

# Owner's Operator and Maintenance Manual

# Atlas™

**DEALER:** This manual **MUST** be given to the user of the wheelchair.

**USER:** **BEFORE** using this wheelchair, read this manual and save for future reference.

For more information regarding  
Invacare products, parts, and services,  
please visit [www.invacare.com](http://www.invacare.com)



**Yes, you can.**

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## **⚠ WARNING**

**A QUALIFIED TECHNICIAN MUST PERFORM THE INITIAL SET UP OF THIS WHEELCHAIR. ALSO, A QUALIFIED TECHNICIAN MUST PERFORM ALL PROCEDURES SPECIFICALLY INDICATED IN THE MANUAL.**

**WHEELCHAIR USERS: DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING (1) THE OWNER'S OPERATOR AND MAINTENANCE MANUAL AND (2) THE SEATING SYSTEM'S MANUAL (IF APPLICABLE). IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.**

**DEALERS AND QUALIFIED TECHNICIANS: DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING (1) THE OWNER'S OPERATOR AND MAINTENANCE MANUAL, (2) THE SERVICE MANUAL (IF APPLICABLE) AND (3) THE SEATING SYSTEM'S MANUAL (IF APPLICABLE). IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE, INJURY OR DAMAGE MAY RESULT.**

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*NOTE: Updated versions of this manual are available on [www.invacare.com](http://www.invacare.com).*

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## REGISTER YOUR PRODUCT

The benefits of registering:

1. Safeguard your investment.
2. Ensure long term maintenance and servicing of your purchase.
3. Receive updates with product information, maintenance tips, and industry news.
4. Invacare can contact you or your provider, if servicing is needed on your product.
5. It will enable Invacare to improve product designs based on your input and needs.

**Register ONLINE at [www.invacare.com](http://www.invacare.com)**

**- or -**

**Complete and mail the form on the next page**

Any registration information you submit will be used by Invacare Corporation only, and protected as required by applicable laws and regulations.



# PRODUCT REGISTRATION FORM

Register **ONLINE** at [www.invacare.com](http://www.invacare.com) - or -  
Complete and mail this form

Name \_\_\_\_\_

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Zip/Postal Code \_\_\_\_\_

Email \_\_\_\_\_ Phone No. \_\_\_\_\_

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Invacare Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Purchased From \_\_\_\_\_ Date of Purchase: \_\_\_\_\_

1. Method of purchase: (check all that apply)

Medicare  Insurance  Medicaid  Other \_\_\_\_\_

2. This product was purchased for use by: (check one)

Self  Parent  Spouse  Other

3. Product was purchased for use at:

Home  Facility  Other

4. I purchased an Invacare product because:

Price  Features (list features) \_\_\_\_\_

5. Who referred you to Invacare products? (check all that apply)

Doctor  Therapist  Friend  Relative  Dealer/Provider  Other \_\_\_\_\_

Advertisement (circle one): TV, Radio, Magazine, Newspaper  No Referral \_\_\_\_\_

6. What additional features, if any, would you like to see on this product?

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7. Would you like information sent to you about Invacare products that may be available for a particular medical condition?  Yes  No

If yes, please list any condition(s) here and we will send you information by email and/or mail about any available Invacare products that may help treat, care for or manage such condition(s):

\_\_\_\_\_

8. Would you like to receive updated information via email or regular mail about the Invacare home medical products sold by Invacare's dealers?  Yes  No

9. What would you like to see on the Invacare website?

\_\_\_\_\_

10. Would you like to be part of future online surveys for Invacare products?  Yes  No

11. User's Year of birth: \_\_\_\_\_

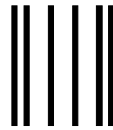
If at any time you wish not to receive future mailings from us, please contact us at Invacare Corporation, CRM Department, 39400 Taylor Parkway, Elyria, OH 44035, or fax to 877-619-7996 and we will remove you from our mailing list.

To find more information about our products, visit [www.invacare.com](http://www.invacare.com).

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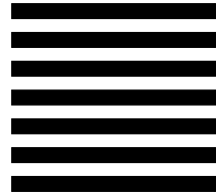
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# SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the following table for definitions of the signal words.

SIGNAL WORD	MEANING
DANGER	Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage.

## NOTICE

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

### WHEELCHAIR USER

As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection.

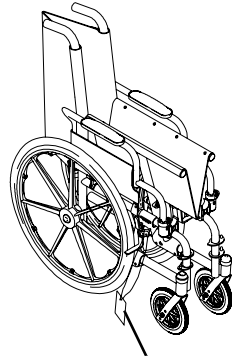
### WHEELCHAIR TIE-DOWN RESTRAINTS

Wheelchair users should **NOT** be transported in vehicles of any kind while in wheelchairs. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type.

It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation systems.

Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.

# LABEL LOCATION



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**IMPORTANT NOTICE**

The wheel locks on this wheelchair have been pre-set at the factory to comply with the Veterans Administration functional Standard 8320.01 of the Federal Register, paragraph 3.2.4.5.3. If these wheel locks do not meet your needs, follow instructions below.

**⚠ CAUTION**

Any wheel lock adjustments should embed wheel lock shoe at least 1/8" into tire when locked (3/16" on pneumatic tires).

**INSTRUCTIONS FOR WHEEL LOCK ADJUSTMENTS**

1. Loosen wheel lock mounting fastener, which runs through mounting bracket and frame.
2. Slide clamp toward rear wheel until wheel lock shoe is embedded into tire material at least 1/8" when handle is engaged to the lock position (3/16" for pneumatic tires).
3. Tighten mounting fastener to secure mounting bracket in desired location and recheck lock shoe embedding.
4. Inspect for correct locking action BEFORE actual use.

00078X021-0394

NO WHEELCHAIR HAS BEEN APPROVED FOR USE AS A SEATING SURFACE WITHIN A MOTOR VEHICLE. THIS LABEL IS FOR INFORMATIONAL PURPOSES ONLY. LIABILITY ISSUES WERE NOT CONSIDERED IN THE ATTACHMENT OF THIS LABEL.

AUCUN FAUTEUIL ROULANT N'A ÉTÉ APPROUVÉ POUR ÊTRE UTILISÉ COMME SIÈGE À L'INTÉRIEUR D'UN VÉHICULE MOTORISÉ. CETTE ÉTIQUETTE NE PEUT ÊTRE UTILISÉE QU'À TITRE D'INFORMATION ET N'A PAS ÉTÉ AFFICHÉE ICI POUR DES RAISONS DE RESPONSABILITÉ LÉGALE.

Crossmember

Lower Frame Tube

**WEIGHT CAPACITY**  
**250 LBS. (114 kgs.)**  
 REFER TO OWNER'S MANUAL  
P/N 1111013



# TYPICAL PRODUCT PARAMETERS

ATLAS	A18PFR	A18PLR	A18RFR	A18RLR
<b>OVERALL WIDTH:</b>	23 and 25 inches		24¼ and 26¼ inches	
<b>OVERALL DEPTH (WITHOUT FRONT RIGGINGS):</b>	31¼ inches			
<b>SEAT WIDTH:</b>	18 inches			
<b>SEAT DEPTH:</b>	16 inches			
<b>SEAT-TO-FLOOR* (WITH 24 INCH WHEELS)</b> POSITION 1: POSITION 2:	19 inches 20 inches			
<b>BACK STYLE:</b>	Fixed		Removable	
<b>BACK HEIGHT:</b>	16 inches			
<b>ARM STYLES:</b>	Permanent full length; urethane armpad		Removable desk length; urethane armpad	
<b>FRONT RIGGINGS:</b>	Hemi swingaway footrest	Hemi swingaway elevating legrests	Hemi swing-away footrest	Hemi swingaway elevating legrests
<b>REAR AXLE:</b>	Single axle		Dual axle	
<b>REAR WHEELS:</b>	24-inch composite wheel/solid rubber tire			
<b>HANDRIMS:</b>	Composite			
<b>WHEEL LOCKS:</b>	Push to lock			
<b>CASTER SIZE:</b>	8x1-inch solid rubber			
<b>UPHOLSTERY:</b>	Black nylon			
<b>FRAME FINISH</b>	Black			
<b>WEIGHT** (APPROX.):</b>	38.63 pounds	42.48 pounds	40.23 pounds	36.38 pounds
<b>SHIPPING WEIGHT** (APPROX.):</b>	43.48 pounds	47.33 pounds	45.08 pounds	41.23 pounds
<b>WEIGHT LIMITATION:</b>	250 lbs (114 kg)			

\*NOTE: These heights can vary  $\pm \frac{1}{4}$  inch due to tire wear and manufacturing tolerances.

\*\*NOTE: Weights based on 18x16 inch wide wheelchair with desk length arms. Weights will vary depending on wheelchair options.

# SECTION I—GENERAL GUIDELINES

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## **⚠ WARNING**

**SECTION I - GENERAL GUIDELINES** contains important information for the safe operation and use of this product. **DO NOT** use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as owner's manuals, service manuals or instruction sheets supplied with this product or optional equipment. If you are unable to understand the **Warnings, Cautions or Instructions**, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment. Otherwise, injury or damage may occur.

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## **Operating Information**

Unless otherwise noted, all service and adjustment should be performed while the wheelchair is unoccupied.

To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

DO NOT sit or transfer into the wheelchair unless it is fully open and the seat frame rails are fully seated into the side frame U-blocks.

Avoid storing or using the wheelchair near open flame or combustible products. Serious injury or damage to property may result.

ALWAYS use anti-tippers. When outdoors on wet, soft ground or on gravel surfaces, anti-tippers may not provide the same level of protection against tipover. Extra caution must be observed when traversing such surfaces.

DO NOT traverse, climb or go down ramps or slopes greater than 9°.

DO NOT attempt to move up or down an incline with a water, ice or oil film.

NEVER leave an unoccupied wheelchair on an incline.

DO NOT operate on roads, streets or highways.

DO NOT attempt to ride over curbs or obstacles. Doing so may cause your wheelchair to tip over and cause bodily harm to you or damage to the wheelchair.

DO NOT attempt to reach objects if you have to move forward in the seat.

DO NOT attempt to reach objects if you have to pick them up from the floor by reaching down between your knees.

DO NOT lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.

DO NOT shift your weight or sitting position toward direction you are reaching as the wheelchair may tip over.

DO NOT attempt to stop a moving wheelchair with wheel locks. Wheel locks are not brakes.

DO NOT tip the wheelchair without assistance.

DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. When transferring to and from the wheelchair, ALWAYS engage both wheel locks.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

If the wheelchair is exposed to extreme temperature (above 100°F or below 32°F), high humidity and/or becomes wet, prior to use, ensure that the handgrips do not twist on the handle. Otherwise, damage or injury may occur.

DO NOT stand on the frame of the wheelchair.

DO NOT stand on the footplates. When getting in or out of the wheelchair, make sure that the footplates are in the upward position or swing footrests towards the outside of the wheelchair.

ALWAYS use the handrims for self-propulsion. DO NOT grip the rear wheels themselves.

ALWAYS keep hands and fingers clear of moving parts to avoid injury.

## **Weight Training**

Invacare does not recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have not been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall not be liable for bodily injury or damage to the wheelchair and the warranty is void.

## **Weight Limitation**

The Atlas wheelchair has a weight limitation of 250 lbs (114 kg).

# SECTION 2—SAFETY/HANDLING OF WHEELCHAIRS

## Safety/Handling of Wheelchairs

Safety and handling of the wheelchair require the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers.

Use this information only as a basic guide. The techniques that are discussed on the following pages have been used successfully by many.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter. However, all warnings and cautions given in this manual **MUST** be heeded. Techniques in this manual are a starting point for the new wheelchair user and assistant with safety as the most important consideration for all.

## Stability and Balance

To assure stability and proper operation of your wheelchair, you **MUST** maintain proper balance at all times. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you do not move beyond the center of gravity.

Virtually all activities which involve movement in the wheelchair have an effect on the center of gravity. Invacare recommends using seat/chest positioning straps for additional safety while involved in activities that shift your weight.

**DO NOT** lean forward out of the wheelchair any further than the length of the armrests. Make sure the casters are pointing in the forward position whenever you lean forward. This can be achieved by advancing the wheelchair and then reversing it in a straight line.

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### **⚠ WARNING**

**DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.**

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

Proper positioning is essential for your safety. When reaching, leaning, or bending forward, it is important to use the front casters as a tool to maintain stability and balance.

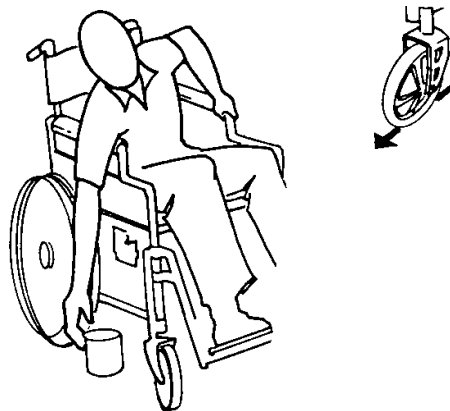
## Reaching, Leaning and Bending Forward

### **⚠ WARNING**

**DO NOT** attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

*NOTE: For this procedure, refer to FIGURE 2.1.*

Position the front casters so that they are extended as far forward as possible and engage wheel locks.



**FIGURE 2.1** Reaching, Leaning and Bending Forward

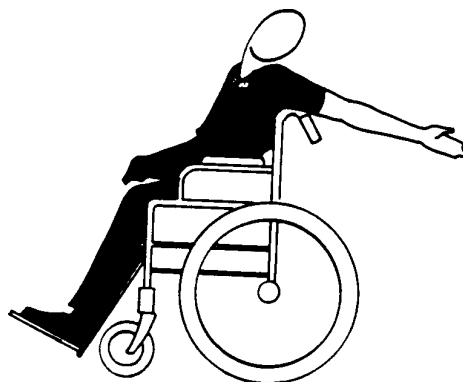
## Reaching, Leaning Backwards

### **⚠ WARNING**

**DO NOT** lean over the top of the back upholstery to reach objects behind you, as this may cause the wheelchair to tip over.

*NOTE: For this procedure, refer to For this procedure, refer to FIGURE 2.2.*

Position wheelchair as close as possible to the desired object. Point front casters forward to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.



**FIGURE 2.2** Reaching, Leaning Backwards

## Coping With Everyday Obstacles

Coping with the irritation of everyday obstacles can be alleviated somewhat by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

## A Note to Wheelchair Assistants

When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tipping the wheelchair or traversing curbs, or other impediments.

DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

ALWAYS check hand grips for looseness before using the wheelchair. If loose and/or worn, replace immediately.

When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

## Tipping

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### **⚠ WARNING**

**DO NOT tip the wheelchair without assistance.**

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When tipping the wheelchair, an assistant should grasp the back of the wheelchair on a non-removable (non-detachable) part. Inform the wheelchair occupant before tipping the wheelchair and remind him/her to lean back. Be sure the occupant's feet and hands are clear of all wheels and/or pinch points.

After mastering the techniques of tipping the wheelchair, use the following method to tackle curbs, short stairs, etc.

### **Tipping - Curbs**

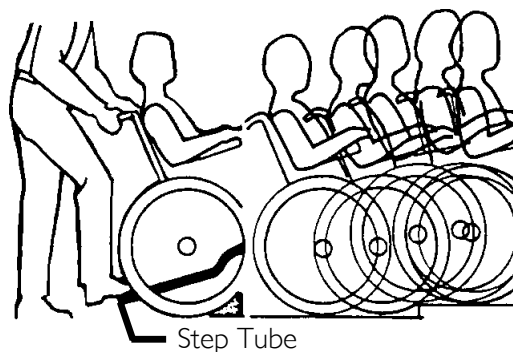
*NOTE: For this procedure, refer to FIGURE 2.3.*

Place foot on the step tube and begin to tilt the wheelchair toward you. Apply a continuous downward motion until the balance point is achieved and the front casters clear the curb. At this point, the assistant will feel a difference in the weight distribution.

**⚠ WARNING**

When lowering the front casters of the wheelchair, **DO NOT** let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant and/or damage to the wheelchair.

Roll the wheelchair forward and slowly lower the front of the wheelchair in one continuous movement onto the sidewalk. Push the wheelchair forward until the rear wheels roll up and over the curb.



**FIGURE 2.3** Tipping - Curbs

## Stairways

**⚠ WARNING**

**DO NOT** attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of the wheelchair may result in injury to the user or damage to the wheelchair.

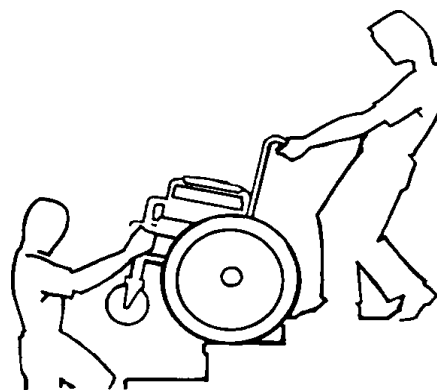
**ALWAYS** check hand grips for looseness before using the wheelchair. If loose and/or worn, replace immediately.

**EXTREME** caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two assistants and making thorough preparations. Make sure to use only secure, non-detachable parts for hand-held supports.

*NOTE: For this procedure, refer to FIGURE 2.4.*

Follow this procedure for moving the wheelchair between floors when an elevator is not available:

1. If necessary, rotate the anti-tippers so the wheels are facing up.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.
3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one foot on the next stair and repeats STEP 1.



**FIGURE 2.4** Stairways

4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. If necessary, rotate the anti-tippers so the wheels are facing down.

## Escalators

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### **⚠ WARNING**

**DO NOT** use an escalator to move a wheelchair between floors. Serious bodily injury may occur.

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## Transferring To and From Other Seats

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### **⚠ WARNING**

**Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters parallel to the object you are transferring onto. Also be certain the wheel locks are engaged to help prevent the wheels from moving.**

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### **CAUTION**

**When transferring, position yourself as far back as possible in the seat. This will help prevent damaged upholstery and the possibility of the wheelchair tipping forward.**

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*NOTE: For this procedure, refer to FIGURE 2.5.*

*NOTE: This activity may be performed independently provided you have adequate mobility and upper body strength.*

Position the wheelchair as close as possible alongside the seat to which you are transferring, with the front casters pointing parallel to it. Remove or flip up the armrest. Engage wheel locks. Swing away or remove front rigging. Shift body weight into seat with transfer.

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



**FIGURE 2.5** Transferring To and From Other Seats



## Unfolding and Folding Wheelchair

### ⚠ WARNING

**ALWAYS** keep hands and fingers clear of moving parts to avoid injury.

**DO NOT** place hand or fingers on the underside of the seat frame rail when opening or closing the wheelchair.

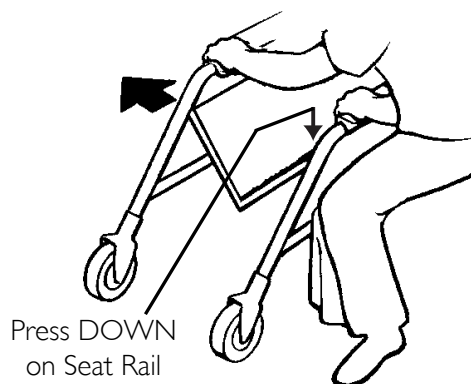
**DO NOT** sit or transfer into the wheelchair unless it is fully open and the seat frame rails are fully seated into the side frame U-blocks.

*NOTE: For this procedure, refer to FIGURE 2.6.*

*NOTE: Invacare recommends that a non-folding device be installed to keep the wheelchair from being folded when left unoccupied in a public place.*

### Unfolding

1. Tilt the wheelchair toward you (raising the opposite wheel and caster off the ground/floor).
2. Place your hand on the top of the seat rail closest to you where the seat upholstery is attached.
3. Point your fingers and thumb to the inside of the wheelchair.
4. Press downward on the top of the seat rail until the wheelchair is fully open and the seat rails are fully seated in the U-blocks.
5. Engage both wheel locks, open the footrest/legrest for clearance and transfer into the wheelchair. Refer to [Transferring To and From Other Seats](#) on page 16.

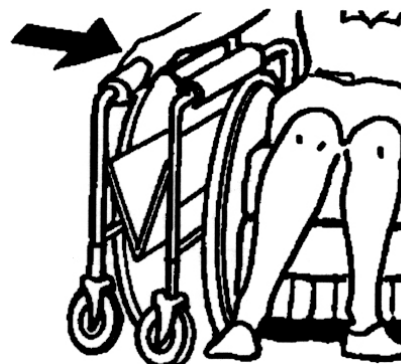


**FIGURE 2.6** Unfolding and Folding Wheelchair

### Folding

*NOTE: For this procedure, refer to FIGURE 2.7.*

1. Swing footrest/legrest and calf pads (if equipped) in locked position to the front of the wheelchair.
2. Pivot footplates upward to vertical position.
3. With both hands, grasp the middle of the seat upholstery at the front and back edge and lift up.
4. Continue to close the wheelchair by grasping the armrest furthest from you and pulling the armrest toward you.



**FIGURE 2.7** Folding

# SECTION 3—SAFETY INSPECTION/TROUBLESHOOTING

*NOTE: Every six months or as necessary, take your wheelchair to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.*

## Safety Inspection Checklist

Initial adjustments should be made to suit your personal body structure and preference. Thereafter follow these maintenance procedures:

### Inspect/Adjust Initially

- Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- Inspect for loose or missing hardware on frame and crossbraces.
- Inspect for bent frame or crossbraces.
- Check that the wheel locks do not interfere with tires when rolling.
- Check that the wheel lock pivot points are free of wear and looseness.
- Check that the wheel locks are easy to engage.
- Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- Inspect the seat and back for rips and sagging.
- Inspect the seat and back for loose or broken hardware.
- Inspect the back cane hand grips for wear/looseness/deterioration.
- Inspect tires for flat spots and wear.

---

### CAUTION

**As with any vehicle, check the wheels and tires periodically for cracks and wear. Replace if damaged.**

---

- Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- Inspect rear wheels for cracks and wear (hub and rim).
- Inspect rear wheels for cracked, bent or broken spokes.
- Ensure all spokes are uniformly tight.
- Inspect handrims for signs of rough edges or peeling.

- Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- Ensure wheel bearings are clean and free of moisture.
- Check headtube locknuts for tightness.
- Inspect casters for cracks and wear (hub and rim).
- Inspect front casters for cracked, bent or broken spokes.
- Clean upholstery and armrests.
- Check that all labels are present and legible. Replace if necessary.
- Ensure the casters are free of debris.

**Inspect/Adjust Weekly**

- Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- Inspect tires for flat spots and wear.
- Inspect rear wheels for cracked, bent or broken spokes.
- Inspect axle assembly for proper tension by spinning caster. Caster should come to a gradual stop.
- Inspect front caster for cracked, bent or broken spokes.
- Ensure the casters are free of debris.

**Inspect/Adjust Monthly**

- Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- Check that the wheel locks do not interfere with tires when rolling.
- Check that the wheel lock pivot points are free of wear and looseness.
- Inspect seat and back for loose or broken hardware.
- Inspect back cane hand grips for wear/looseness/deterioration.
- Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- Ensure wheel bearings are clean and free of moisture.
- Check headtube locknuts for tightness.
- Ensure the casters are free of debris.

**Inspect/Adjust Periodically**

- Ensure that the wheelchair rolls straight (no excessive drag or pull to one side).
- Inspect frame and crossbraces for loose or missing hardware.

- Inspect for bent frame or crossbraces.
- Check that wheel locks are easy to engage.
- Inspect seat and backs for rips and sagging.
- Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- Inspect rear wheels for cracks and wear (hub and rim).
- Inspect handrims for signs of rough edges or peeling.
- Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- Ensure wheel bearings are clean and free of moisture.
- Inspect casters for cracks and wear (hub and rim).
- Clean upholstery and armrests.
- Check that all labels are present and legible. Replace if necessary.
- Ensure the casters are free of debris.

## Troubleshooting

Chair Veers Right/Left	Chair 3 Wheels	Sluggish Turn or Performance	Casters Flutter	Squeaks and Rattles	Looseness in Chair	Solutions
X	X	X	X			Check tires for correct and equal pressure.
		X	X	X	X	Check for loose nuts and bolts.
X	X					Check that rear wheels are equally spaced away from seat frame.

## Maintenance Safety Precautions

### **WARNING**

Unless otherwise noted, all service adjustments should be performed while the wheelchair is unoccupied.

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may result.

---

**⚠ WARNING**

When cleaning rear cane or hand grip areas use only a clean towel lightly dampened with cool water. Verify that grips are dry prior to use. Use of soap or ammonia based cleaning solutions will result in the hand grips sliding off the cane assembly. Failure to observe this warning may result in injury to the user or bystanders.

Replace any labels that are missing, worn, or torn. Refer to Label Location on page 8 for a listing of the labels and their locations.

---

**CAUTION**

**DO NOT** overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

---

# SECTION 4—FRONT RIGGINGS

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

## Installing/Removing Front Riggings

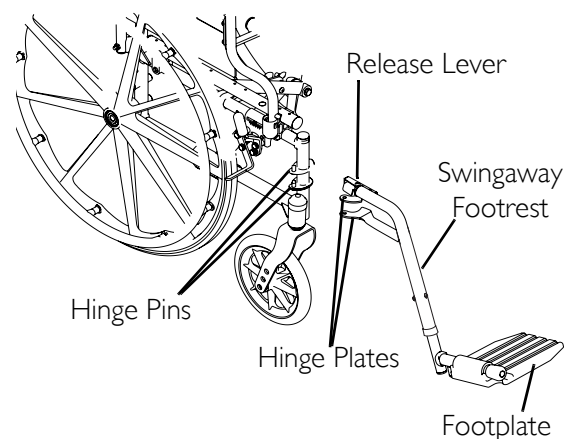
*NOTE: For this procedure, refer to FIGURE 4.1.*

### Installing

1. Turn the front rigging to the side (open footplate is perpendicular to wheelchair).
2. Install the front rigging hinge plates onto the hinge pins on the wheelchair frame.
3. Push the front rigging toward the inside of the wheelchair until it locks into place.

*NOTE: The footplate will be on the inside of the wheelchair when locked in place.*

4. Repeat STEPS 1-3 for the opposite side of the wheelchair.
5. To release the front rigging, push the footrest release lever inward, rotate footrest outward.



**FIGURE 4.1** Installing/Removing Front Riggings

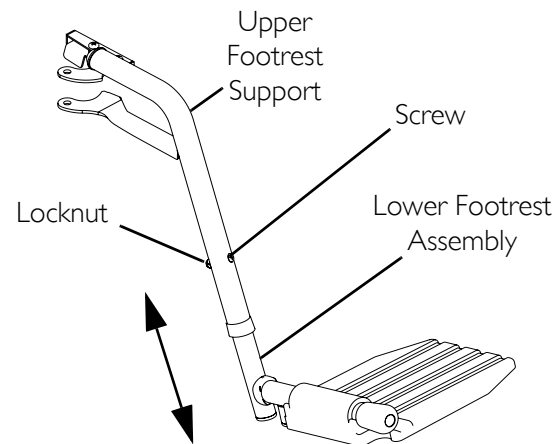
### Removing

1. Push the release lever inward and rotate the front rigging outward.
2. Lift up on front rigging and remove from the wheelchair.
3. Repeat STEPS 1-2 for the opposite side of the wheelchair.

## Adjusting Footrest Height

*NOTE: For this procedure, refer to FIGURE 4.2.*

1. Loosen, but **DO NOT** remove, the screw and locknut that secures the lower footrest assembly to the upper footrest support.
2. Reposition the lower footrest assembly to the desired height.
3. Securely tighten the screw and locknut that secures the lower footrest assembly to the upper footrest support.
4. If necessary, repeat STEP 1-3 for the opposite side of the wheelchair.

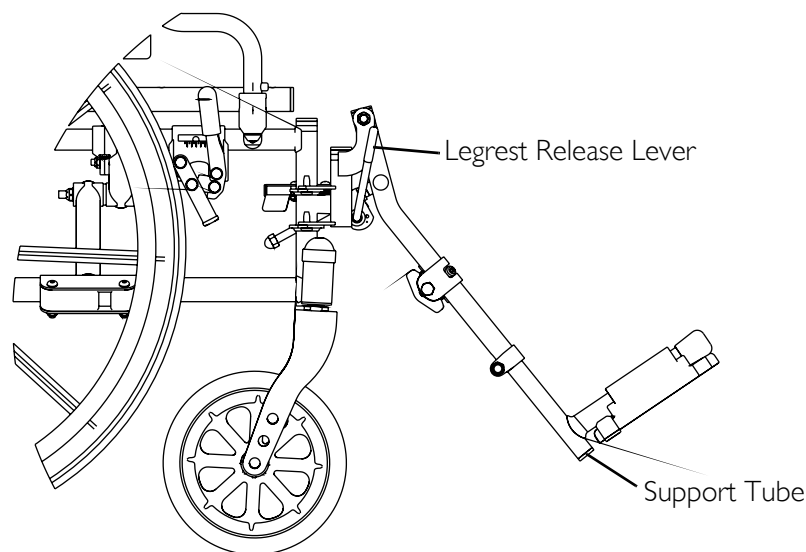


**FIGURE 4.2** Adjusting Footrest Height

## Raising/Lowering Elevating Legrest Assembly

*NOTE: For this procedure, refer to FIGURE 4.3.*

1. To raise the elevating legrest, the assistant or user should hold the support tube and raise the elevating legrests until the desired height is obtained.
2. To lower the elevating legrest, perform the following:
  - A. Support the user leg with one hand.
  - B. Push legrest release lever down with other hand.
  - C. Gently lower user leg down and rest it against the legrest.



**FIGURE 4.3** Raising/Lowering Elevating Legrest Assembly

# SECTION 5—ARMS

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

## Removing/Installing Armrests (Removable Armrests Only)

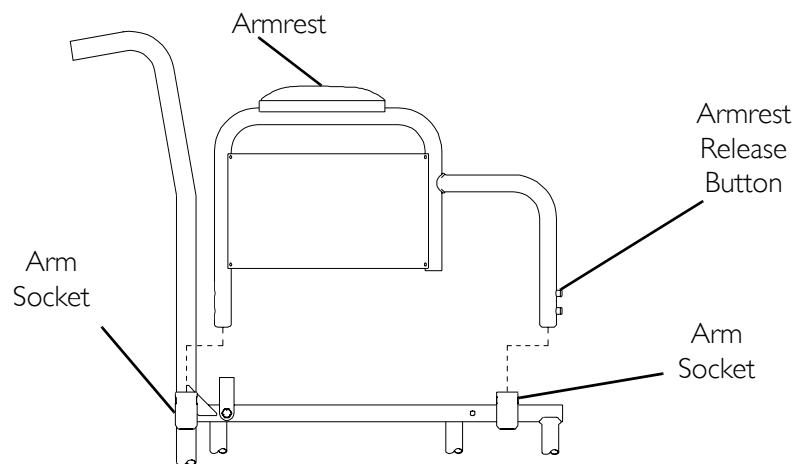
NOTE: For this procedure, refer to FIGURE 5.1.

### Removing

1. Press and hold the armrest release button at the front of the armrest.
2. Remove armrest from armrest sockets by pulling straight up on the armrest.
3. Repeat STEPS 1 and 2 for the other armrest.

### Installing

1. Position armrest over front and rear armrest sockets.
2. Push the armrest down and evenly at both ends until the front release button snaps into arm socket hole.
3. Repeat STEPS 1 and 2 for the other armrest.



**FIGURE 5.1** Removing/Installing Armrests (Removable Armrests Only)



# SECTION 6—BACK

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

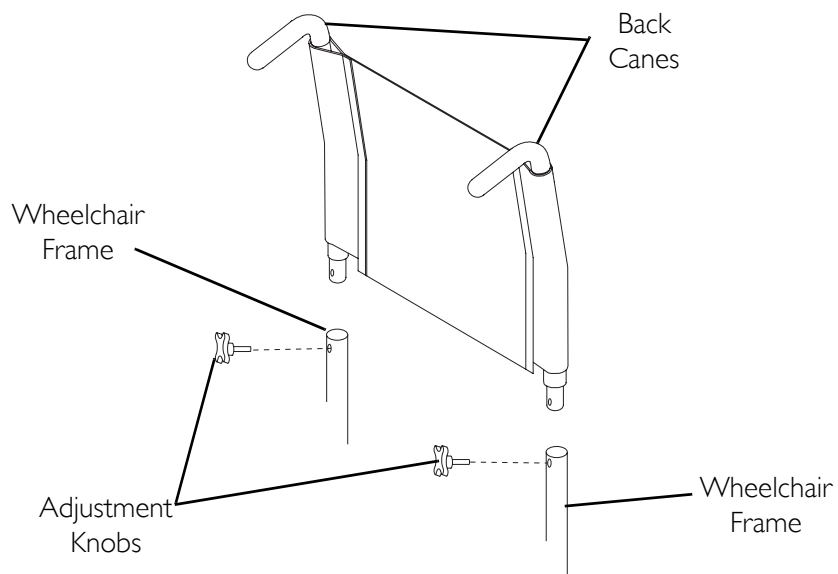
Remove the back for unoccupied transportation purposes only. Securely install the back onto the wheelchair before use.

## Removing/Installing the Back (Removable Back Only)

*NOTE: For this procedure, refer to FIGURE 6.1.*

1. Remove the two adjustment knobs on the wheelchair frame.
2. Remove the back canes from the wheelchair frame.

*NOTE: To install the back, reverse this procedure.*



**FIGURE 6.1** Removing/Installing the Back (Removable Back Only)

# SECTION 7—REAR WHEELS

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

## Removing/Installing Rear Wheels

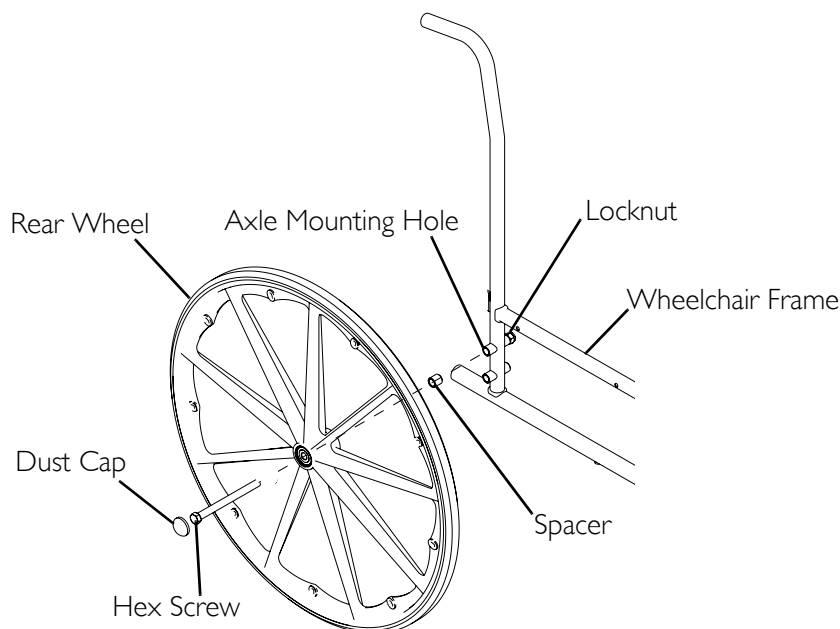
## ⚠ WARNING

Only a qualified technician may change the size of the rear wheel or the seat-to-floor height.

Make sure both rear wheels are the same size and are installed into the same respective mounting hole before using the wheelchair. Otherwise, injury may occur.

*NOTE: For this procedure, refer to FIGURE 7.1.*

1. Remove the dust cap, hex screw, spacer and locknut that secure the rear wheel to the wheelchair frame.
2. Repeat STEP 1 for the opposite rear wheel.
3. To reinstall the rear wheel(s) onto the wheelchair, reverse STEPS 1-2.
4. Torque the locknut to 40 ft-lbs.
5. Adjust the wheel locks. Refer to [Adjusting Wheel Locks](#) on page 28.



**FIGURE 7.1** Removing/Installing Rear Wheels

# SECTION 8—FRONT CASTERS

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

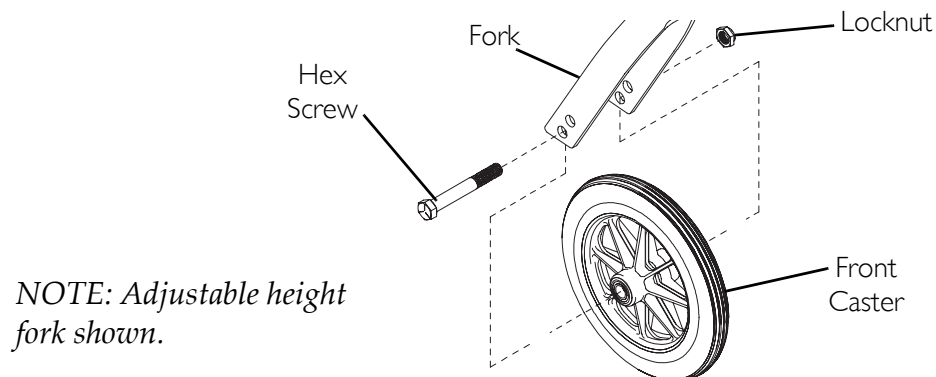
## Adjusting Front Caster Height

## ⚠ WARNING

Make sure both front casters are the same size and are installed into the same respective mounting hole before using the wheelchair. Otherwise, injury may occur.

*NOTE: For this procedure, refer to FIGURE 8.1.*

1. Remove the hex screw, washers and locknut that secure the front caster to the fork.
2. To reinstall the new front caster onto the fork, reverse STEP 1.



**FIGURE 8.1** Adjusting Front Caster Height

## SECTION 9—WHEEL LOCKS

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### **⚠ WARNING**

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

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## Adjusting Wheel Locks

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### **⚠ WARNING**

**DO NOT attempt to stop a moving wheelchair with the wheel locks. WHEEL LOCKS ARE NOT BRAKES.**

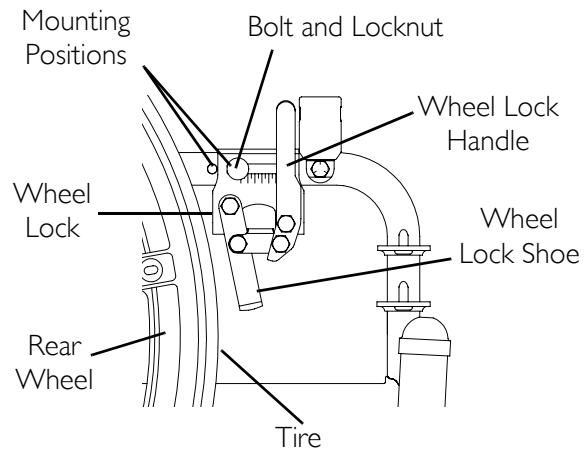
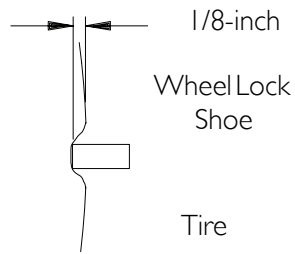
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*NOTE: For this procedure, refer to FIGURE 9.1.*

1. Ensure the wheel lock is in the open (unlocked position).
2. Loosen the bolt and locknut that secure the wheel lock assembly to the wheelchair frame.
3. Reposition the wheel lock so that when engaged, the wheel lock shoe embeds the tire 1/8-inch and holds the wheelchair.
4. Securely tighten the bolt and locknut securing the wheel lock to the wheelchair frame.
5. Engage the wheel lock.
6. Measure the distance the wheel lock is embedded into the tire as shown in detail "A" of FIGURE 9.1.

*NOTE: Any wheel lock adjustment should embed the wheel lock shoe at least 1/8-inch into the tire when engaged.*

7. Repeat the STEPS 1-6 until the wheel lock shoe embeds the tire 1/8-inch and holds the wheelchair.
8. Repeat STEPS 1-7 for the opposite wheel lock.
9. If the measurement of 1/8-inch cannot be achieved, remove the bolt and locknut that secure the wheel lock to the wheelchair frame and mount the wheel lock in one of two mounting positions.
10. Repeat STEPS 1-9 until the wheel lock holds the wheelchair. If the correct measurement still cannot be achieved, contact a qualified technician.

**DETAIL "A" - WHEEL LOCK SHOE  
ENGAGEMENT****FIGURE 9.1** Adjusting Wheel Locks

# SECTION 10—SEAT-TO-FLOOR HEIGHT

## ⚠ WARNING

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

## Changing Seat-To-Floor Height

## ⚠ WARNING

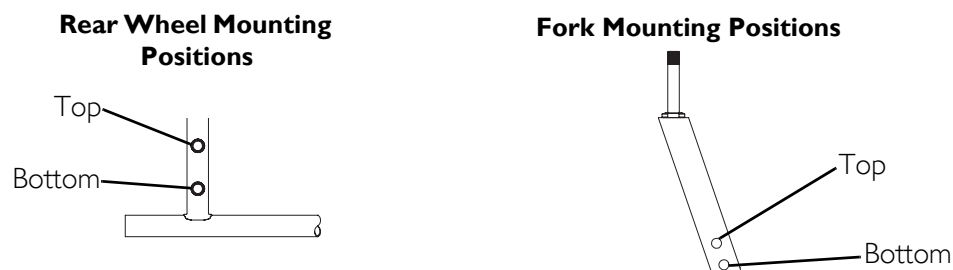
Seat-to-floor heights have specific positions depending on rear wheel size, rear wheel position, and front caster position. These adjustments **MUST** be performed by a qualified technician.

*NOTE: For this procedure, refer to FIGURE 10.1.*

1. Refer to the following chart and to FIGURE 10.1 to determine mounting positions for front casters/forks and rear wheels for the desired seat-to-floor height.

SEAT-TO-FLOOR HEIGHT (IN INCHES)	8-INCH FRONT CASTER MOUNTING POSITION	REAR WHEEL SIZE	REAR WHEEL MOUNTING POSITION
19	Top	24-inch	Top
20	Bottom	24-inch	Bottom

2. Remove the rear wheels from the wheelchair. Refer to [Removing/Installing Rear Wheels](#) on page 26.
3. Remove the front casters from the wheelchair. Refer to [Adjusting Front Caster Height](#) on page 27.
4. Reinstall the rear wheels onto the wheelchair in the mounting position indicated in the chart. Refer to [Removing/Installing Rear Wheels](#) on page 26.
5. Re-install the front casters onto the wheelchair in the mounting position indicated in the chart. Refer to [Adjusting Front Caster Height](#) on page 27.



**FIGURE 10.1** Changing Seat-To-Floor Height

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# SECTION 11—OPTIONS

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## ⚠ WARNING

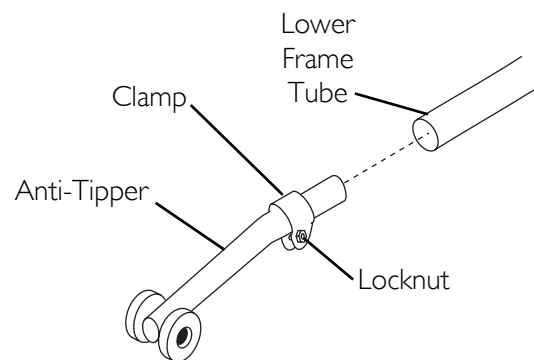
After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Otherwise injury or damage may occur.

---

## Installing Anti-Tippers

*NOTE: For this procedure, refer to FIGURE 11.1.*

1. Remove the rubber tip from the lower frame tube.
2. Slide the anti-tipper onto the lower frame tube until the anti-clamp wraps around the lower frame tube.
3. Tighten the anti-tipper clamp by turning the locknut counter-clockwise.
4. Repeat STEPS 1 to 3 for the other anti-tipper.



**FIGURE 11.1** Installing Anti-Tippers

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