-align the push button pin with the corresponding adjustment hole on the lower tube housing. Verify the spring pin is fully engaged before use.

B. CANE CLAMP HEIGHT ADJUSTMENT (FOR TILT-ONLY SYSTEMS):

Note: If necessary, the back cane mounting clamps can be adjusted independently along the back cane to provide sufficient clearance and/or prevent interference with other accessories.

To Adjust the Extension Tube:

1. Loosen the clamping bolt on the cane clamp assembly that you wish to adjust (1). (Do not fully remove screw) **Note:** when making independent clamp height adjustments, the IV Pole clamps must also be loosened to complete the adjustment.

2. While supporting the IV Pole, carefully slide/adjust the height of the clamp to the desired position on the tilt back cane (2).

3. Ensure all adjusted mounting clamps are properly aligned (perpendicular to the cane/tube) then re-tighten all mounting clamp hardware. Verify the IV Pole is secure before use.

C. LOWER IV TUBE HEIGHT ADJUSTMENT:

Note: Most IV Pole height adjustments can be accomplished via the upper extension tube (per section **A**.). If necessary, the height of the lower tube may also be adjusted via the upper and lower IV Pole mounting clamps. Clamp adjustments are identical for articulating and non-articulating IV Poles.

To Adjust the Lower Tube Height:

1. Loosen the clamping screw on the upper and lower pole clamp assembly (**1**). *(Do not fully remove screw)*

2. Carefully slide/adjust the lower tube to the desired height/position relative to the seating system (2).

3. Re-tighten the hardware (screws) on the upper and lower pole clamps, and verify the IV Pole is secure before use.





e.g. Non-Articulating IV Pole



5.21 Vent Boxes and O2 Holders

DANGER! Risk of Death, Significant Injury or Device Damage

reduced by 75lb. (34kg) (based on a ventilitator weight of 35lbs (16kg). NEVER exceed the maximum positioning system (PPS). The weight capacity of the UL Maxx power positioning system must be Full Size ventillators can be extremely heavy and will affect the maximum weight capacity of the power Failure to observe the following warnings may result in death, significant injury of device damage

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your Dealer immediately for service. specific needs. If you have any concerns with the stability and/or set-up of your wheelchair, contact to ensure that the wheelchair and power positioning system are set-up properly and safely for your equipped with large ventillators may have reduced tilt/recline limits applied. It is the Dealers responsibility • Full size ventillators can adversely affect the stability of the seating system/wheelchair. Wheelchairs recommended PPS Weight Capacity.

DO NOT hang large or heavy objects such as coats or backpacks from the vent box or O2 holder, Holders are <u>only</u> designed to accommodate gas cylinders/liquid O2 units and any ancillary equipment. Vent Boxes are only designed to accommodate ventillators and any ancillary equipment; Similarly O2

your local service provider for assistance. to the original set up of the Vent Box/O2 Holder only be performed by a qualified technician. Contact Due to the potential affect on wheelchair stability, Motion Concepts recommends that any adjustment otherwise system stability may be compromised and/or damage may occur.

and position of all connected harnesses/hoses to ensure they are free from interference and there is to driving your wheelchair or operating your power positioning system, ALWAYS inspect the location Dealers are responsible for proper/safe routing of ventillator/oxygen hoses and harnesses. Prior

type/model. Specific weight limits are identified for each model in the intructions that follow. DO NOT The maximum weight capacity/limit for a vent box/tray and/or O2 holder will vary depending on the no risk of crushing, pinching or pulling over the full range of articulation.

should be performed to ensure the ventillator and/or gas (O2) cylinders remains secured in place Where applicable, periodic inspection of adjustment and fastening hardware, latches and knobs wheelchair with a ventillator installed. See also Safety Warnings: Section 2.2 (Guidelines for Inclines) ALWAYS use caution and travel at a reduced speed, when travelling up or down an incline/ramp in a exceed the specified weight capacity of your vent tray/box or O2 holder.

inside the vent box/tray or O2 holder.

WARNING! Risk of Serious Injury due to Crushing or Pinching.

children and pets. tray/O2 holder. Be mindful of potential pinch points caused by moving vent linkages, especially around the new metric of your surroundings when operating your power positioning system with a vent

O2 holder assembly. ALWAYS keep hands, fingers or limbs clear of the articulating mechanism/linkages on the vent tray/

5.21.1 VENT BOXES (FOR TILT-ONLY OR RECLINE SYSTEMS)

maintenance instructions related to the ventillator unit. Operators Manual (provided separately by the manufacturer) for detailed operating, safety and Vent Trays/Vent Boxes. Please be certain to read and understand the OEM Ventillator Owners/ IMPORTANT! The following section is specific only to the set-up & adjustment of Motion Concepts

their corresponding adjustments. systems in the marketplace. The following section illustrates the various vent boxes/trays available, and Motion Concepts offers a wide range of vent boxes, designed to accomodate the most common ventillator systems and our recline seating systems. Ventillators can vary significantly in shape, size and weight. Motion Concepts produces a variety of vent boxes/trays, capable of interfacing with our tilt-only seating

A. LTV Compact Vent Box:

Our line of LTV Compact Vent boxes are designed to accomodate the streamlined and portable LTV Compact Ventillator series. There are 3 styles of Motion Concepts vent boxes available for use with LTV Compact Vents. The standard **Easy-Fit** Vent Box, the **Easy-Fit with Removable Cover**, and the **Back Pack** style Vent Box (see examples below). The LTV Compact Vent box has a maximum **weight capacity of 20 lb. (9 kg**)

All LTV vent boxes are capable of mounting to a Tilt-Only Seating System or a Recline Seating System. Refer to sections **i.** and **ii.** below. If required, an optional <u>Vacuum Bag Holder</u> (mounting bracket) is also available for installation onto <u>all</u> models of LTV vent boxes- see **Fig. 1.0** below

i. LTV COMPACT VENT OPTIONS (for Recline Systems):



LTV Vent Box Adjustments: (for Tilt-Only Systems):

The LTV Tilt-Only Vent Box will not typically require further adjustment following installation, however if necessary, mounting height and width adjustments are available (relative to the tilt back canes). Mounting height and/or width adjustments will require adjustments to both the upper mounting brackets and the lower crossbar mounts. Refer to images/instructions below.



MOUNTING HEIGHT ADJUSTMENTS:

1. If necessary, the height of the vent box can be adjusted along the back canes by loosening the upper mounting brackets (cane clamps x2), and the lower crossbar mounting brackets (x2).

2. With all mounting brackets/hardware loosened, slide the entire vent box assembly (including upper & lower brackets) vertically (up or down) (1) on the tilt back canes until the desired height/position is achieved.

3. Fully re-tighten all upper and lower mounting clamps/bracket hardware.

MOUNTING WIDTH ADJUSTMENTS:

1 **Upper Vent Mount:** The upper mounting brackets (left & right) are secured to the inside of the LTV vent box, and are designed to allow for width adjustments in 1" (26mm) increments (1/2" (13mm) adjustment per bracket), using the mounting hardware provided.

2. To adjust, remove upper mounting hardware on inside of vent box (*screws x4*), re-align the upper (left & right) mounting brackets with the appropriate mounting holes (2) in the vent box (at desired width*), and reinstall the hardware.

1. **Lower Crossbar Mount:** The bottom of the LTV vent box is mounted to the seating system via the lower crossbar assembly (center tube). The left and right crossbar tubes are designed to allow for width adjustments in 1" (26 mm) increments (1/2" (13 mm) adjustment per tube).

2. To adjust the crossbar, remove the lower vent mounting hardware (*screws x2*), adjust the left & right crossbar tubes inward/outward (2) to the desired width*, then re-align the lower vent box and re-install the mounting hardware.

***Note:** The LTV Vent Box should remain **centered** between the back canes following any width adjustment. (Width adjustments should be performed equally on the left and right mounting brackets/tubes)

B. Universal Vent Box:

The universal vent box/tray is designed to accomodate a wide range of large/full size ventillators available in the marketplace. The vent tray assembly is designed to allow for depth and width adjustments in order to fit/secure the ventillator inside the vent box. The universal vent box has a maximum **weight capacity** of **35 lb.** (**16 kg**).



Universal Vent Box Adjustments: (for Tilt-Only and Recline Systems)



IMPORTANT! Ensure all adjustment brackets/hardware is fully secured and properly adjusted to prevent the ventillator from sliding inside the tray during operation fo the wheelchair/power positioning system.

DEPTH ADJUSTMENT (via the depth adjustment tray):

1. Loosen the tray depth adjustment screws/hardware on each side of the vent box (4 screws total).

2. Slide the depth adjustment tray inward/outward (1) to the desired depth (via the slotted channels), then re tighten the tray adjustment screws/hardware (x4).

DEPTH ADJUSTMENT (via the depth adjustment bracket):

1. <u>Loosen</u> the depth bracket adjustment screws/hardware on the top surface of the vent box (4 screws), then adjust the bracket depth via the slotted channels in the bracket (**2**).

2. If additional depth adjustment is required, fully disassemble the depth bracket hardware (screws & nut plates) then re-align the bracket/slotted channels to allow for a greater range of depth adjustment.

3. Once the final bracket position is set, re-tighten the depth bracket adjustment screws/hardware (x4).

WIDTH ADJUSTMENT (via the side brackets):

1. <u>Loosen</u> the left and right side bracket hardware (2 screws per bracket) on the top surface of the vent box, then adjust each bracket (equally*) along the slotted channels in the vent box (**3**). (***Note:** the side brackets should be adjusted evenly so that the ventillator remains centered inside the vent box following installation)

2. Once the final side bracket position is determined, re-tighten the adjustment screws/hardware on each bracket.
5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

C. Trilogy Vent Box:

The Trilogy vent box/tray is designed to accomodate the portable Trilogy series ventillators. The vent tray assembly is depth adjustable in order to properly secure the Trilogy ventillator inside the vent tray. The Trilogy vent box has a maximum **weight capacity** of **35 lb**. (**16 kg**)



Trilogy Vent Box Adjustments: (for Recline Systems):



IMPORTANT! Ensure the adjustment knob & bracket hardware is properly adjusted and fully secured to prevent the vent from sliding inside the tray during operation of the wheelchair/positioning system.

DEPTH ADJUSTMENT (via the depth adjustment tray):

- 1. Loosen the tray depth adjustment screws/hardware on each side of the vent box (4 screws total).
- 2. Slide the depth adjustment tray inward/outward (1) to the desired depth (via the slotted channels), then re-tighten the tray adjustment screws/hardware (x4).

DEPTH ADJUSTMENT (via the depth adjustment bracket):

- 1. <u>Loosen</u> the depth bracket adjustment screws/hardware on the top surface of the vent box (4 screws), then adjust the bracket depth via the slotted channels in the bracket (**2**).
- 2. If additional depth adjustment is required, fully disassemble the depth bracket hardware (screws & nut plates) then re-align the bracket/slotted channels to allow for a greater range of depth adjustment.
- 3. Once the final bracket position is set, re-tighten the depth bracket adjustment screws/hardware (x4).

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.21.2 02 HOLDERS (FOR GAS CYLINDERS AND LIQUID O2 PORTABLES)



IMPORTANT! The following section is specific to the set-up & adjustment of Motion Concepts Gas Cylinder and Liquid O2 Holders. For detailed operating, safety, handling and maintenance instructions related to the compressed oxygen tanks and/or liquid O2 units, please be certain to <u>read and understand</u> the **OEM Owners/Operators Manual** (provided separately by the manufacturer).

Motion Concepts has designed O2 Holders to accomodate Gas (O2) Cylinders as well as Liquid O2 units. Both types of O2 Holders may be installed onto our Tilt-Only Seating Systems and/or Recline Seating Systems. Motion Concepts O2 Holders have a maximum **weight capacity** of **20 lb.** (**9 kg**). The typical mounting configurations for Gas Cylinder O2 Holders and Liquid O2 Holders are illustrated in the sections below.

A. O2 Holder for Gas Cylinders:

I) GAS CYLINDER HOLDER (for Tilt-Only Systems)



Note: the style of crossbar assembly may vary depending on the type of seating seating system installed.

IMPORTANT! When the gas cylinder (tank) is installed, ALWAYS ensure the **adjustable knobs** (*x2*) are tightened to secure the cylinder/tank in position and prevent it from bouncing/rotating inside the holder.

Gas Cylinder Holder Mounting Adjustments: (for Tilt-Only Systems):

1. The cylinder holder may be mounted onto the left or right side of the seating system (1). The cylinder holder is installed onto the upper & lower crossbar assemblies using the hardware provided. (*Note: the cylinder mount-ing hardware replaces the existing crossbar hardware*)

2. The height of the gas cylinder holder can be adjusted in 1" (26 mm) increments (**2**), relative to the crossbar assembly, via the optional mounting holes in the cylinder holder (*using the mounting hardware provided*).

3. If necessary, in order to provide additional clearance and/or prevent interference from other system hardware, the height of the upper and lower crossbar assemblies may also be adjusted independently along the tilt back canes (3) by loosening the mounting hardware (clamp assembly) that secures the crossbar to the tilt back canes.

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5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

ii) GAS (O2) CYLINDER HOLDER (for Recline Systems)



IMPORTANT! When the gas cylinder (tank) is installed, ALWAYS ensure the **adjustable knobs** (*x2*) are tightened to secure the cylinder/tank in position and prevent it from bouncing/rotating inside the holder.

Gas Cylinder Holder Mounting Adjustments: (for Recline Systems):

1. The height of the gas cylinder holder can be adjusted in 1" (26 mm) increments (**1**), relative to the offset plate, via the optional mounting holes in the cylinder holder and the mounting hardware (*screws x2*) provided. 2. If necessary, the mounted position of the gas cylinder holder can be adjusted horizontally (width) up to 1" (26 mm) along the offset plate (**2**) (as illustrated) above, using the mounting hardware provided.

iii) GAS CYLINDER HOLDER FOR LTV VENT BOX (for Tilt-Only or Recline Systems)

The gas cylinder holder on an LTV Vent box is factory installed, and may be mounted onto the left or right side of the LTV Vent box.



Altering the Mounting Position of the O2 (Gas) Cylinder Holder (on the LTV Vent box):

IMPORTANT! Installation of the gas cylinder holder requires the drilling of mounting holes into the LTV Vent Box. It is recommended that any changes/adjustments to the original mounting position of the O2 cylinder holder <u>only</u> be performed by a qualified technician. Please contact your local service provider for assistance.

5.0 SEATING ACCESSORIES & COMFORT ADJUSTMENTS

5.21.2 02 HOLDERS (FOR GAS CYLINDERS AND LIQUID O2 PORTABLES) (...cont'd)

B. Liquid O2 Portable Holder:



Liquid O2 Portable Holder Mounting Adjustments (for Recline Systems):

1. The mounted position of the liquid O2 holder can be adjusted horizontally (across the width) up to 1" (26mm) along the offset plate (1) (as illustrated above), using the mounting hardware provided.

6.0 SYSTEM INSTALLATION/ ADJUSTMENT REVIEW

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 (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 range for pulling, crushing or tight bends.
- 8 Check that the charger functions properly.
- 9. Check that the acceleration and deceleration of the wheelchair have been programmed to levels appropriate for the user.
- 10. Check all of the wheelchair drive functions.
- 11. Check that the rod-ends on the recline actuators have been properly pinned (if applic).
- 12. Check the anti-tipper latching system (if applicable).
- 13. Check that the anti-tipper extensions are installed (if required).
- 14. If the front or rear anti-tippers are adjustable, check that they have been set to the appropriate position for the user.
- 15. Test drive the wheelchair and operate the power positioning system.
- 16. 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

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 **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 semiannual (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 you 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.



WARNING! Risk of Serious Injury, Device Damage & 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.



WARNING! Risk of Serious Injury or Device Damage

Incorrect repair and/or servicing of this wheelchair performed by users/caregivers or unqualified technicians can result in 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 Device Damage if maintenance is insufficient!

• Under extreme 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 Device Damage

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

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



DANGER! Risk of Death or Significant Injury.

Electric shock can cause death or significant injury

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



WARNING! Risk of Serious Injury or Device Damage

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



WARNING! Risk of Serious Injury or Device 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 1.6 - System Identification**) to assist in ordering the correct replacement parts



CAUTION! 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.

7.2 Maintenance Inspection Checklist

Task	Delivery	Monthly	Periodically	6 Months (Service)
Batteries				
Load test batteries (individually)	X			х
Ensure batteries are clean (free from corrosion/ moisture/ dirt)	Х			Х
Ensure connections are tight and clean	х		_	х
Electrical / Wiring Harnesses				
Check wire routing & cables for pinching or pulling (over the full range of seating system functions)	х	x		х
Inspect for wear & tear damage to wires/connectors	Х	Х		Х
Ensure electronic connections are secure		х		Х
Actuators (where applicable)				
Ensure actuator rod ends are properly pinned (if applic)	Х			Х
Ensure no interference/binding during system operation (test all seating functions over their full range of travel)	Х		x	х
Inspect/listen for excessive motor noise or grinding	Х		Х	Х
Hardware and Components				
Inspect mounting interface hardware (seating system to powerbase)	Х		X	Х
Inspect all adjustment hardware, and accesory 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)	х	x		x
Inspect/listen for loose parts/rattling- ensure all fasteners are secure	Х	х		Х
Inspect that all pivot points are secured (do not overtighten) and operating smoothly/freely (lubricate as needed)			x	Х
Inspect Anti-Dive/Anti-Tip devices to ensure they are functioning correctly* and inspect for damage. (*refer to powerbase owners manual)	Х		x	Х
Limit Switches				
Ensure electronic anti-tip latch system functions properly (for applicable powerbases only)- see also Power Base Owners/Operators Manual)	X	X		х
Check all safety lockouts and limit switch settings	Х	X		Х
Ensure DLO functions correctly	Х	X		Х
Pivots and Slide Channel Maintenance				
Ensure slide channels are free from dirt/ dust/ grime			Х	Х
Lightly lubricate main pivot points, using a general purpose oil (see Section 7.3 - Lubrication)			x	х
General				
Clean/wipe down cushion and back upholstery and arm pads (avoid the use of bleach and harsh solvents that may damage upholstery)			x	
Ensure upholstery does not have any rips or tears.			Х	Х
Inspect the postural (seat positioning) belt for any signs of wear. Ensure the buckle latches, and verify that the belt/strap mounting hardware is secure and undamaged	х	x		х

7.3 Seating Module Lubrication

IMPORTANT! To maintain the smooth operation of your Power Positioning 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.

TILT MODULES



Pivot Point Lubrication

-Tilt/Elevate the seating system*;

-Use a clean rag to wipe away any dirt, residue around pivots and along slide channels;

-Lubricate main pivot points of the positioning module periodically using a general purpose oil.

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



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.



WARNING! Risk of Compromised Device Performance/Safety or Device 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. (<u>Note</u>: 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*).

7.6 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 <u>**0** (zero)</u> 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 Device 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.

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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.



8.0 TROUBLESHOOTING

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

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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

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WARNING! It is very important that you read this information regarding the possible effects of electromagnetic interference (EMI) on your Motion Concepts Power Positioning System and your powered wheelchair base. <u>Please also be certain to read the EMI Warnings pro-</u> <u>vided in the user manual for your wheelchair power base.</u>

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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

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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 device 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 <u>classified into three categories</u>:

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

Examples include:

- Nobile phones;
- Citizen band (CB) radios;
- ;"səixlıst-əixlısW" •
- Security, fire and police radios;
- Lap-top computers (with phone or fax);
- Electonic article surveillance systems;
- Other personal communication devices;

***NOTE:** These devices can transmit signals while they are "OV", 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 MPPS configuration was tested and found to be immune to at least 20 V/m: 18" Seat Width, 18" Seat Depth, with tilt, elevate, recline and power LNX center mount legrest with a one piece footplate. The power positioning system was configured with a multi-function M-Series (M610R) Seat Control, M270 Remote Attendant Control and 8-Way Switch control, in combination with an RNET base controller, right-hand mounted RNET LED 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 positioning 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 positioning systems. Use only the approved and tested battery charger provided by the wheelchair base manufacturer with your Motion Concepts modular power positioning 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 Injury, Comrpomised User Safety and Device 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.

0.0 ЕLECTRO-МАGИЕТІС ІNTERFERENCE (EMI) INFORMATION

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

WARNING! Risk of Serious Injury, Comrpomised User Safety and Device 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. <u>Contact</u>:

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

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