



MOTION
COMPOSITES



APEX A

APEX C

USER MANUAL

ULTRALIGHT RIGID WHEELCHAIRS

motioncomposites.com

MAINTENANCE MANUAL & WARRANTY INFORMATION

Dealer: This manual must be given to the user of the APEX wheel-chair before its first use.

User: Prior to using the APEX wheelchair, carefully read this manu-al and keep it for future reference.

For more information about this product, its parts/accessories and the services provided, please visit: *motioncomposites.com*

APEX

Thank you for selecting the APEX composites wheelchair. Please do not hesitate to send us your feedback or questions regarding this product’s reliability, safety, usability, as well as any repair/mainte-nance services offered by an authorized Motion Composites dealer.

WARNING – READ THIS MANUAL

Do not operate this wheelchair without reading and understanding this user manual. If you are unable to understand the warnings, cautions and instructions, contact your Motion Composites dealer or customer support at: 1 866 650-6555 before attempting to use this wheelchair.

If you ignore this warning, you may fall, tip over or lose control of the wheelchair and seriously injure your-self or others and damage your wheelchair.

Made in Canada with Canadian and imported parts.

CONTACT INFORMATION

Motion Composites Inc.
160, Armand Majeau Sud
Saint-Roch-de-l’Achigan, Québec
J0K 3H0 Canada

Telephone: 1 866 650-6555
Fax: 1 888 966-6555

info@motioncomposites.com
motioncomposites.com



EUROPEAN AUTHORIZED REPRESENTATIVE

Advena Ltd
Tower Business Centre
2nd Floor, Tower Street
Swatar, BKR 4013, Malta

IMPORTANT INFORMATION!

If you have any questions about safety, adjustments, accessories, use, or maintenance, please contact your authorized Motion Composites distributor or dealer.

Please record the following information for future reference:

Date of purchase: _____

Serial Number: _____

Supplier: _____

Address: _____

Telephone: _____



REDEFINING THE WORLD'S EXPECTATIONS ABOUT RIGID WHEELCHAIRS

APEX is Motion Composites’ latest adjustable ultralight rigid wheel-chair. Its design is nothing short of revolutionary. Why? Because it offers the best of both worlds. The best in lightness, strength and performance combined with aluminum and carbon materials. And, for the first time, the best possible settings and adjustments for a rigid wheelchair.

THE LIGHTEST WHEELCHAIR OF ITS CATEGORY

With a transit weight of only 9.2 lbs (4.2 kg), APEX erases any preconceived notions about rigid wheelchairs. It is completely adjustable to meet the needs of almost any client and operates like a thoroughbred.

HEAD-TURNING DESIGN

Check out the design and construction details on the APEX. Or examine its innovative components and accessories such as the integrated impact guard and rigidify system. In one word... revolu-tionary.

Welcome to a new era in rigid chair design and performance.

SHED THE WEIGHT, UP THE PERFORMANCE

Available in aluminum frame, the APEX cantilever design is con-structed using the industry’s most advanced materials. Plus, the APEX represents not just low frame weight. It is also the lightest configured adjustable wheelchair in the industry.

NIMBLE AND RESPONSIVE

The unique rear rigidizing bar on the APEX optimizes ride perfor-mance. By increasing rear-frame rigidity, we’ve achieved an open design concept that increases lateral stability. Result — flex where and when you want it, and no sacrifice in stabili-ty for gains in comfort and ease of transit.



SLEEK STYLING

Inspired by modern design and aesthetics, the head-turning lines on the APEX prove once again that form should follow function. We invite you to linger on the APEX’s gentle curves and bold styling. Every design detail delights the eye and excites the senses.

TECHNOLOGIES

APEX C

The pinnacle of design and performance, the APEX Carbon is the choice of discriminating users. The lightest, smoothest ride in the world!

- 

HIGH-MODULUS CARBON T700
The lightest and most rigid material available, also renowned for its vibration dampening properties.
- 

UNIQUE ALUMINUM ALLOY
Stronger and lighter than the competition's.
- 

TRIPLE-REINFORCED ALUMINUM
Reduces weight while maintaining high strength.
- 

CLAMPED RIGIDIZING SYSTEM
Reduces weight while maintaining high strength.
- 

INTEGRATED IMPACT GUARD WITH TOP GRIP
Prevents daily-use scratches to the front of frame. Adds high friction grip for transfers. Protects vulnerable areas of lower extremities.

ADJUSTS TO YOUR LIFE

As people change and evolve, so should their wheelchairs. From simple adjustments in back angle, seat and floor height to tunable rear wheel positions and seat width, the APEX is fully modular and adjustable. Plus, its laser-etched markings allow you to more easily adjust key components and specify exact positioning.



BUBBLE LEVEL (DOUBLE)

For quick and easy angle adjustments.

APEX A

Since choice is important, we also build the APEX Aluminum with a unique alloy that's 20% stronger than 7005 aluminum. This elevates the APEX A into a new category of adjustable performance.

- 

BUBBLE LEVELS
An alloy stronger and lighter than aluminum 7005.
- 

STANDARD CARBON FIBER CAMBER TUBE
Reduces weight while maintaining high strength.
- 

LASER ETCHED MARKINGS
An alloy stronger and lighter than aluminum 7005.
- 

NEWTON ACCESSORIES
Reduces weight while maintaining high strength.

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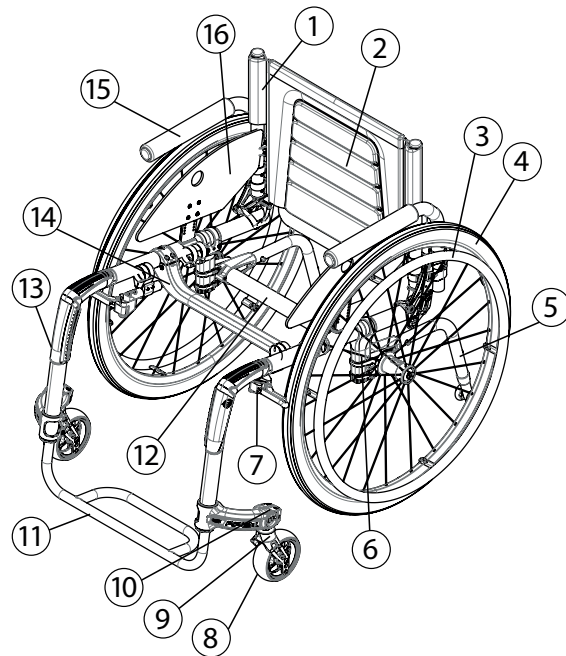
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1. PRODUCT OVERVIEW

PARTS LIST

- 1 Back cane
- 2 Backrest
- 3 Handrim
- 4 Rear wheel
- 5 Anti-tipper
- 6 Axle tube
- 7 Wheel lock
- 8 Caster
- 9 Fork
- 10 Caster mount
- 11 Footrest
- 12 Camper tube
- 13 Frame
- 14 Seat rigidizer
- 15 Armrest
- 16 Side guard



WARNING - WHEELCHAIR SELECTION

Motion Composites manufactures various models of wheelchairs to meet the needs of end users. However, Motion Composites is not a health care advisor, and we are not aware of the individual condition or needs of the wheelchair user. Therefore, the final selection of a particular model, its adjustments, the type of options and accessories, rest solely with the wheelchair user and the health care professional advisor.

Choosing the best chair and setup for your safety depends on the following criteria:

1. Your disability, strength, balance and coordination;
2. The types of hazards you must overcome in daily use (where you live and work and other places you are likely to use your chair); and
3. Your need for options for your safety and comfort (such as anti-tippers, positioning belts or special seating systems). If you ignore this warning, you may endanger your health.



WARNING - OCCUPIED TRANSIT ANCHORS AND TIEDOWNS

The wheelchair user should always transfer into the vehicle

seat and use the motor vehicle installed restraint system whenever feasible. The wheelchair should then be stored and secured in the vehicle.

If an appropriate transit system must be used, ensure that the wheelchair is equipped with the Motion Composites transit anchor kit. It must also be ensured that the straps, hooks and tiedowns of the paratransit vehicle's tiedown system meet the safety standards of the province, state or country where the user is being transported, and installed according to the tiedowns manufacturer's standards.

Motion Composites cannot recommend, and does not recommend, tiedowns or manufacturers of tiedown systems.



WARNING - SEATING RESTRAINTS

It is the obligation of your dealer and health care professionals advising you to determine if you require a seating restraint or positioning system to ensure that you can safely operate your wheelchair. A fall from a wheelchair may cause serious injuries.



INFORMATION

The information in this document is subject to change without notice. The most recent documents, updates and the latest version of this User manual are available on motioncomposites.com.

2. BEFORE USE

2.1 GENERAL WARNING



Your APEX wheelchair has been designed by professionals with proper use high tech material in mind. DO NOT MODIFY THE FRAME BY ANY MEANS. THE FRAME MAY BE SEVERELY DAMAGED IN THE EVENT OF DRILLING, GRINDING OR SHAPE ALTERING, THUS VOIDING THE WARRANTY. Only use Motion Composites approved and designed clamps and accessories on your APEX wheelchair.

- Do not use while under the influence of alcohol or medication or drugs. This may impair your ability to operate the wheelchair. Please consult your physician regarding the effects of your medication.
- The wheelchair is not intended for visually impaired people.
- The user needs to be mentally and physically suitable to drive the wheelchair.



CAUTION

Extreme Temperatures

Risk of hypothermia or burns on wheelchair parts.

Do not expose the product to any extreme temperatures such as direct sunlight, sauna, extreme cold to prevent injuries by contact with some parts of the wheelchair.

Environmental conditions

Do not expose the wheelchair to temperatures below -20°C or above 40°C.

2.2 SAFETY INSPECTIONS AND MAINTENANCE

It is important to keep your wheelchair in proper working condition.

1. ALWAYS inspect and maintain your Motion Composites wheelchair strictly in accordance with the instructions and charts in Chapter 8.4 *General Maintenance* and Chapter 11 *Safety Inspection Checklist*.
2. If you detect a problem in the course of your inspections or maintenance, ALWAYS have the wheelchair serviced or repaired to correct the problem before using it.
3. ALWAYS have your wheelchair completely inspected and serviced by an authorized Motion Composites certified technician at least once a year.
4. ALWAYS perform your safety inspections and any maintenance or adjustments while the chair is unoccupied (unless this manual expressly states otherwise).

Failure to inspect or maintain your wheelchair as outlined in this manual could cause you to fall, tip over or lose control of your wheelchair and seriously get injured, seriously injure others or damage the wheelchair.

2.3 MOTOR VEHICLE SAFETY

WARNING
The wheelchair user should always transfer into the vehicle seat and use the motor vehicle installed restraint system whenever feasible. The wheelchair should then be stored and secured in the vehicle.

If the wheelchair is equipped with the occupied transit anchor kit for RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 for occupied transit, you must read the instructions and warnings at the end of this manual before using the wheelchair. This optional kit is available on APEX wheelchairs.

If your chair is not equipped with the occupied transit anchor kit option:

1. Never let anyone sit in the wheelchair while in a moving vehicle.
 - Always move the occupant to an approved motor vehicle seat.
 - Always secure the occupant with proper motor vehicle restraints.
2. In case of an accident or sudden stop, the occupant can be ejected from the chair. The wheelchair positioning belts cannot prevent these movements, and the wheelchair belts or straps could cause injury.
3. Never transport a wheelchair in the front seat of a vehicle. It could move and interfere with the driver.
4. Always secure this wheelchair so that it cannot roll or shift.
5. Do not use any wheelchair that has been involved in a motor vehicle accident. If you fail to follow these warnings, damage to your wheelchair, a fall, tip over or loss of control may occur and cause severe injury to you or to others.

2.4 ACCLIMATING TO YOUR NEW WHEELCHAIR

WARNING
Each wheelchair is a unique piece of medical equipment. Whether you are a new wheelchair user or have years of experience, you **MUST** take the time to acclimate to the wheelchair before you begin riding. Start slowly and take the time to learn the handling, maneuvering and ride characteristics of the wheelchair.

If you ignore these warnings, you may fall, tip over or lose control of the wheelchair and seriously injure yourself or others and damage your wheelchair.

2.5 NOTE TO USERS

The APEX wheelchair is a manually operated device intended to be used as a means of mobility for persons restricted to a sitting position. It is not indicated for the pediatric population. Carefully read the instructions in this manual before using or servicing your wheelchair. If you have any questions or difficulties understanding the following instructions, kindly refer to your qualified technician. You may also wish to contact a Motion Composites technician by phone or email (see contact information at the beginning of this Manual).

INCIDENT REPORTING :

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

2.6 IMPORTANT WARNING WHEN USING THE STROLLER HANDLE AND PUSH HANDLES

WARNING
The stroller handle is not designed to lift or pull the weight of user in the wheelchair. It is designed to push and guide the wheelchair user.

- Weight limit 265 lb - 120 kg.

Lifting or pulling the weight of the user in the wheelchair could

initiate the breakage of the push handle and cause serious injuries.

2.7 NOTE TO DEALERS & QUALIFIED TECHNICIANS

Read this manual before servicing, repairing, operating or adjusting the APEX wheelchair. If you have any questions or difficulties understanding the following instructions, kindly send us a mail or contact a Motion Composites technician (see contact information at the beginning of this manual).

2.8 SYMBOLS

The following symbols are used throughout this manual. Please familiarize yourself with their meaning.

-  The warning sign indicates important information to prevent injuries and property damage.
-  Useful information for the user.

Other warnings and important information:

-  Initial setup of your APEX wheelchair must be done by a qualified technician.
The latest version of this manual can be found on our website at motioncomposites.com
-  Regular maintenance of your APEX will extend the life of the wheelchair. You must take your wheelchair to a qualified technician every year for inspection and servicing.
-  Do not tighten the screws using an air or electric tool; final tightening should be done manually.

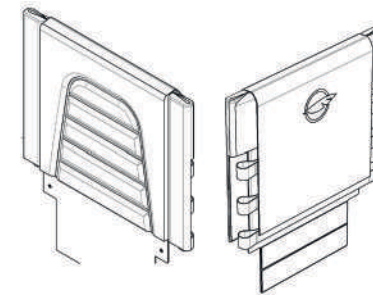
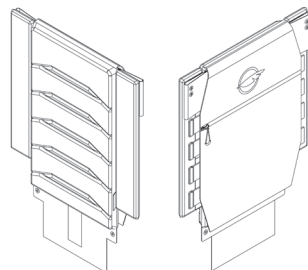
3. TUTORIALS

To find the latest tutorial or information or contact team at: motioncomposites.com.

4. TECHNICAL SPECIFICATIONS

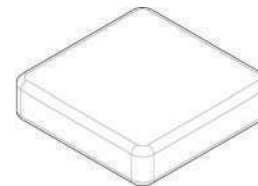
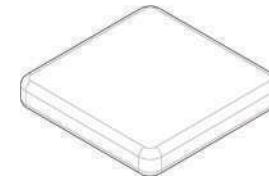
4.1 BACK UPHOLSTERY

- INFORMATION**
Refer to section 8.4.3 for information about cleaning procedure.
- All upholstery are made with waterproof material that can be cleaned.
- Seams are not waterproof.
- The adjustable tension back upholstery is made of waterproof material.
- Active-Mesh or Syntech Suede, found on slip-on or semi-tension adjustable back upholstery, can absorb moisture.
 - Padding: foam
 - Thickness: 10 mm
 - Compression hardness: 0.231 – 0.258 kPa
 - Foam volume weight: 32.0 – 33.6 kg / m³
 - Cover material: Polyester and Nylon antimicrobial, antifungal, Cal-117 Fire resistant



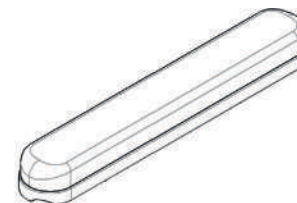
4.2 CUSHION

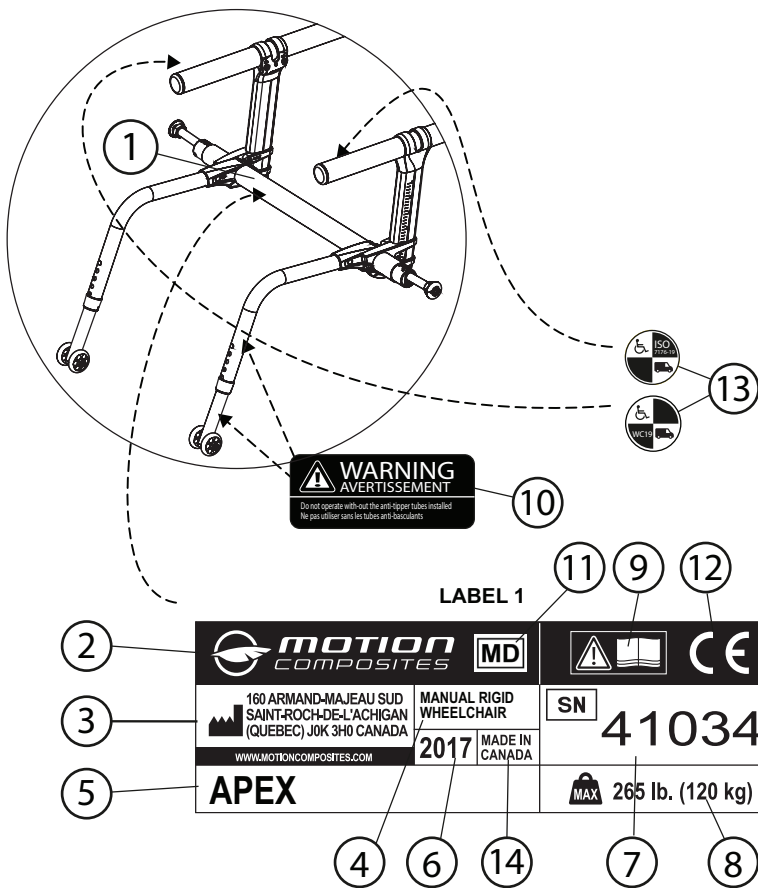
- All cushions are made with waterproof material that can be cleaned.
- Seams are not waterproof.
 - Padding: foam
 - Thickness: 2 in. or 3 in. / 51 or 76 mm
 - Compression hardness: 0.245 – 0.289 kPa
 - Foam volume weight: 43.2 – 46.5 kg / m³
 - Cover material: Antimicrobial and Antifungal Polyurethane, Cal-117 Fire Resistant.



4.3 ARMREST PAD

- The armrest is made with waterproof material that can be cleaned.
 - Padding: foam
 - Thickness: 26 mm
 - Compression hardness: 0.495 – 0.510 kPa
 - Foam density: 69.2 – 71.5 kg / m³
 - Cover material: Vinyl





4.4 LABEL LOCATIONS

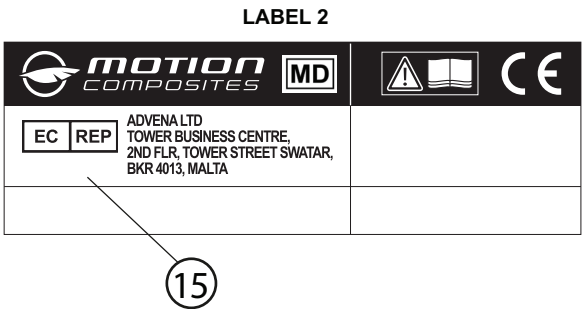
LABEL 1 – For All Products

1. Location on the frame
2. Manufacturer name
3. Manufacturer address
4. Category
5. Product name
6. Year of manufacturing
7. Serial number
8. Weight limit
9. Read the manual before use
10. Anti-tippers labels
11. Identification symbol of a medical device
12. Indicate the conformity with EU regulation
13. Conformity label to ISO 7176-19:2019 or RESNA WC-4:2017, section 19
14. Country of origin

LABEL 2 – For products sold in Europe only.

15. Identification of the European authorized representative

Do not remove or alter any labels on the wheelchair. If label is damaged or becomes illegible, replace it with a new one.



4.5 STRUCTURE

MODEL	FRAME	MATERIAL	TRANSIT WEIGHT*	LIGHTEST CONFIGURATION**	STD CAPACITY
APEX C	• Molded • Rigid	• T 700 High-Modulus carbon fibre • Urethane paint	4,4 kg (9.7 lb)	7,8 kg (17.2 lb)	120 kg (265 lb)
APEX A	• Triple varied thickness • Rigid	• Aluminum Alulite • Anodized	4,8 kg (10.6 lb)	8,2 kg (18.0 lb)	120 kg (265 lb)

* Without rear wheels, cushion, armrests, and wheel locks.

** With Newton wheel locks, 80° footrest, composition pallet, Newton Gravity rear wheels, cushion, anti-tippers and armrests/clothing guard not included.

4.6 DIMENSION

MODEL	WIDTH	DEPTH	FRONT SEAT-TO-FLOOR HEIGHT	REAR SEAT-TO-FLOOR HEIGHT
APEX A / APEX C	12" to 20" 30,5 cm to 50,8 cm	12" to 20" 30,5 cm to 50,8 cm	14" to 21" 35,6 cm to 53,3 cm	14" to 21" 35,6 cm to 53,3 cm

4.7 ADJUSTABILITY

MODEL	BACK	BACK HEIGHT	ADJUSTABLE ANGLE	FOOTREST	TILT	CENTER OF GRAVITY
APEX	• Adjustable tension, flexible or rigid	22.9 cm to 53.3 cm 9" to 21"	80° to 101°	One piece	0°, 2°, 4°, 6°, 8°	0 cm to 15.2 cm 0" to 6"

5. SAFETY

5.1 CHECKLIST

See related appendix (section 13, Safety inspection checklist).

5.2 WEIGHT LIMITATION

- The APEX wheelchair has a weight limit of 265 lb (120 kg). The specified weight capacity includes the rider and any transited or attached luggage (e.g.: backpack).
- Ensure that the total weight is below the specified capacity. A user with a 10 lb (5kg) backpack, for instance, should not exceed a weight of 255 lb (115 kg).
- The wheelchair is designed to support only one person. Please do not stand up on the footrests.
- Motion Composites is not responsible for any damages or injuries caused by the misuse of this wheelchair.

5.3 WEIGHT TRAINING AND SPORTING ACTIVITIES

- This wheelchair was not designed or tested as a weight training or stretching apparatus. Do not attempt to use this wheelchair for weight training or stretching exercises. The warranty shall be void if the wheelchair has been used for any weight training or stretching purposes.
- This wheelchair is not intended to be used during sporting activities.

WARNING

Should you make any adjustments, repairs or do any servicing, ensure that all fasteners are tightly secured before use.

WARNING

Exceeding the specified weight limit could damage the wheelchair and/or cause severe injuries.

WARNING

This wheelchair was designed to be tailored to the dimensions of its owner. As such, no other person should use it unless adjusted by a qualified specialist, approved by Motion Composites.

5.4 PREVENTION OF TRAPS FOR BODY PARTS

Particular attention should be paid to body parts that are close to moving components of the wheelchair such as the rear wheels and casters. Hands should be outside the rear wheels, close to the hand rims when riding. Wheel locking mechanisms should only be applied when the wheelchair is completely stopped.

6. RIDING YOUR APEX

CAUTION

Any adjustment to the wheelchair (seat height, depth, backrest angle, tilt, wheel size and position, footrest position) could affect the center of gravity. The adjustments should be performed by a professional and the user should be informed that the stability could be affected by these adjustments.

WARNING

DO NOT tilt the wheelchair or perform a wheelie without assistance.

DO NOT stand on the wheelchair or a part of its frame.

DO NOT sit or transfer into the wheelchair unless the backrest is fully unfolded.

DO NOT use the footrest as a platform when getting in or out of the wheelchair or to reach for an object.

6.1 TO REDUCE THE RISK OF CRASH

- We recommend that you review safe wheelchair use with your physician prior to using this equipment.
- Take time to read the instructions in this manual to ensure that you feel comfortable using the wheelchair without assistance.
- Always be aware of hazards.
- Unless you are a skilled rider of this wheelchair and sure of not being at risk to tip over, anti-tippers SHOULD always be used. Since anti-tippers are optional in some markets, Motion Composites strongly recommends ordering them as they are an important safeguard for the wheelchair user.
 - Always use anti-tippers if you are not a skilled rider.
 - Always use anti-tippers each time you modify or adjust your wheelchair. Any change may make it easier to tip backward.
 - Use anti-tippers until you adapt to the change, and are sure of not being at risk to tip over.
 - Always install both anti-tippers.

6.2 ENVIRONMENTAL CONDITIONS

- The APEX wheelchair was designed for used on hard and plane surfaces like asphalt, concrete, and indoor surfaces such as carpet or wood.
- DO NOT operate on roads, streets or highways.
- Beware that the maneuverability of the wheelchair is significantly affected by various outdoor conditions such as sand, mud, rain, snow and rough surfaces. If used in such conditions, it is recommended to frequently have it serviced.
- Be careful when using your wheelchair on wet or slippery surfaces. Exposure to water or excessive moisture can be damaging and may even cause the wheelchair to corrode over the long-term.
- DO NOT leave your wheelchair in humid environments such as the bathroom and do not use it while taking a shower.

6.3 CAREGIVERS

- NEVER use removable parts (armrests, footrests) to push the wheelchair and never use them to lift the wheelchair occupied since they could cause injuries or damage.
- Ensure that the wheelchair is equipped with push handles and that its grips are securely in place.
- Turn the anti-tippers devices upwards to avoid catching them with your feet and make sure you return them to the downward position once you stop propelling the wheelchair.
- Should you need to leave the user unattended, lock the wheels and place the anti-tipping devices back in the downward position.
- Ask an experienced caregiver to explain safe assistance methods to you.
- Ensure ongoing communication between you and the wheelchair user to avoid any kind of confusion.
- Maintain proper posture to tilt or lift the wheelchair; keep your back straight and bend the knees.
- Instruct the wheelchair user to lean his/her back when you are tilting the wheelchair.

6.4 RIDING YOUR WHEELCHAIR

6.4.1 TO REDUCE THE RISK OF A TIP-OVER, YOU SHOULD:

- CONSULT your doctor, nurse or therapist to find out what axle, caster position and other chair configuration options are best for you.
- CONSULT your authorized Motion Composites dealer BEFORE modifying or adjusting your wheelchair. Often, an adjustment you wish to make can be offset by the one you have not considered. For instance, you may want to adjust the back angle rearward, which will increase the likelihood of a rear tip-over. You might not think you could counteract this tendency by moving the rear wheels backward. Your authorized Motion Composites dealer will be able to give you expert, personalized advice in such matters.

3. ALWAYS have someone assist you until you learn your chair's balance points and are completely comfortable in your ability to operate it under all conditions without tipping over.
4. ALWAYS use anti-tippers.

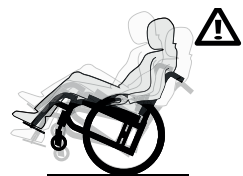
If you ignore these Warnings, you may fall, tip over or lose control of the wheelchair and seriously injure yourself or others and damage your wheelchair.

6.4.2 BALANCE POINT

It is important to begin by learning all the specific characteristics of your wheelchair with the assistance of a therapist. Any additional weight will affect the balance point of your wheelchair. Be aware of the new riding characteristics following any alterations to your wheelchair. Your body position, posture or weight distribution will shift your wheelchair's center of gravity. The center of gravity is affected by the angle of the wheelchair on a ramp or slope. This can be felt in forward and backward as well as side to side movements. Have someone help you learn the various riding techniques. Use anti-tippers until you are skilled at riding your wheelchair in any situation.

6.4.3 WHEELIES

- A wheelie means lifting the front wheels off the ground and balancing on the rear wheels.
- DO NOT attempt to perform a wheelie with your wheelchair because of the dangerous nature of this kind of maneuver. Motion Composites recognizes that some wheelchair users will ignore this Warning. Should you decide to ignore this Warning, follow these steps to help learn to do a wheelie as safely as possible.
- NEVER attempt to learn to do a wheelie without first consulting your health care advisor. NEVER try to learn to do a wheelie without an assistant who can catch you if you start to fall. NEVER attempt to learn to do a wheelie unless you are a skilled rider on this chair.
- Motion Composites recommends to always use the anti-tippers unless they need to be removed to go up or down a curb or step. Anti-tippers should be reinstalled once the curb/step is cleared.



6.4.4 TRANSFERRING

- Rotate the casters forward to enhance stability.
- Place the wheelchair as close as possible to your transfer location.
- Lock the wheels.
- Position yourself as far back as possible when transferring weight to reduce risk of tipping forward. If you have good upper body strength, balance and agility, you may be able to perform transfers independently.
- If at all possible, move the footrest in a position that will avoid putting weight on it. If possible, use a transfer board.



WARNING

Always ask a therapist to teach you safe transfer methods.

For safety reasons, user should always reduce to the minimum the transfer distance.

- DO NOT sit or transfer into the wheelchair unless the backrest

is fully unfolded.

- DO NOT use the footrest as a platform when getting in or out of the wheelchair or to reach for an object.

6.4.5 GETTING DRESSED

- When dressing or undressing on the wheelchair, rotate the casters forward and lock anti-tippers in the downward position.
- If your wheelchair is not equipped with anti-tippers, back it against a wall and lock the rear wheels.

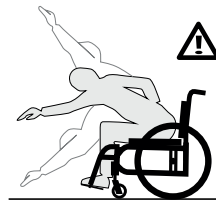
6.4.6 REACHING/LEANING/BENDING



WARNING

The balance point may shift when dressing and/or reaching for objects while sitting in the wheelchair.

- If possible, use a reaching device or ask for assistance when reaching for objects.
- Move the wheelchair as close as possible to the required object. Rotate the casters as far forward as possible from the rear wheels.
- Always make sure you are sitting fully back in the seat to ensure your safety. Do not shift your weight sideways, rather opt to move towards the front of the wheelchair. Keep one hand on the wheel or armrest opposite the side of the object you are trying to reach. Never reach to the rear of the wheelchair unless it is equipped with anti-tippers.
- Never reach for objects over the seat back: reach only as far as your arm naturally extends without moving on the seat.
- DO NOT lock the rear wheels if you are reaching backwards.
- Avoid putting pressure on the footrests.



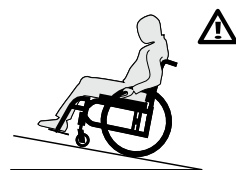
6.4.7 MOVING BACKWARDS

- Make sure both anti-tippers are locked in the lower position.
- Move slowly: the wheelchair is designed to provide you with more stability when moving forward. Look around as often as possible to avoid obstacles in your path.

6.4.8 RAMPS, SLOPES & SIDE HILLS

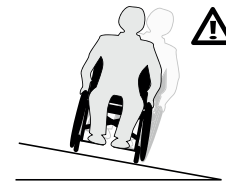
Ramps of 10 feet (3 meters) or less in length:

- If you need to use a short ramp of 10 feet (3 meters) or less, the angle of the slope should not exceed 10 degrees, which corresponds to a slope of 17.63%, a rise of 1.74 feet (0.53 meter) over a distance of 10 feet (3 meters).
- Make sure to be assisted by a caregiver who has the physical ability to retain the wheelchair and its occupant.
- The wheelchair must always point facing up the slope.
- The caregiver should always remain behind the wheelchair to retain it.
- Always lock the anti-tip per anti-tipper in the safe position.
- Follow the same words of caution for a hill or a slope of 10% or less.
- Do not use your wheelchair on a ramp under 3 meters in length if the slope angle is greater than 10 degrees (17.63%).



6.4.9 RAMPS AND SIDE HILLS OF 10 FEET (3 METERS) OR MORE IN LENGTH

- If you must go through a slope or a vertical rise of 10 feet (3 meters) or more, the angle of the slope should not exceed 5.7 degrees, which corresponds to a 10% slope that is a rise of 3.28 feet (1.00 meter) for a distance of 10 meters.
- Make sure to be assisted by a caregiver if you have trouble on the slope or if the slope is between 5.7 and 10 degrees.
- Shift your weight in the same direction as the slope to adjust your center of gravity.
- Stay in the center of sidewalks and ensure there is enough space for the wheels.
- Try to move straight up or down the slope.
- Avoid turning on a downhill slope.
- Avoid stopping on slopes and never use the wheel locks to slow yourself on a downhill slope.
- Keep pressure on the handrims to control your speed.
- Do not ride on wet or slippery surfaces. Be cautious for changes in terrain height or stairs at the end of a slope (casters may lock from simply hitting a small bump).
- Do not use your wheelchair on your own on slopes or hill of more than 10 feet (3 meters) in length if the angle of the slope is greater than 5.7 degrees (10%).



6.4.10 OBSTACLES

- Always look for obstacles or road hazards such as potholes and broken surfaces.
- Clear your own environment (work, home) of any obstacles. Never use objects (furniture, ramps, and doorknobs) to push yourself out of the wheelchair.
- Lean your upper body slightly forward as you move up an obstacle; do the reverse while moving down an obstacle.
- Keep both hands on the handrims while passing over the obstacle.

6.4.11 CURBS AND STEPS

- Curbs and steps are extremely dangerous obstacles.
- NEVER attempt to go up or down a single curb or step without an assistant unless you are a very skilled rider of your chair. You need to have previously learned to safely do a wheelie in your chair and be sure of having the strength and balance to control your chair during any such maneuver.
- ALWAYS unlock and rotate anti-tippers up and out of the way so they do not prevent you from executing this maneuver.
- NEVER attempt to climb or descend a curb or step more than 4" (10 cm) high.
- ALWAYS go straight up or down a curb or step. NEVER climb or descend at an angle.
- ALWAYS be aware that the impact of dropping down from a curb or step can damage your chair or cause components to become loose. If you perform such maneuvers, inspect your chair more frequently.
- ALWAYS rotate and lock the anti-tippers back to ride safely.

6.5 MOVING WITH ASSISTANCE

Caregivers should read the 6.3 *Caregivers* section of this manual.

6.5.1 CLIMBING A CURB OR SINGLE STEP

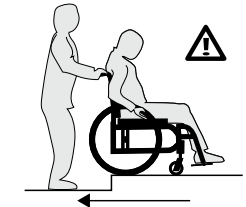


WARNING

1. NEVER attempt to negotiate a curb or single step without assistance.
2. Instruct your assistant to stand behind your wheelchair,

with the front of the wheelchair facing the obstacle.

3. NEVER attempt to negotiate any such obstacle backward.
4. Instruct your assistant to tilt the chair up on the rear wheels so that the casters clear the curb or step.
5. Instruct your assistant to slowly move the chair forward and gently lower the casters to the upper level as soon as you are sure that they are beyond the edge of the curb or step.
6. Instruct your assistant to continue rolling the chair forward until the rear wheels are on the curb or step.
7. Instruct your assistant to lift and roll the rear wheels up to the upper level.
8. Instruct your assistant to never attempt to completely lift the wheelchair with the push handles.

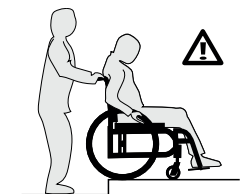


6.5.2 DESCENDING A CURB OR SINGLE STEP



WARNING

1. NEVER attempt to negotiate a curb or single step without assistance.
2. When you are still several feet or a couple of meters from the edge of the curb or step, instruct your assistant to stand at the rear of your wheelchair and turn it around to face away from the curb.
3. NEVER attempt to negotiate any curb or similar obstacle facing forward.
4. Instruct the assistant to carefully step backwards, pulling the wheelchair backwards, until he or she is off the curb or single stair and standing on the lower level. The assistant should watch his or her step over his or her shoulder when going backwards this way.
5. Instruct the assistant to carefully pull the wheelchair backward until the rear wheels reach the edge of the curb or step, then allow the rear wheels to slowly roll down to the lower level.
6. Instruct the assistant that, when the rear wheels are safely on the lower level, he or she may then tilt the chair backward to the balance point of the rear wheels, thereby raising the rear wheels off the upper level.
7. Instruct the assistant to slowly roll the wheelchair backward on the rear wheels, taking small steps until the casters clear the step or curb and, when clear, to gently lower the casters to the ground at the lower level.
8. Instruct your assistant to never attempt to completely lift the wheelchair with the push handles.



6.5.3 STAIRS

- Use an elevator wherever possible.
- Ask for help from two people to move the wheelchair up or down stairs. Caregivers should read the 6.3 *Caregivers* section of this manual to safely assist you.
- Fasten your seat belt when being lifted in the wheelchair. Assistants should always grab the frame of the wheelchair to lift you. NEVER grab the push handles, back canes, wheels, footrest or any moving parts to lift the wheelchair.

6.5.4 CLIMBING A FLIGHT OF STAIRS

WARNING
DO NOT CLIMB a flight of stairs with the user in the wheelchair.

Motion Composites recognizes that wheelchair users may, on occasion, have no other choice and will need to be moved up or down a flight of stairs or will need to be lifted. Only when there is no other alternative, caregivers and wheelchair users should follow these steps to climb a flight of stairs.

1. NEVER attempt to negotiate more than one step unless you have 2 (two) able adult assistants.
2. ALWAYS position the wheelchair and user facing away from the stairs, with one assistant at the rear (facing away from the stairs) and one at the front of the wheelchair (facing the user).
3. The assistant behind the wheelchair is in control and know how to climb a flight of stairs. He or she must tilt the wheelchair back to find its balance point on the rear wheels.
4. NEVER attempt to lift a wheelchair using any removable (detachable) parts, including upholstery, removable push handles or push handle grips.
5. ALWAYS hold the wheelchair from a solid part of the frame.
6. The second assistant at the front must firmly grip the frame (NOT the footrests) with both hands and lift the wheelchair up and over one stair at a time.
7. Each assistant then carefully moves the wheelchair to the next stair.
8. Repeat steps 1 to 6 for each stair, until you reach the top of the stairs.
9. Once at the top of the stairs, the assistants should roll the wheelchair backward on the two rear wheels until the casters clear the last step. At this point, assistants can gently lower the casters on the floor.
10. Assistants should always grab the frame of the wheelchair to lift you. NEVER grab the push handles, back canes, wheels, footrest or any moving parts to lift the wheelchair.

6.5.5 DESCENDING A FLIGHT OF STAIRS

WARNING
DO NOT DESCEND a flight of stairs with the user in the wheelchair.

Motion Composites recognizes that wheelchair users may, on occasion, have no other choice and will need to be moved up or down a flight of stairs. Only when there is no other alternative, caregivers and wheelchair users should follow these steps to descend a flight of stairs.

1. NEVER attempt to negotiate more than one step unless you have 2 (two) able adult assistants.
2. ALWAYS position the wheelchair and user facing the stairs, with one assistant at the rear (facing away from the stairs) and one at the front of the wheelchair (facing the user).
3. The assistant in front of the wheelchair is in control and knows how to descend a flight of stairs. He or she must tilt the wheelchair back to find its balance point on the rear wheels.
4. NEVER attempt to lift a wheelchair using any removable (detachable) parts, including upholstery, removable push handles or push handle grips.
5. ALWAYS hold the wheelchair from a solid part of the frame.
6. The second assistant at the front must firmly grip the frame (NOT the footrest) with both hands and control as the user goes down the wheelchair over one stair at a time.
7. Each assistant then carefully moves down to the next stair.
8. Repeat steps 1 to 6 for each stair, until you reach the bottom of the stairs.
9. When you reach down of the flight of stairs, the assistants may gently lower the casters and rear wheels on the floor.
10. Assistants should always grab the frame of the wheelchair to lift you. NEVER grab the push handles, back canes, wheels, footrest or any moving parts to lift the wheelchair.

If you ignore these warnings, you may fall, tip over or lose control of the wheelchair and seriously injure yourself or others and damage your wheelchair.

6.5.6 ESCALATOR

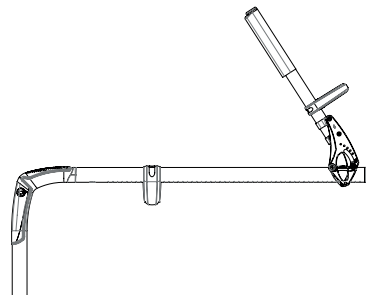
Under no circumstances should this wheelchair be used on an escalator, not even with the help of an attendant. This could cause severe injuries.

7. HOW TO USE YOUR APEX

7.1 FOLDING & UNFOLDING

7.1.1 FOLDING THE BACKREST

- Remove any side guards, mudguards or armrest (if equipped).
- Pull the backrest release cable located behind the seat to unlock the backrest.
- Fold the backrest until it locks in the closed position if applicable.



7.1.2 UNFOLDING THE BACKREST

WARNING
When unfolding the backrest, be careful not to put your fingers between the pivot links. Make sure the backrest is fully unfolded before transferring or sitting.

- Pull the backrest release cable located behind the seat to unlock the backrest.
- Unfold the backrest until it locks in the closed position if applicable..

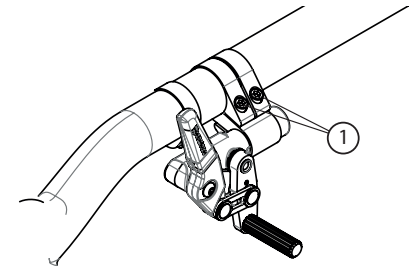
7.2 WHEEL LOCKS

WARNING
Never use wheel locks to slow or stop wheelchair movement. WHEEL LOCKS ARE NOT BRAKES. Make sure the surface is not slippery as the wheelchair could move even though the wheel locks are engaged.

WARNING
Ensure that the stem locks embed at least 3 mm into the tire when chair is in locked position. Tire must be inflated properly.

WARNING
Ensure the wheelchair is stable and locked before engaging wheel locks.

- To engage the wheel locks, push wheel lock handle forward (for push-to-lock type) or pull wheel lock handle backward (for pull-to-lock type) until the wheel locks is fully engaged.
- To release the wheel locks, pull wheel lock handle backward (for push-to-lock type) or push wheel lock handle forward (for pull-to-lock type) until the lock is fully disengaged.



INFORMATION
Note that for the unilateral wheel lock, the engagement or disengagement of the wheel lock is done on one side only.

7.3 FOOTREST

7.3.1 ADJUSTING THE FOOTREST HEIGHT

- The APEX is equipped with a single footrest plate.
- Make sure to remove any load from the footplate.
- Loosen the bottom right and left stem-to-frame bolts.
- Adjust the height of the footplate in the limits of + or - 1" range.
- Tighten the screws to the specified torque.
- Make sure the footplate is secure.

7.3.2 FOOTPLATE OR OPEN LOOP

- When transferring, avoid putting weight on the footrest or open loop and be careful not to stand behind the footrest.
- Never use the footplate or open loop to lift the wheelchair when occupied.
- Only use non-detachable parts to lift the wheelchair.

7.4 ARMRESTS

WARNING
Ensure that armrests are securely locked into arm sockets and armrest release buttons are locked into place prior to using the wheelchair.

- Never lift the wheelchair by holding the armrests.
- Only use non-detachable parts to lift the wheelchair.

7.4.1 FLIP BACK ARMREST

The flip back armrest is not available on the APEX. Use only the "T" armrest on the APEX.

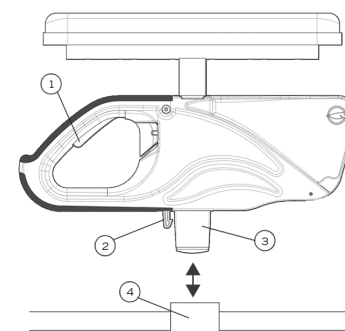
7.4.2 REMOVABLE "T" ARMRESTS

To remove the armrests:

- Pull lever (1) backwards to release the system.
- Pull the armrest all the way up.

To reinstall the armrests:

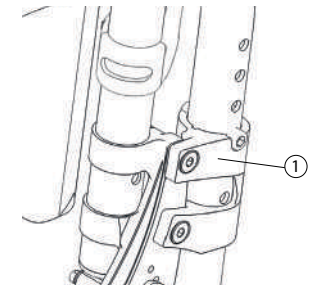
- Bring the armrests downward until slide (3) enters in the armrest receiver (4) and snaps into place.
- Make sure locking lever (2) is engaged to avoid any movement.



7.4.3 SWING AWAY ARMRESTS

To remove the armrests from the wheelchair:

- Lift them straight up to release the armrest from receiver (1).
- To reinstall the armrests, insert them back in the armrest receiver (1) until they snap into place.



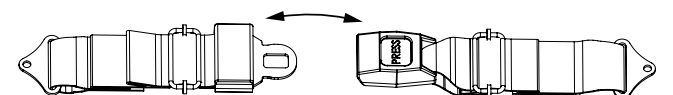
7.5 SEAT BELTS

WARNING
Use positioning belts ONLY to help support the user's posture. Improper use of these belts may cause severe injuries to the rider.

WARNING
Ensure that the user does not slide down in the wheelchair seat. If this occurs, the user may suffer chest compression or suffocation.

WARNING
Never use belts as a motor vehicle restraint.

- The seat belt should be used at all times in accordance with instructions.
- There should be approximately one hand width of space between the seat belt and thigh; do not exceed this amount of space.
- Make sure the seat belt is properly fastened to avoid serious injuries.
- In case of emergency, ensure that the seat belt can be easily unfastened.



7.5.1 AUTO BUCKLE AND AIRCRAFT BUCKLE SEAT BELT

- To fasten your seat belt, insert the clip into the buckle until it snaps.
- Make sure the belt is securely fastened.
- To unfasten your seat belt, lift the flap on the aircraft buckle seat belt or push the button on the auto buckle seat belt.
- To adjust your seat belt, pull each strap towards the opposite side until you get the desired tension and keep the buckle centered.

7.5.2 VELCRO BELT

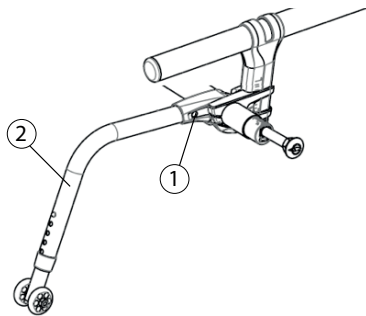
- To fasten your seat belt, insert the long side of the seat belt into the buckle on the other side.
- Apply pressure on the belt for a firm grip of the Velcro.

7.6 ANTI-TIPPERS

RECOMMENDATION
Motion Composites strongly recommends the use of anti-tippers. Anti-tippers were designed to prevent falls from the wheelchair.

- To remove or rotate the anti-tippers up, push the release button (1) and pull out or rotate the anti-tippers (2).
- To replace the anti-tippers, press the release button and insert them into the frame until they snap into position.

- Highest curb clearance: 1 ½" to 2", depending on the configuration.
- Anti-tippers should not be used as a tipping-aid.
- Always install both anti-tippers.



7.7 REAR WHEEL AXLES

7.7.1 QUICK-RELEASE AXLES



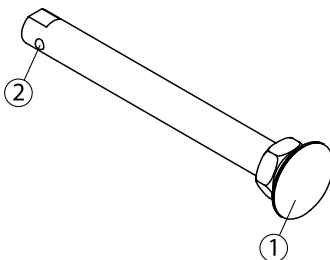
WARNING QUICK-RELEASE AXLES

Quick-release axles are a standard wheelchair component. Other axle types are optional equipment. All quick-release axles are designed to enable swift remove of your rear wheels. However, if not used properly, they can be dangerous.



WARNING
NEVER use your chair UNLESS you are sure that both rear axles are locked into place in the axle receiver. If an axle is not fully locked into place, the rear wheel may come off during use of the wheelchair and cause you to fall. You can notice when the axle is locked into place because the quick-release button in the center of the axle will pop out fully. It is recommended to pull on the rear wheel to double-check that the axle is securely locked as a final precaution.

- To remove the rear wheels, push the button in the center of the wheel's hub and pull the wheels off (1).
- To reinstall the rear wheels on the wheelchair, push the button of the quick-release axles, insert the axle into the wheelchair axle bushing and release the button.
- Always make sure that the quick release detent balls (2) extend beyond the axle bushing for a secure lock.



7.8 SEAT SLINGS, RIGID SEAT AND CUSHION

- Seat slings and rigid seats are not intended to be used as a seating surface. Always use a cushion.
- Ensure that the sling or rigid seat is in good condition (e.g., no fraying, no wear and no tears).

7.9 PUSH HANDLES

Push handles are optional equipment on some Motion Composites wheelchairs. Push handles provide secure points for an attendant or assistant to hold the rear of the wheelchair to prevent a fall or tip-over.

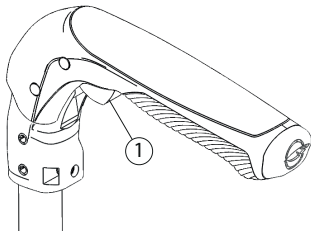
If you have an attendant or assistant, you should have push handles installed on your wheelchair by Motion Composites or a certified Motion Composites dealer.

- Motion Composites offers push handles that are integrated to the back canes or bolt-on push handles. Motion Composites recommends that you DO NOT use non-Motion Composites bolt-on push handles because they could damage the backrest or the back canes of the Motion Composites wheelchair.
- Your attendant or assistant should regularly check the push handle grips to make sure they fit securely and will not rotate or slip off.
- Push handles should NEVER be used to lift the wheelchair or pull the chair, especially when it is occupied, as they may detach.
- ALWAYS lift or pull the wheelchair by grasping a nondetachable part of the frame (not the detachable handles, backrest, armrest or footrest).
- If you fail to observe these warnings, damage to the chair, a fall, tip-over or loss of control may occur and cause severe injury to the wheelchair user, the assistant or other people.

7.9.1 FOLD-DOWN PUSH HANDLES

Folding instructions:

- To fold or open push handle press on button (1) to engage the folding mechanism.
- NEVER use the fold-down push handles to lift the wheelchair or pull the chair, especially when it is occupied, as they may detach and cause a crash.
- Weight limit: 265 lb / 120 kg.



7.9.2 ADJUSTABLE HEIGHT PUSH HANDLES

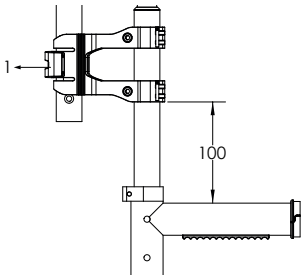
Adjustment instructions:

- To adjust the height of the push handles, pull on the lever (1) to open the clamp.
- Set the height and push the lever (1) to close the clamp.
- Weight limit 265 lb / 120 kg.



INFORMATION

The attachment position on the back canes should not be changed. The distance between the adjustable push handle collar and the seating surface should not exceed 100 mm.



WARNING

NEVER use the adjustable height push handles to lift the wheelchair or pull the chair, especially when it is occupied, as they may detach and cause an accident.

8. ADJUSTMENTS AND MAINTENANCE OF YOUR APEX

8.1 SERVICE

Refer to your dealer for servicing. A complete and updated list of service providers is available on our website.

8.2 REPLACEMENT PARTS

Consult our website to download the parts manual and view ordering information.

Please contact us at:

Motion Composites Inc.
160, Armand-Majeau Sud
Saint-Roch-de-l'Achigan, Quebec
J0K 3H0 Canada
Telephone: 1-866-650-6555
Fax: 1 888 966-6555
info@motioncomposites.com
motioncomposites.com

8.3 TOOLS NEEDED



INFORMATION

The APEX was designed to be serviced with regular tools. All screws and bolts that can be needed for adjustments are standard and can be adjusted with a wrench, socket wrench, or Allen key.



WARNING

Do not tighten the screws using an air or electric tool; final tightening should be done manually. The list of tools is at the end of this manual.



WARNING

Some adjustments on the APEX are not possible due to the use of security screws. These adjustments can only be performed by Motion Composites.

8.4 GENERAL MAINTENANCE

8.4.1 TIRE PRESSURE

- Check tire pressure with a tire gage.
- Verify recommended tire pressure, which is indicated on the tire.
- Inflate if pressure is below recommended amount as labeled on the sidewall.
- Do not inflate tire over recommended pressure, as stated on the tire.
- Over inflation could result in tire failure and injury.
- Under inflation could result in a flat tire.

		Max pressure
Pneumatic	1 3/8"	65 psi
Pneumatic High Pressure	1 1/4" and 1 3/8"	110 psi
Pneumatic High Pressure	1"	145 psi

8.4.2 PUNCTURE

In the event of a puncture, consult an appropriate workshop (either a bike repair center or wheelchair repair center) to repair or replace the tube by a qualified person.

8.4.3 CLEANING YOUR WHEELCHAIR

- Use a soft, clean cloth with soap and water to clean your wheelchair.
- Rinse and dry the wheelchair adequately.
- DO NOT use solvent cleaners.
- DO NOT use abrasive cleaners.
- DO NOT use a pressure cleaner.

Paint finish and frame:

- Clean the painted surfaces with mild soap at least once a month.
- Protect the paint with a coat of non-abrasive auto wax every three months.

Axles and moving parts:

- Clean around axles and moving parts WEEKLY with a slightly damp cloth.
- Wipe off dust or dirt on axles or moving parts.

Upholstery:

- Hand-wash only (machine washing may damage fabric).
- Hang to dry only. DO NOT machine dry as heat will damage fabric.

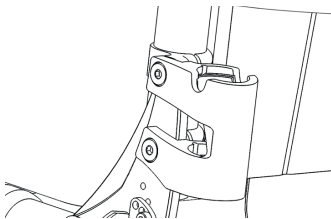
8.4.4 STORING AND SHIPPING YOUR WHEELCHAIR

- When not in use, keep your chair in a clean, dry area. Failure to do so may result in your chair corroding.
- If your chair has been in storage for more than a few weeks, make sure it is working properly. You should inspect and service, if necessary, all items in section 11 *Safety Inspection Checklist*.
- If your chair has been in storage for more than two months, it should be inspected by a qualified technician.
- When shipping your wheelchair, use a strong cardboard box to protect it from any impact. Inspect the wheelchair once it is received.

8.5 BACKREST

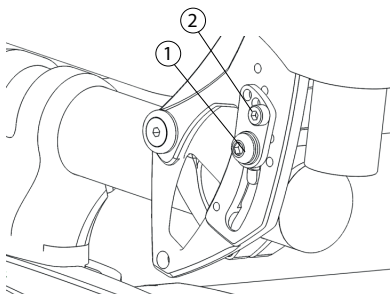
8.5.1 REMOVING/INSTALLING THE BACK CANES

- The backrest rigidizer and the back canes should only be adjusted or modified by Motion Composite or authorized party.



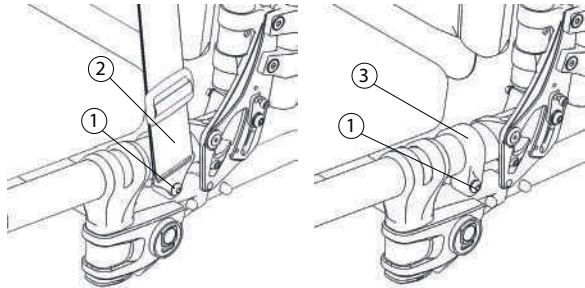
8.5.2 ADJUSTING THE BACK ANGLE

- Loosen screw (1) and remove screw (2) from the leveling device.
- Adjust to desired angle by sliding the mechanism.
- Reinstall screw (2) and tighten both screws to fit snugly.
- Settings: 3° increment from 80° to 101°.



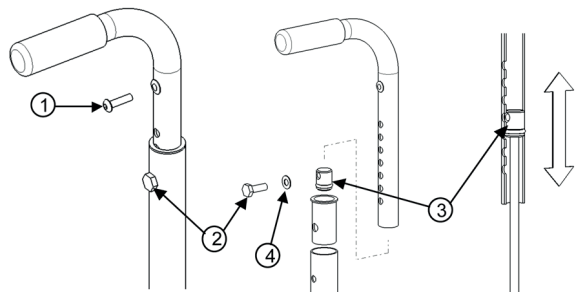
8.5.3 REMOVING/INSTALLING THE SEAT BELT

- Remove screw (1) to remove the seat belt (2).
- Reinstall screw (1) directly on the frame clamp (3).
- Tighten screw (1) until it is properly tightened.
- Repeat the same steps on the other side.



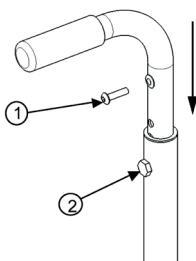
8.5.4 ADJUSTING THE BACKREST HEIGHT

- Remove the screw (1) that holds the back upholstery.
- Pull backrest upholstery down several centimeters to access screw (2) that holds the push handle.
- Remove screw (2) and the backrest handle.
- To adjust the backrest height, with the help of a threaded rod (¼"-20), move the dowel nut (3) located inside the handle.
- Once this step is completed, use screw (2) to hold the dowel nut (3) while removing the threaded rod.
- Remove screw (2) and reinstall backrest handle.
- Align screw (2) with the mounting hole.
- Reinstall and tighten screw (2) and the washer (4) firmly.
- Repeat the same steps on the other side.
- Reinstall the backrest upholstery with screw (1) and tighten to fit snugly.



8.5.5 INSTALLING/REMOVING STANDARD BACK UPHOLSTERY

- Remove the screw (1) that holds the back upholstery.
- Pull backrest upholstery down several centimeters to access screw (2) that holds the push handle.
- Remove screw (2), then remove the backrest handle.
- Remove or install back upholstery.
- Once the new back upholstery is installed, reinstall the handles by aligning them with the mounting holes.
- Reinstall and tighten screw (2) firmly.
- Install back upholstery and fix it firmly with screw (1) on each back cane.



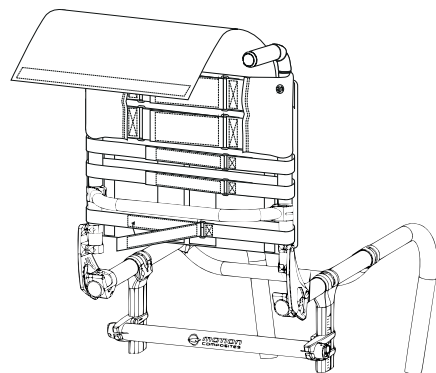
8.5.6 INSTALLING/REMOVING ADJUSTABLE TENSION BACK UPHOLSTERY

- To remove the adjustable tension back upholstery, use the same steps as the standard back upholstery. Lift the back cover to access the 2 bolts to remove the upholstery.
- To adjust the tension, first lift the back-cover flap to expose the horizontal straps. Then adjust each strap individually using the Velcro® or the buckle tension adjustment system to the desired tension.
- Finalize the adjustment by covering the back of the strap set with the backrest flap.



WARNING

AVOID over-tightening the strap assembly as this may cause damage to the integrity of the back canes.



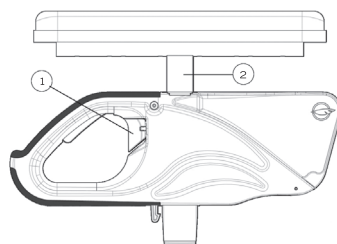
8.6 ARMRESTS

8.6.1 FLIP BACK ARMREST

The flip back armrest is not available on the APEX; use only the T-armrest on the APEX.

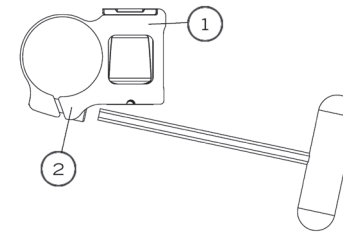
8.6.2 ADJUSTING THE HEIGHT OF THE "T" ARMRESTS

- Flip lever (1) left or right to unlock the armrest.
- To adjust height, slide the upper part of the armrest into the lower part.
- Adjust the structure (2) at the desired height.
- Flip the lever back to the closed position.
- Make sure the armrest clicks in place for complete securement.



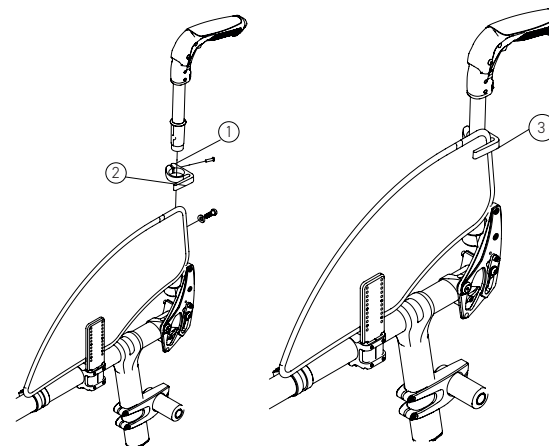
8.6.3 INSTALLING REMOVABLE "T" ARMRESTS AND RIGID SIDE GUARD

- Install armrest receiver (1) on the upper tube at a distance of 160 mm (6 ¼ in) from the rear tube of the frame.
- Slightly tighten screws (2) to allow the clamp to rotate receiver (1).
- Insert armrest or side guard into receiver (1).
- Rotate receiver (1) until the side guard is perpendicular to the seat.
- Tighten screw (2) firmly.



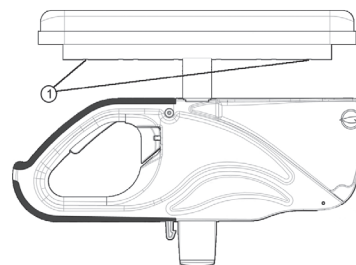
8.6.4 INSTALLING THE SIDE GUARD CLAMPS

- Open the clamp (1) to install it around the back cane so that the finger (2) is parallel to the rear wheels.
- Be sure to place the clamp as high as possible without exceeding the side guard (3), making sure that it is inserted as far into the finger as possible.
- Once in place, secure the clamp by firmly tightening the screw.



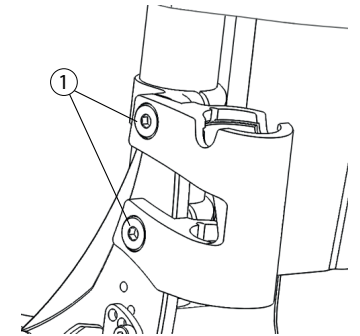
8.6.5 REPLACING ARMREST PAD

- Remove screws (1) located under the pad (through the tube).
- Replace with new armrest pad.
- Reinstall screws (1) and tighten firmly.



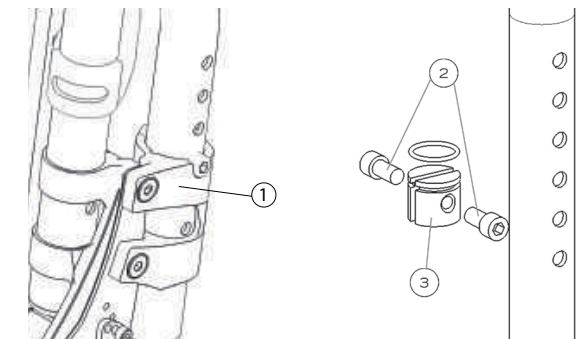
8.6.6 INSTALLING THE SWING AWAY ARMREST RECEIVER

- Remove the two screws (1).
- Align the armrest receiver with the mounting holes of the frame.
- Install the new shoulder screws in replacement of the existing ones and tighten firmly.



8.6.7 ADJUSTING SWING AWAY ARMREST HEIGHT

- Pull the armrest out of the receiver (1).
- Remove screws (2).
- Inside the armrest tube, slide the dowel nut with a long flat screwdriver at the desired height (3).
- Reinstall screws (2).
- Reinsert armrest in receiver.



8.7 FOOTREST LENGTH / FOOTPLATE ANGLE

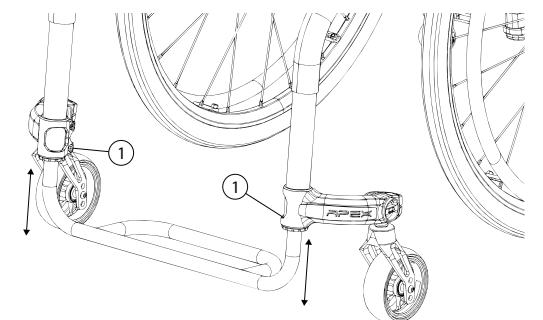
8.7.1 ADJUSTING THE FOOTREST LENGTH



WARNING

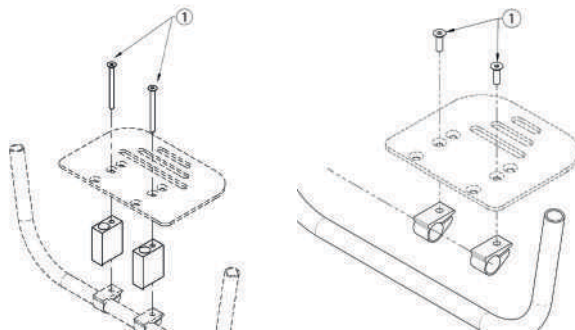
Never adjust the footrest length while the wheelchair is occupied.

- Slightly loosen the lower screws on the right and left caster mount clamps (1) (NEVER LOOSEN THE UPPER SCREWS, WHICH ARE SECURED SCREWS).
- Slide the extension tube inside the front rigging at the desired length, within the limits.
- Tighten screw (1) firmly.



8.7.2 ADJUSTING FOOTREST ANGLE

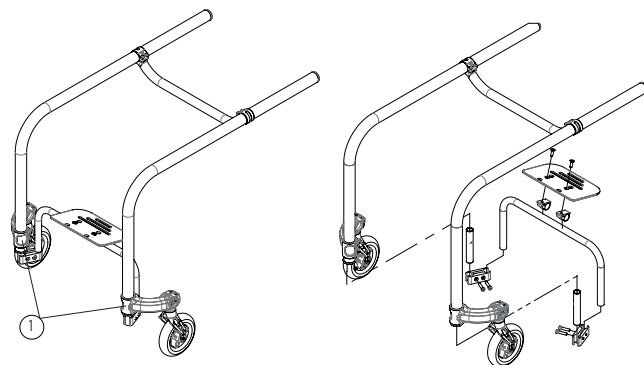
- Loosen the screws (1).
- Rotate the footplate at the desired angle.
- Tighten screws (1) firmly.



8.7.3 SETTING THE HIGH MOUNT FOOTREST

To raise or lower the high mount footrest:

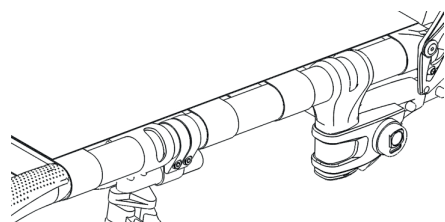
- Loosen the bottom screws (1) on the caster mount (NEVER LOOSEN THE UPPER SCREWS, WHICH ARE SECURED SCREWS).
- Raise or lower the footrest rods to the desired position. Note that you have 25 mm of potential adjustment, up or down. Do not exceed the 25 mm to retain minimal insertion.
- Firmly tighten the screws at 12 Nm of torque on the stem.



8.8 SEAT

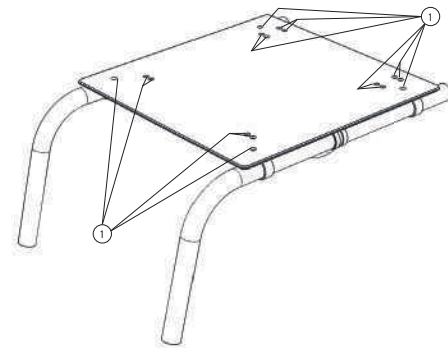
8.8.1 REPLACING SEAT UPHOLSTERY

- Remove current upholstery (Velcro®).
- Install new upholstery.
- Adjust tension with Velcro® straps.



8.8.2 REPLACING THE RIGID SEAT

- Remove the screws (1) holding the seat.
- Remove the rigid seat.



8.9 SEAT-TO-FLOOR HEIGHT

Any modification to the seat-to-floor height involves adjustment of anti-tippers, caster angle, and rear wheel toe-in/toe-out if equipped with 2°, 4°, 6° or 8°. It is important to do these adjustments before using the wheelchair to reduce risk of injuries.

8.9.1 CHANGING THE FRONT SEAT-TO-FLOOR HEIGHT

To change the front seat-to-floor height, you can do one of the following:

- Install the front caster in a different hole on the fork.
- Install different caster size.
- Install different stem bolt (+0 in, +1 in (2.5 cm) and +2 in (5 cm).

8.9.2 CHANGING REAR SEAT-TO-FLOOR HEIGHT

To change the rear seat-to-floor height, you can do one of the following:

- Adjust the height of the rear camber tube clamps (both).
- Install different sized rear wheel.

8.9.3 CHANGING FRONT AND REAR SEAT-TO-FLOOR HEIGHT

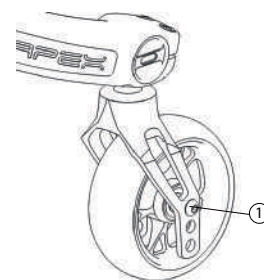
To change the front and rear seat-to-floor height simultaneously, you can:

- Use another seat cushion with a different thickness.

8.10 CASTERS, FORKS AND FORK STEM SUPPORT ASSEMBLIES

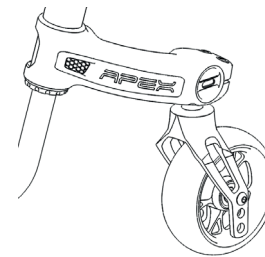
8.10.1 REMOVING / INSTALLING / REPOSITIONING THE CASTERS

- Loosen and unscrew (1).
- Slide out the fork wheel axle.
- Tighten screw (1) until it is properly tightened.



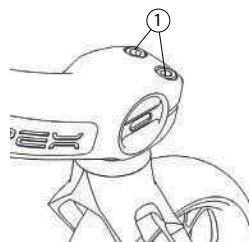
8.10.2 REMOVING/INSTALLING THE CASTER MOUNT

- DO NOT remove security screws.
- The caster mount is only installed and adjusted at Motion Composites.



8.10.3 ADJUSTING THE CASTER HOUSING ANGLE

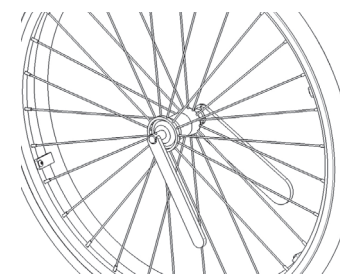
- All four wheels should be touching the floor.
- Use the integrated level on the fork housing.
- If the caster housing is not level, loosen the screws (1).
- Rotate the caster housing to adjust the angle until the bubble is centered in the level.
- Tighten screws (1). This will hold the caster housing position.
- Check again the integrated level to make sure that the caster housing is perpendicular to the ground.



8.11 REAR WHEELS

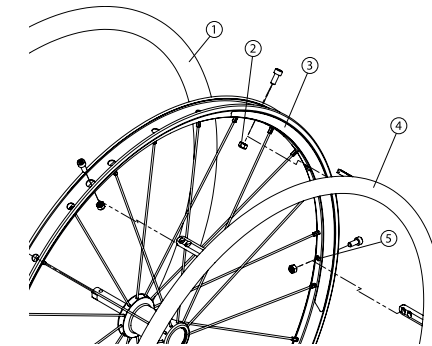
8.11.1 ADJUSTING QUICK-RELEASE AXLES

- Remove the rear wheel from the wheelchair.
- Behind the quick release button, there is a nut that adjust the length of the axle.
- Hold the axle with a wrench at the other end (near the detent balls) and turn the nut behind the quick release button to change the length of the axle.
- Reinstall the quick release into the axle bushing on the wheelchair.
- Quick release detent balls should extend beyond the axle bushing for a secure lock.



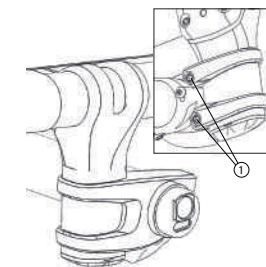
8.11.2 REPLACING/ADJUSTING HANDRIMS

- On the Newton One wheel, the tire may stay in position. Use a plastic tire removal tool to take off the tire (1).
- Remove all nuts (2) inside the rim (3).
- Replace the handrim (4) with a new one and align the mounting holes (5).
- Reinstall and tighten the nuts (2) firmly.
- Reinstall the tire (1) on the rim.



8.11.3 ADJUSTING THE REAR AXLE HEIGHT

- Loosen the screws (1) on both rear camber tube clamp (left and right).
- Move the rear camber tube along the rear camber tube support.
- Tighten the screws on both rear camber tube clamp (left and right).

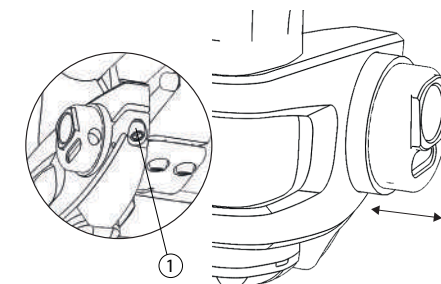


WARNING

The seat height, seat depth, back angle, seating system/ upholstery, size/position of the rear wheels, size/position of the casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to any of these combinations may reduce the wheelchair's stability. Seat-to-floor heights have specific positions depending on rear wheel size, rear wheel position, caster size/ position and seat-to-floor angle. These adjustments MUST be performed by a qualified technician.

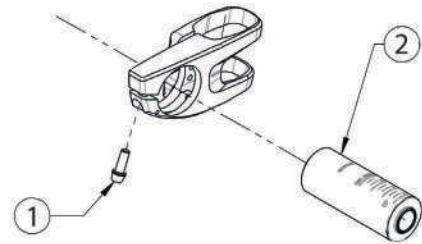
8.11.4 ADJUSTING REAR WHEEL SPACING

- Loosen the screws (1) below the rear camber tube clamp (left and right).
- Move axle bushing in or out of the rear camber tube. NEVER move the bushing further than indicated on its top.
- Tighten the screws on both rear camber tube clamp (left and right).



8.11.5 ADJUSTING THE AXLE ADAPTER FOR CAMBER

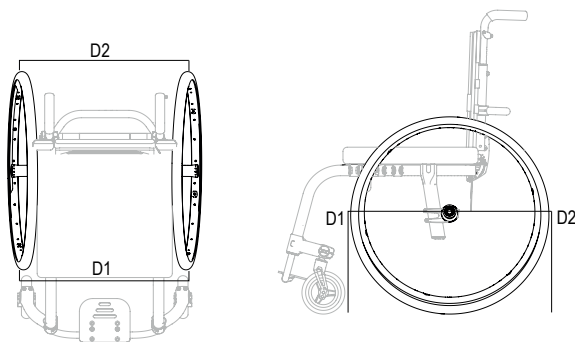
- Loosen the screws (1) below the rear camber tube mounting collar (left and right).
- Change or replace both axle bushes (2) (angle 0°, 2°, 4°, 6° or 8°).
- Never install the bushing further than indicated on it.
- Adjust the toe-in of the rear wheels.
- Tighten the screws on both camber tube clamps (left and right).



8.11.6 ADJUST THE TOE OF THE REAR WHEELS

NOTE that the alignment method using the axle bushing as explained in this document is valid only for wheelchairs with a camber angle. 0° camber angle rear wheels cannot be aligned.

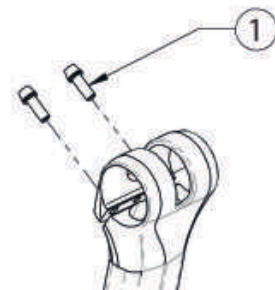
- Measure the front (D1) and rear (D2) distances between wheels at the centre of the wheels. Front and back measured distances must be the same within ¼." (6 mm)
- Remove a wheel.
- Using a 4 mm hexagonal key loosen the screw retaining the axle bushing on the clamp and the 2 screws of the anti-tipper clamp
- Use a 5/8" flat wrench to turn the axle bushing slightly in a direction or another to adjust the alignment (toe-in or toe-out) of the wheel
- Reinstall the wheel on the chair
- Measure again the front (D1) and rear (D2) distances between wheels at the centre of the wheels. Front and back measured distances must be the same within ¼." (6 mm)



For more detailed instructions, visit: <https://www.motioncomposites.com/media/components/files/Perform-rear-wheel-alignment-rigid-wheelchairs.pdf>

8.11.7 ADJUSTING THE CENTER OF GRAVITY

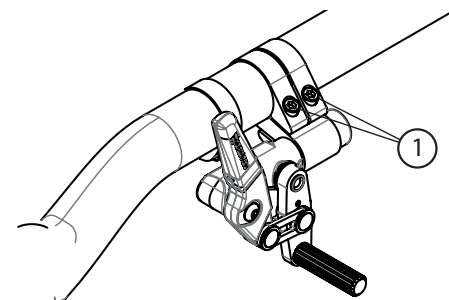
- Remove the rear wheel.
- Loosen the 2 bolts (1) of the wheel mounting tube.
- Move the wheel mounting tube to the desired position.
- Tighten the 2 bolts (1) alternatively up to 10-12 Nm.



8.12 WHEEL LOCKS

8.12.1 REPLACING/ADJUSTING THE WHEEL LOCK

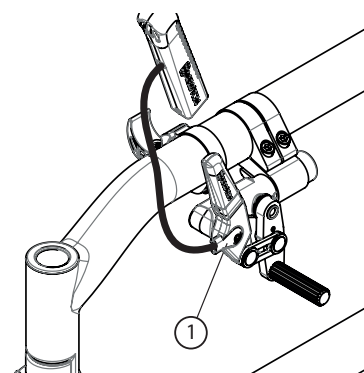
- Loosen both screws (1).
- Slide the lock to the desired position.
- Tighten screws (1) to a snug fit. Final tightening should be done manually.
- Once engaged, the lock should embed 3 mm into the tire.



8.13 WHEEL LOCK EXTENSIONS

8.13.1 REPLACING/ADJUSTING THE WHEEL LOCK EXTENSIONS

- Loosen the screw (1).
- Align eyelet (2) with the mounting hole.
- Re-tighten screw (1) on the lock lever.



8.14 ANTI-TIPPERS

8.14.1 ADJUSTING ANTI-TIPPERS' HEIGHT

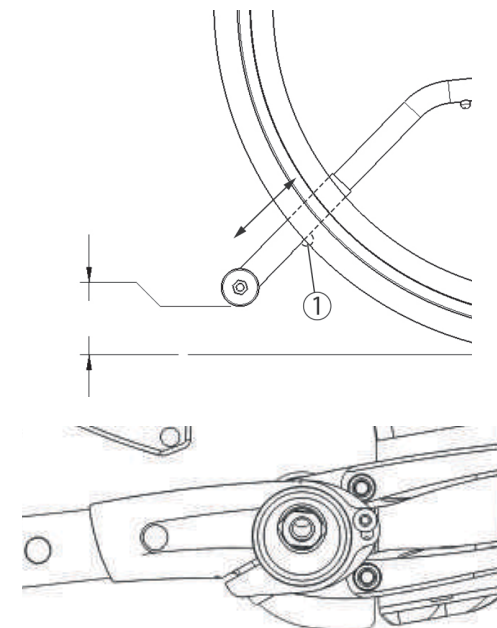
Anti-tippers **MUST** be used with your wheelchair at all times. Since anti-tippers are optional in some markets on this wheelchair, Motion Composites strongly recommends ordering anti-tippers as they are an important safeguard for the wheelchair user. **ALWAYS** use anti-tippers.

- Anti-tippers should be between 1 ½ and 2 ¾ inches (4 to 7 cm) off the ground.
- Improper spacing may result in wheelchair hang ups over obstacles or not preventing the wheelchair from tipping.
- Press the push-button (1) and slide anti-tippers extensions to desired length.
- Ensure the button snaps back into place.



INFORMATION

If you are unable to adjust the anti-tippers to the proper height, contact your Motion Composites dealer to replace your anti-tipper with another size.



8.15 CANE AND CRUTCH HOLDER



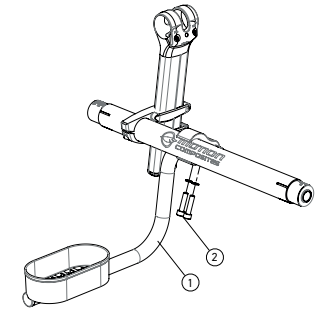
WARNING

The cane and crutch holder should never be used as a tipping lever. Doing so could result in damage to the wheelchair and/or injury to the caregiver or user.

The cane and crutch holder is an optional feature on the Motion Composites rigid wheelchair. The cane and crutch holder allows you to store your cane while in the wheelchair. It can be installed on the right or left side (different assemblies) and can be easily moved along the rear wheel camber tube to the ideal position for your needs. It is compatible with Motion Composites anti-tippers on both sides.

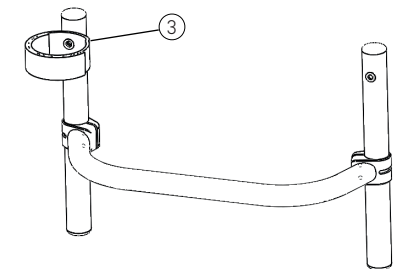
Installing the cane and crutch holder basket:

- Insert the bent tube (1) of the cane and crutch holder into the opening of the ring and position the ring on the rear camber tube.
- Insert the screws (2) and lock washers into the ring and tighten slightly.
- Adjust bushing position on the camber tube to the desired position.
- Turn the bushing on the camber tube to adjust the height of the cane holder from the ground. It should be higher than the anti-tippers, if any, and the bottom of the cane holder basket should be parallel to the ground when adjustments are complete.
- Apply the recommended torque (12 Nm) to both screws (2).



Installing the cane holder Velcro® strap:

- Unscrew the screw (3) from the push handle or backrest cover retainer on the side where the user will place the cane in the cane holder.
- Install the screw and washer through the Velcro strap to secure it in place.
- Apply the recommended torque to the screw.



9. MOTION COMPOSITES LIMITED WARRANTY

Refer to the Motion Composites warranty document.

i IMPORTANT NOTICE ON CONSUMERS RIGHTS

Benefits we give in this manufacturer's warranty are additional to, and do not detract from, any rights and remedies that you may have under local consumer protection laws.

This manufacturer's warranty is governed by the laws of the country, province, state or territory in which you purchased your Motion Composites product. In many countries, consumers have statutory rights under local consumer laws. Those consumer rights may differ between countries, territories, states or provinces, and often cannot be excluded. This Manufacturer's warranty is not intended to:

- change or exclude any statutory consumer rights that cannot be lawfully changed or excluded; or
- limit or exclude any right you have against the person who sold the Motion composites product to you if that person has breached their sales contract with you.

OUR RESPONSIBILITY

Motion Composites' sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

WARRANTY SERVICE

If your wheelchair requires warranty service, please contact an authorized Motion Composites Dealer in Canada or an authorized international distributor. In the event of a defect in material or workmanship, the Dealer or Distributor must obtain a return authorization (RA) number from Motion Composites. Motion Composites issues RA numbers only to authorized Motion Composites Distributors.

If you are not satisfied with a service, please write directly to:

Motion Composites Inc.
160 Armand Majeau, sud
Saint-Roch-de-l'Achigan, Québec
J0K 3H0 Canada

Telephone: 1 866 650-6555
Fax: 1 888 650-6555

info@motioncomposites.com
motioncomposites.com

i IMPORTANT NOTICE

Do not return products to our factory without our prior consent.

i CONSUMER NOTICE

1. The foregoing warranty is exclusive, and in lieu of all other express warranties, whether written or oral, express or implied. Motion Composites shall not be liable for any consequential or incidental damages whatsoever. By registering your Motion Composites wheelchair, you agree with all provisions of this warranty.
2. It is forbidden to alter or extend the foregoing express warranty or to waive any of the limitations or exclusions.

10 PARTICULAR DAMAGES

10.1 PARTS REPAIRED BY THE SERVICE CENTER

If any of the following circumstances are observed, the user is responsible for taking the wheelchair to their service center for servicing.

- Any wheel adjustment;
- Any defective ball bearings of the forks;
- Any defective ball bearings of the casters.

10.2 SPECIAL DAMAGES REQUIRING THE RETURN OF THE WHEELCHAIR TO THE MANUFACTURER

Should any of the following conditions occur, always contact your qualified service technician for the wheelchair to be returned to Motion Composites.

- Part of the frame is cracked or broken.
- The thread of an adjustment nut is damaged.
- Section of frame and/or crossbar is detached.
- Abnormal wear of the crossbar.
- Problems continue to be identified after several adjustments or repairs have been made by a qualified service agent.
- Any adjustment that requires to manipulate a security screw.

10.3 REPAIR PROCEDURE

Parts that could be repaired by the owner are rear tire and inner tube.

- Parts serviced by the manufacturer or service center:
 - a. All parts of the wheelchair except for the tires and the inner tubes.
 - b. Parts that can be removed and sent to the manufacturer/distributor or other party for repair:
 - c. Wheels, armrest, footrest, upholstery, cushion.
 - d. Circumstances in which the wheelchair should be sent for service:
 - e. Broken bearings, loose spokes, wheel not aligned, loose bolt, abnormal vibrations, noise or any deviation in the frame, front stem bolt is not perpendicular to floor, broken part like anti-tippers, back canes, rips or tear on the upholstery and for the yearly inspection
- Please contact our customer service agent for the complete list of distributors or service centers.
motioncomposites.com
- Some dealers may offer replacement units during the service period. Please contact your service agent for full details. Motion Composites will hold replacement parts for a minimum of 10 years or propose a compatible spare option.
- If the wheelchair needs to be sent to a service center or to the manufacturer for service, it should be packed carefully in a cardboard box fitting the size of the wheelchair. The anti-tippers, the footrest and cushion should be removed and packed in a small box inside the larger cardboard box containing the wheelchair. The wheelchair should be protected with a protective film to avoid scratches or wear.

10.4 TOOLS

ALLEN KEY
2 mm – 2.5 mm – 3 mm – 4 mm – 5 mm

KEYS
10 mm – 11 mm – 1/2" (13 mm)

FOR QUICK RELEASE:
7/16" (11 mm) – 3/4" (19 mm) – 26 mm

OTHER TOOLS
Adjustable wrench – Phillips screwdriver

11. SAFETY INSPECTION CHECKLIST

AT EVERY USE:

- Make sure wheelchair rolls easily and straight.
- Check for vibrations, noise or any deviation from normal functioning.
- Ensure wheel locks are working properly.
- Ensure wheel quick release are engaged and locked properly.
- Ensure that front stem is perpendicular to floor.
- Visually inspect tires (front & rear) for debris, low pressure, flat spots or wear.
- Ensure that the backrest locks properly in unfolded position if applicable.
- Make sure anti-tipper tubes are locked in place (if equipped).
- Visually inspect fabric for protruding metal, rips or tears.
- Ensure that hand grips are not loose (if equipped).
- Check handrims for rough edges and make sure they are free from grease or other contaminants.
- Checks for component interference.
- Check for irregular noise and rattles.

WEEKLY

- Check tire pressure with a tire gage.
- Check seat upholstery tension.

MONTHLY

- Check wheel alignment.
- Check for free running of forks.
- Inspect bolts and screws and tighten if necessary.

YEARLY

- Have a complete inspection performed by a qualified technician.

i IMPORTANT INFORMATION

Tire pressure could be adjusted by the owner or an assistant with proper tools. If any part appears not to work properly after inspection, the wheelchair should be immediately sent for repair to a qualified technician.

i DISPOSAL AND RECYCLING THE WHEELCHAIR

In the case of disposal, return the device to your dealer or rehabilitation center.

All components of the product should be disposed and recycled in accordance with national environmental laws and standards.

12. DECLARATION OF CONFORMITY

NAME AND ADDRESS OF PRODUCT OWNER:

Motion Composites
160 Armand Majeau Sud, St-Roch-de-l'Achigan
Québec, Canada J0K 3H0

Telephone: 1-866-650-6555
Fax: 1 888- 966-6555

info@motioncomposites.com
motioncomposites.com

AUTHORIZED REPRESENTATIVE

Advena Ltd.
Tower Business Centre, 2nd Flr.
Tower Street, Swatar, BKR 4013, Malta

We hereby declare that the below mentioned devices have been classified according to the classification rules and conform to the Essential Principles of Safety and Performance as laid out in the Health Products (Medical Devices) Regulation (EU) 2017/45.

MEDICAL DEVICES

APEX manual wheelchair

MANUFACTURING SITE:

Motion Composites Inc.
160, Armand-Majeau Sud, Saint-Roch-de-l'Achigan
Quebec, Canada J0K 3H0

RISK CLASSIFICATION

Class I Medical Device Regulation: (EU) 2017/745.

STANDARDS APPLIED

- NF EN ISO 7176-1: Wheelchairs, part 1: Determination of static ability.
- NF EN ISO 7176-5: Wheelchairs, part 5: Determination of dimensions, mass and maneuvering space.
- NF EN ISO 7176-8: Wheelchairs, part 8: Requirements and test methods for static, impact and fatigue strengths.
- NF EN ISO 7176-11: Wheelchairs, part 11: Test Dummies
- NF EN ISO 7176-15: Wheelchairs, part 15: Requirements for information disclosure, documentation and labeling.
- ISO/DIS 7176-19:2019: Certified wheelchairs obtained their compliance report to this standard between 2019 and 2021.*
- RESNA WC-4:2017, Section 19

This declaration of conformity is valid from 2020/05/21.

* Certification under ISO 7176-19:2019 were obtained under DIS version (Draft International Standard). All references in this manual to ISO 7176-19:2019 must be considered as ISO/DIS 7176-19:2019.



OCCUPIED TRANSIT ANCHOR KITS



WARNING

Read all these pages before using the Motion Composites wheelchair transit tiedowns. Use equipment that meets RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 standards and use it according to the instructions. Use only original wheelchair parts and a recognized safety belt system. Use appropriate occupied transit anchor kit and according to instructions. Avoid using the wrong equipment or attaching other equipment to the wheelchair.

The following information pertains to Motion Composites wheelchairs equipped with a factory-installed RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 occupied transit anchor kit. Read this manual completely before using the wheelchair with the occupied transit anchor kit in a motor vehicle. If you have any questions about this manual or about using your wheelchair as a seat in a motor vehicle, contact your Motion Composites Rehab Specialist.



WARNING
AVOID IMPROPER USE OF THIS EQUIPMENT.
AVOID ATTACHING ANY OTHER EQUIPMENT, OTHER THAN THOSE DESCRIBED IN THIS MANUAL, TO A MOTOR VEHICLE.

1. INTRODUCTION

Motion Composites wheelchair is available with an occupied anchor kits conforming to the requirements of RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 for occupied transit. This option is only offered as a factory-installed option.

The occupied transit anchor kits option has been tested in accordance with RESNA WC-4:2017, Section 19 ("WC19") frontal impact test and also tested in accordance with ISO 7176-19:2019, with a 169.4-lb. (77 kg) surrogate occupant to be compliant with a user weight range of 23 to 120 kg (51 to 265 lb). The Motion Composites occupied transit anchor kits meet these standards to enable wheelchairs to be more appropriately secured in a paratransit vehicle. The occupied transit anchor kits options consist of four

mounting brackets factory-installed on the wheelchair. Only use the designated anchor points to secure the wheelchair to the vehicle. In some markets, the kits may be offered with an optional wheelchair anchored pelvic safety belt. Always use this optional belt with the vehicle anchored chest safety belt. The optional wheelchair anchored is only available for purchase from Motion Composites and only available as a Motion Composites factory-installed option. If this option is not present, always use the vehicle anchored three-point safety belt. NEVER rely on a positioning belt during occupied transit. The option is approved for use in occupied transit use. Therefore, users of the occupied transit option should keep several considerations in mind. First, the tests are conducted in manner where the wheelchair is secured in a forward-facing position for a frontal collision at 30 mph (48 km/h). The standards do not test for wheelchair performance in any other type of collision, including, without limitation, side impacts, rear impacts, rollovers, or higher speed frontal impacts. Second, compliance with either standard does not guarantee that the occupant will not be injured, even in a frontal impact collision at 48 km/h (30 mph) or less. In such an impact, the forces experienced are very large and injuries can occur, even if the wheelchair performs exactly as required by the standards.

As a result, Motion Composites always recommends that the wheelchair user should transfer to the motor vehicle seat and use the vehicle-installed restraint system whenever it is feasible.

A wheelchair UNOCCUPIED transit option is also available on the market for some Motion Composites wheelchairs. This UNOCCUPIED wheelchair transit option has not been crash-tested. This wheelchair transit option only includes four tiedown brackets. This option shall be used only for transiting an UNOCCUPIED wheelchair.

If you are not certain that an occupied transit anchor kit is installed on your wheelchair, please contact Motion Composites customer service. Kindly contact Motion Composites customer service with any questions you may have regarding the use of this wheelchair for occupied transit in a motor vehicle at the following number: 1 866 650-6555.

DO NOT have your wheelchair altered in any way by a non-authorized Motion Composites center.

DO NOT make alterations or substitutions to the wheelchair structural parts or frame components without consulting Motion Composites.

2. LABELING

READ LABEL



READ

Read and follow the information in the user manual and all supplemental information provided with the wheelchair before use.

OCCUPIED TRANSIT ANCHOR KIT LABEL



WC19 OR ISO7176-19:2019

Indicates that the wheelchair is tested and approved as RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 compliant wheelchair for occupied transit in a motor vehicle.



ANCHOR POINTS LABEL



ANCHOR POINTS

Indicates wheelchair anchor points to be used to secure wheelchair during occupied transit.



WARNING

A wheelchair compliant to the RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 standard must have both labels as shown above. If any of these two pictograms are not on the wheelchair, it cannot be considered as compliant to the standard.

WARNING LABEL



WARNING

Indicates a potentially hazardous condition/situation. Failure to follow designated procedures can cause either personal injury, component damage, or malfunction.

MANDATORY LABEL



MANDATORY

These actions should be performed as specified. Failure to perform mandatory actions can cause personal injury and/or equipment damage.

PROHIBITED LABEL



PROHIBITION

These actions are prohibited. These actions should not be performed at any time or in any circumstances. Performing a prohibited action can cause personal injury and/or equipment damage.

IMPORTANT LABEL



IMPORTANT

Indicates important information to remember when using this product.

3. DEFINITION

ISO

International Organization for Standardization

ANSI

American National Standards Institute

RESNA

Rehabilitation Engineering and Assistive Technology Society of North America

OCCUPIED TRANSIT ANCHOR KIT

A wheelchair-mounted kit that allows the wheelchair to be anchored in a motor vehicle.

Motion Composites' occupied transit anchor kit options consist of four mounting brackets factory-installed on the wheelchair. In some markets, the kits may be offered with an optional wheelchair anchored pelvic safety belt. Always use this optional belt with the vehicle anchored chest safety belt. If this option is not present, always use the vehicle anchored three-point safety belt. NEVER rely on a positioning belt during occupied transit. Only use the designated anchor points to secure the wheelchair to the vehicle.

WHEELCHAIR TIEDOWN AND OCCUPANT RESTRAINT SYSTEMS (WTORS)

Equipments installed in a motor vehicle that allows a wheelchair and/or its occupant in the wheelchair to be anchored in the motor vehicle to restrict the movement of the occupant in case of a motor vehicle accident. The equipment consists of a system or device for securing the wheelchair and a belt-type restraint. Motion Composites occupied transit anchor kits are compatible only with four-point strap-type tiedown systems.

ANCHOR POINTS

Specific structural points on the wheelchair base or seat frame that are designed for attachment of a WTORS. These anchor points are indicated by anchor points labels.

4. PROTOCOLS AND PROCEDURES

The wheelchair user should always transfer into the vehicle seat and use the motor vehicle installed restraint system whenever feasible. The wheelchair should then be stored and secured in the vehicle. If the user deems it necessary to make a transit while occupying the wheelchair, the vehicle must be equipped with wheelchair tiedown and occupant restraint systems (WTORS) previously installed, in accordance with the manufacturer's instructions, and in compliance with RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 standard. The wheelchair must be equipped with the occupied transit anchor kit, in accordance with RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 standard. It is essential to use a complete WTORS four-point strap-type tiedown and occupant restraint kit to secure the wheelchair to the vehicle and provide the wheelchair occupant with a safe and an approved restraint system.

The wheelchair tiedown and occupant restraint systems (WTORS) must be used to protect the wheelchair occupant and minimize the risk of injury due to contact with the vehicle during a collision or sudden braking.

5. SECURING THE WHEELCHAIR

NOTE: In addition to following the general guidelines below, make sure you follow all recommendations and instructions provided by the WTORS manufacturer.

Always secure the wheelchair and occupant in a forward-facing position in the vehicle.

Secure the four strap-type tiedowns only at the designated anchor points. These occupied transit anchor points are indicated by anchor symbols on the wheelchair. See figure 1 and 2.

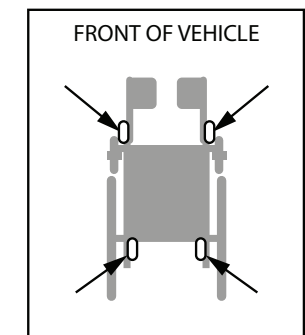
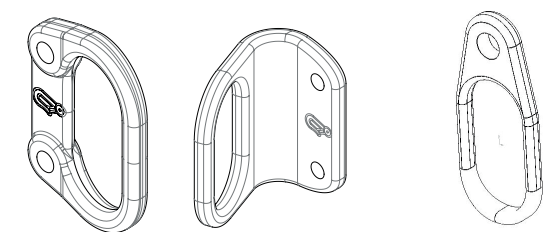


Figure 1. Anchor Points Location

Figure 2



Anchor Points

The Motion Composites occupied transit anchor kits are intended to be used with hook-type tiedown end-fittings. Tighten the four strap-type tiedowns to remove slack in each of them. Do not over-tighten. Never attach any tiedown hook to any other part of the wheelchair than the four anchor points. Attach only one tiedown strap per anchor point.

Position the vehicle tiedown mounting points for the rear tiedown straps directly in line with the rear wheelchair anchor points on the wheelchair. The front tiedown straps mounting points must be positioned wider than the wheelchair front anchor points to provide increased lateral stability. See figure 3.

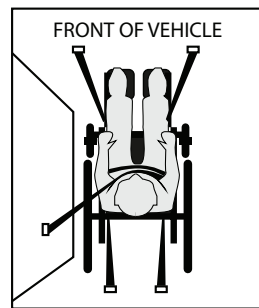


Figure 3. Securing the Wheelchair

6. SECURING THE WHEELCHAIR OCCUPANT

Once the wheelchair has been properly secured, it is essential that the wheelchair occupant be secured for transit. Both the pelvic and chest belts restraint should be adjusted as snugly as possible consistent with user comfort. Belts webbing should not be worn or twisted in a manner that reduce the area of contact of the belt webbing with the occupant when in use.

The pelvic belt should be worn low across the front of the pelvis angled between 45 and 75 degrees to the horizontal when viewed from the side. However, if the user cannot achieve this standard, an optional zone of 30 to 45 degrees can be utilized safely. Some wheelchair components, like armrests and wheels, can interfere with proper belt fit. It may be necessary to insert the belt between the armrest and the backrest or through openings between the backrest and seat in order to avoid placing the pelvic belt over the armrest. See figures 4 and 5. If a wheelchair anchored pelvic safety belt option is installed, this option is not meant to be removed from the chair. The Motion Composites wheelchair anchored pelvic belt is anchored to the rear occupied transit anchor point. Never alter the belt-restraint and/or wheelchair anchor points.

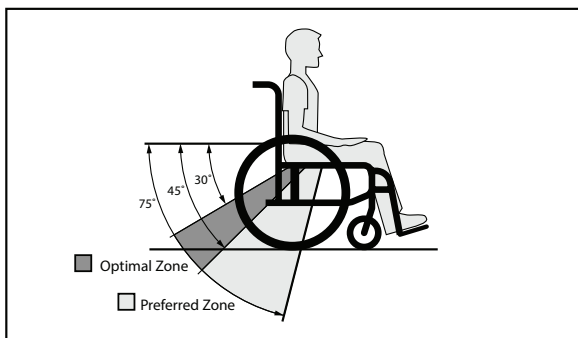


Figure 4. Recommended Pelvic Belt Placement Angles

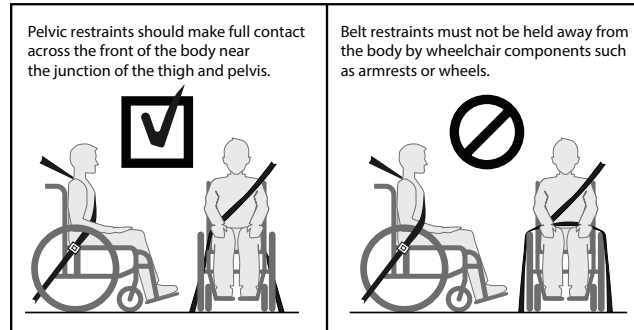


Figure 5. Proper Pelvic Belt Placement

The upper chest belt restraint should fit directly over, and in contact with, the middle of the shoulder of the occupant. See figure 6. The upper-torso belt anchor point should be anchored above and behind the top of the wheelchair occupant's shoulder to ensure that the occupant is properly restrained during transit. If a wheelchair anchored pelvic safety belt is used, place the vehicle anchored chest safety belt between the middle of the shoulder and the center of the chest, and connect to the pelvic belt near the hip of the wheelchair occupant on the opposed side of the upper vehicle anchor point and not near the midline of the occupant.

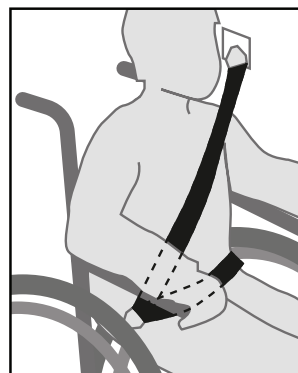


Figure 6. Upper-Torso Belt

The buckle of belt restraint systems should not be located near wheelchair components. This may come in contact with the buckle release button in case of accident or collision.

WARNING
Although postural supports and wheelchair positioning belts may be used in a moving vehicle, in addition to the vehicle's anchorage system, they should not be used to replace the vehicle's anchorage system designed and tested for this purpose, and should not interfere with the proper placement of the vehicle's seat belt.

WARNING
WARNING IF YOU FAIL TO OBSERVE THE WARNINGS IN THIS MANUAL, YOU MAY DAMAGE YOUR WHEELCHAIR, CAUSE SEVERE PHYSICAL INJURY TO OTHERS OR SUFFER SEVERE PHYSICAL INJURIES, OR DIE

7. OCCUPIED TRANSIT SECUREMENT KIT

The occupied transit anchor kit components shall conform to ISO 7176-19:2019 or RESNA WC-4:2017, Section 19 and be installed in accordance with the manufacturer's instructions.

- Wheelchair Tiedown and Occupant Restraint System (WTORS)
- Four-point strap-type transit tiedown wheelchair system
- Wheelchair occupied transit anchor kit
- Occupant restraint safety belts

NOTE: To obtain a copy of ISO 7176-19:2019, go to: www.iso.org, ANSI/RESNA WC-4:2017, Section 19, go to webstore.ansi.org/

Rating for ease of properly positioning a belt restraint, as tested for ISO 7176-19:2019:

- APEX C : Poor
- APEX A : Good

Rating for the proper belt restraint positioning, as tested for ISO 7176-19:2019:

- APEX C , APEX A : Excellent

Motion Composites have been tested and comply to RESNA WC4:2017, Section 19 in accordance with crash test requirements only.

8. WARNINGS

WARNING
Kindly contact Motion Composites customer service with any questions you may have regarding the use of this wheelchair in a motor vehicle at the following number: 1 866 650-6555.

WARNING
The wheelchair complies with RESNA WC-4:2017, Section 19 or ISO 7176-19:2019 and, as such, has been designed and tested for use only as a forward-facing seat in a motor vehicle.

WARNING
The wheelchair has been dynamically tested in a forward-facing orientation with the ATD restrained by both pelvic and chest belts.

WARNING
Both pelvic and chest safety belts should be used to reduce the possibility of head and chest impacts with the vehicle components.

WARNING
This Chapter contains detailed information regarding the exact configuration of the wheelchair that was subjected to one frontal impact and other tests required by ISO 7176-19 :2019 and RESNA WC-4:2017, Section 19. See 9. *Test Configuration* of the current section. The test results apply only to the configuration of the wheelchair as tested and described in this section. Therefore, if you order your chair differently, such as with a seating system manufactured by someone other than Motion Composites, you are hereby advised that the wheelchair was not tested in such different configuration and should not be considered “transit approved” by Motion Composites. As Motion Composites has not tested the chair with such different configurations, Motion Composites has no knowledge of how the product would perform in such configuration. Therefore, Motion Composites makes no claims or warranties about the wheelchair's performance in any configuration other than the configuration described herein. Motion Composites has not authorized any person to make any such claims or warranties on its behalf.

WARNING
Do not sit in this wheelchair in an adapted motor vehicle if your weight, together with the weight of all non-detachable items is more than the wheelchair permanent label maximum weight rating.

WARNING
Alterations or substitutions should not be made to the wheelchair anchor points or to parts or components of the wheelchair or seating system structural members. The Motion Composites wheelchairs were tested in the configurations with the components specified in part 9.

Test Configuration of the current section. Any significant alteration or substitution to the wheelchair's components or seating could significantly alter the chair's performance during an impact.

WARNING
It is not recommended to install securement point brackets, docking securement adapters and/or pelvic belt restraint anchorages on the wheelchair after sale. Any installation or modification of an occupied transit anchor kit after sale must be made at the Motion Composites factory.

WARNING
Motion Composites expressly disclaims that use of its occupied transit anchor kit option on a Motion Composites wheelchair will prevent the wheelchair user from injury or death in the event of a motor vehicle accident.

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

WARNING
Sufficient forward and rearward clear space should be provided around the wheelchair occupant in accordance with the current manual.

WARNING
The wheelchair user should always transfer into the vehicle seat and use the motor vehicle installed restraint system whenever feasible. The wheelchair should then be stored and secured in the vehicle.

WARNING
Do not use your Motion Composites wheelchair with a WTORS unless the WTORS has been installed fully in accordance with the instructions of the manufacturer of the WTORS.

WARNING
Always attach the WTORS to your Motion Composites wheelchair at all four (4) of the Motion Composites occupied transit anchor kit option in accordance with the instructions provided by the manufacturers of the WTORS.

WARNING
Always position the wheelchair occupant restraint system (pelvic belts and upper chest belts), in accordance with the instructions of the WTORS and wheelchair manufacturers. Use proper equipment. Use only as instructed.

WARNING
You must use your wheelchair in accordance with all warnings and instructions in this user manual.

WARNING
The back rest angle may be adjustable on your Motion Composites wheelchair. Motion Composites recommends using the same angle as the test wheelchair. Refer to section 9. TEST CONFIGURATION. Back supports should not be reclined to more than 30 degrees to the vertical during vehicle travel unless necessary for the postural and medical needs of the occupant.

WARNING
The use of postural pelvic belts attached to the wheelchair base or seat frame is encouraged during travel, but these belts should be positioned so that they don't interfere with the proper positioning of crash worthy belt restraints.

WARNING
Postural support accessories, such as pelvic positioning belts, anterior trunk supports and lateral trunk supports, shall not be relied on for occupant restraint in a moving vehicle unless they are labeled in compliance with RESNA WC-4:2017, Section 19 or ISO 7176-19:2019.

WARNING
Whenever possible, other auxiliary wheelchair equipment should be either effectively secured to the wheelchair or removed from the wheelchair and secured in the motor vehicle during travel so that such equipment does not break free and cause injury to the vehicle occupants in case of collision.

WARNING
In order to reduce the potential injury for vehicle occupants, it is recommended that no accessories be attached to the wheelchair (trays and other accessories assembled on the wheelchair, such as IV stands, respiratory equipment, backpacks and other personal items, which are not specifically designed for safe paratransit).

To prevent they break free and cause injury to vehicle occupants in the event of a collision, other accessories must be:

1. Removed and secured separately in the vehicle.

OR

2. Secured to the wheelchair but positioned away from the occupant with energy absorbing padded cushion placed between the accessory and the occupant. The weight on the wheelchair with the occupant and the accessories must not exceed 265 lbs. In the specific case of a tray, it should also be positioned with a gap of at least 3 in (75 mm) between the edge of the tray and the wheelchair occupant's abdomen and/or chest so as not to interfere with proper belt-restraint use. However, Motion Composites does not test with such accessories. It is the user's responsibility to verify the validity of their accessory and the securing method recommended by the manufacturer of the accessory.

WARNING
If a head and neck support is required during an occupied transit, use a soft, light neck collar as they are less likely to cause neck injury in an accident. Do not secure the neck collar to the wheelchair or seating system.

WARNING
The wheelchair should be inspected by Motion Composites before reuse following involvement in any type of vehicle collision.

WARNING
Always allow for proper clear zones when securing an occupied wheelchair in a motor vehicle. The frontal clear zone (FCZ) is measured from the forward-most point on the occupant's head and should measure at least 26 in. (66 cm) if both a pelvic and upper-torso belt are used. The frontal clear zone (FCZ) should measure at least 37.5 in. (95 cm) if only a pelvic restraint. Motion Composites strongly recommend that both pelvic and upper-torso belts be used. See figure 7.

WARNING
Allow as much clearance as possible around the wheelchair occupant to reduce the possibility of contact with vehicle components and other passengers in case of an accident.

NOTE: The recommended frontal clear zone may not be possible for seated wheelchair drivers.

The rear clear zone (RCZ) is measured from the rearmost point of the occupant's head and should be at least 20 in. (50 cm). See figure 3. The seated head height (HHT) ranges from 47 in. (120 cm) for a short adult to 61 in. (155 cm) for a tall adult. See figure 7.

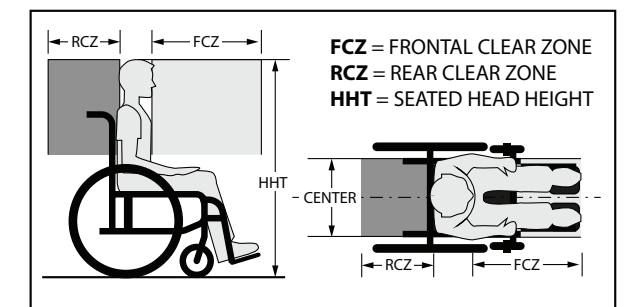


Figure 7

WARNING
All vehicle components that cannot be removed from the clear zones of Figure 3, or that near the wheelchair occupant space at a level that may be contacted by a wheelchair occupant's head during a side-impact collision or vehicle rollover, should be padded with material that complies with FMVSS 201.



WARNING
Back-support height should be set to achieve maximum engagement with the scapula (shoulder blade) and a head support should be used when possible to ensure maximum safety benefits.



WARNING
IF YOU FAIL TO OBSERVE THE WARNINGS IN THIS MANUAL, YOU MAY DAMAGE YOUR WHEELCHAIR, CAUSE SEVERE PHYSICAL INJURY TO OTHERS OR SUFFER SEVERE PHYSICAL INJURIES, OR DIE.

9. TEST CONFIGURATION

Seat Width	18 in
Seat Depth	18 in
Seat Back height.....	18 in
Front Seat-to-Floor Height	18 in
Rear Seat-to-Floor Height	16.75 in
Seat Angle.....	4 degrees
Seat Back Angle.....	10 degrees
Wheelchair Weight.....	APEX C – 29 lb APEX A – 30 lb +/- 0.5 lb
Seat Upholstery.....	Adjustable tension
Backrest	Soft Nylon
Backrest canes.....	Adjustable Height 18-21 in
Footrest Angle.....	90 degrees
Rear Wheels.....	24 in. Spoke wheels with 0 degrees of camber
Rear Tire.....	Soft Urethane of 24 x 1.25 in
Caster	6 in with Polyurethane tire on a 3-spoke composite wheel
Angle Footplate.....	Fixed composite
Other options	none
Mass of ATD Dummy	172 lb
Maximum User Weight	265 lb

CONVERSION CHART

INCHES	METRIC	INCHES	METRIC	INCHES	METRIC	INCHES	METRIC
0.25 in	0.6 cm	1 in	2.5 cm	10 in	25.4 cm	19 in	48.3
0.5 in	1.3 cm	2 in	5.0 cm	11 in	28.0 cm	20 in	50.8
0.75 in	2.0 cm	3 in	7.6 cm	12 in	30.5 cm	21 in	53.3
		4 in	10.2 cm	13 in	33.0 cm	22 in	55.9
		5 in	12.7 cm	14 in	35.6 cm	23 in	58.4
		6 in	15.2 cm	15 in	38.1 cm	24 in	61.0
		7 in	17.8 cm	16 in	40.6 cm	25 in	63.5
		8 in	20.3 cm	17 in	43.2 cm	26 in	66.0
		9 in	22.9 cm	18 in	45.7 cm		



Motion Composites
160, Armand-Majeau Sud
Saint-Roch-de-l'Achigan, Quebec
J0K 3H0 Canada

Telephone: 1 866 650-6555
Fax: 1 888 966-6555

info@motioncomposites.com
motioncomposites.com