

## *Insignia*<sup>™</sup>



**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.**

**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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## **⚠ ACCESSORIES WARNING**

**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.**

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\*Service Manual Part Number |16494| is available at [www.invacare.com](http://www.invacare.com)

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

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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, minor injury or both.

### 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 AND SEAT POSITIONING STRAPS

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.

#### SEAT POSITIONING STRAP

**ALWAYS** wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt **MUST** be replaced **IMMEDIATELY**.

With regards to seat/chest positioning straps - it is the obligation of the DME dealer, therapists and other healthcare professionals to determine if a seat/chest positioning strap is required to ensure the safe operation of this equipment by the user. Serious injury can occur in the event of a fall from a wheelchair.

# LABEL LOCATION

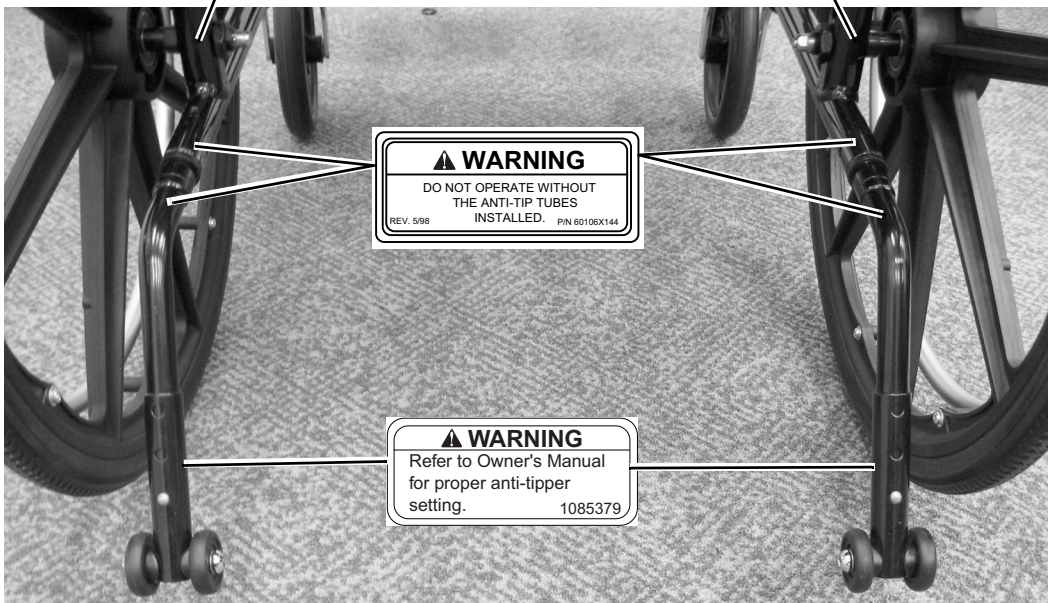
NO WHEELCHAIR HAS BEEN APPROVED FOR USE AS A SEATING SURFACE WITHIN A MOTOR VEHICLE. THIS LABEL IS FOR INFORMATIONAL PURPOSES ONLY. LIABILITY ISSUES WERE NOT CONSIDERED IN THE ATTACHMENT OF THIS LABEL.

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.



Serial Number Label is located on the cross brace on the left side of the chair

**WARNING** Detent balls should extend beyond the diameter of the axle bushing for a positive lock. Keep detent balls clean. P/N 1026960 Rev D



# TYPICAL PRODUCT PARAMETERS

INSIGNIA							
	IN66AHANFR	IN86AHANFR	IN86AHANFRFF	IN88AHANFR	IN88AHANFRFF	IN08AHANFR	IN08AHANFRFF
<b>Overall Width</b>	23 inches	25 inches	25 inches	25 inches	25 inches	27 inches	27 inches
<b>Overall Depth</b>	Without Riggings 32 inches; With Riggings 45.5 inches						
<b>Seat Width</b>	16 inches	18 inches	18 inches	18 inches	18 inches	20 inches	20 inches
<b>Seat Depth</b>	16 inches	16 inches	16 inches	18 inches	18 inches	18 inches	18 inches
<b>Seat To Floor</b>	16.5, 17.5, 18.5 or 19.5 inches						
<b>Back Style</b>	Adjustable Height Adjustable angles - 85° to 110° in 5° increments						
<b>Back Height</b>	15 to 19 inches in 1 inch increments						
<b>Arm Styles</b>	Flip back removable, adjustable height, space saver						
<b>Front Riggings</b>	Swingaway footrests and elevating legrests						
<b>Rear Axle</b>	Quick-release						
<b>Rear Wheels</b>	22 or 24 inch Low profile urethane 24 inch pneumatic-flat free insert						
<b>Handrims</b>	Brushed aluminum						
<b>Wheel Locks</b>	Push-to-lock						
<b>Caster Size</b>	6 or 8 inch Urethane						
<b>Upholstery</b>	Black nylon						
<b>Weight</b>	37.85 lbs (17.17 Kg)	37.96 lbs (17.22 Kg)	41.16 lbs (18.67 Kg)	38.80 lbs (17.60 kg)	41.45 lbs (18.80 Kg)	38.87 lbs (17.63 Kg)	42.66 lbs (19.35 Kg)
<b>Shipping Weight (approx.)</b>	46.01 lbs (20.87 Kg)	46.63 lbs (21.15 Kg)	49.58 lbs (22.49 Kg)	47.00 lbs (21.32 Kg)	50.16 lbs (22.75 Kg)	47.55 lbs (21.57 Kg)	50.75 lbs (23.02 Kg)
<b>Weight Limit</b>	250 lbs (113.4 kg)						

NOTE: The seat-to-floor heights are based on urethane tires. If wheelchair is equipped with pneumatic flat free add  $\frac{1}{2}$  inch to the measurements listed above. These heights can vary  $\pm \frac{1}{4}$  inch due to tire wear and manufacturing tolerances.

## SECTION I—GENERAL GUIDELINES

### ⚠ WARNING

**SECTION I - GENERAL GUIDELINES** contains important information for the safe operation and use of this product.

### Stability - All Models

The seat depth, back height/angle, seat angle, size/position of the front casters, size/position of the rear wheels, anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the ten may cause the wheelchair to decrease in stability. These adjustments must be performed by a qualified technician.

<i>NOTE: When changes to the left hand column occur, follow across the chart and refer to the X procedure to maintain the proper stability, safety and handling of the wheelchair.</i>	BACK HEIGHT	SEAT DEPTH	BACK ANGLE	SEATING SYSTEM	TILT ANGLE	CASTER SIZE	CASTER POSITION	WHEEL SIZE	WHEEL POSITION	USER CONDITION	WHEEL LOCKS	ANTI-TIPPERS
<b>BACK HEIGHT</b>	•	X	X	X	X	X	X	X	X	N/A	N/A	N/A
<b>SEAT DEPTH</b>	X	•	X	X	N/A	X	X	X	X	N/A	N/A	N/A
<b>BACK ANGLE</b>	X	X	•	X	X	X	X	X	X	N/A	N/A	N/A
<b>SEATING SYSTEM</b>	X	X	X	•	X	X	X	X	X	X	N/A	N/A
<b>TILT ANGLE</b>	N/A	N/A	X	N/A	•	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>CASTER SIZE</b>	X	N/A	X	N/A	N/A	•	X	X	X	N/A	X	X
<b>CASTER POSITION</b>	X	N/A	X	N/A	N/A	X	•	X	X	N/A	X	X
<b>WHEEL SIZE</b>	X	N/A	X	N/A	N/A	X	X	•	X	N/A	X	X
<b>WHEEL POSITION</b>	X	N/A	X	N/A	N/A	X	X	X	•	N/A	X	X
<b>USER CONDITION</b>	X	X	X	X	X	X	X	X	X	•	N/A	N/A
<b>SEAT HEIGHT</b>	X	N/A	X	X	X	X	X	X	X	N/A	X	X

*NOTE: The various seat-to-floor heights require specific settings depending on rear wheel size, rear wheel position, front caster size/position and desired seat-to-floor angle. These adjustments must be performed by a qualified technician.*

### Weight Training/Weight Limitation

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.

The Insignia wheelchair has a weight limitation of 250 lbs (113.4 kg).

### Anti-Tippers

Anti-tippers are specific to the different seat-to-floor angles and/or seat-to-floor heights. Refer to the charts in [Installing/Adjusting Anti-tippers](#) on page 38 for correct usage and adjustment. If these requirements cannot be achieved, DO NOT use the wheelchair. Contact a qualified technician. If changing the seat-to-floor height with or without a change to seat-to-floor angle, the correct anti-tippers must be used to maintain a 1½ to 2-inch ground clearance.



Seat-to-floor angle of 0° or 3°: If so equipped, anti-tippers must be attached at all times. Inasmuch as the anti-tippers are an option for 0° or 3° on this wheelchair, Invacare strongly recommends using the anti-tippers as a safeguard for the wheelchair user.

Seat-to-floor angle of 6°: If changing the seat-to-floor angle to 6°, anti-tippers must be installed.

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.

## 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.

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.

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** sit or transfer into the wheelchair unless it is fully open and the seat frame rails are fully seated into the side frame H-blocks.

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

**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.

**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.

DO NOT stand on the frame of the wheelchair.

DO NOT use the footplate as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position.

ALWAYS use the handrims for self-propulsion.

## 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

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#### **⚠ WARNING**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap **MUST** be replaced **IMMEDIATELY**.**

**Be aware that carrying heavy objects on your lap while occupying the wheelchair may adversely affect the stability of the wheelchair, resulting in serious bodily injury to the user, damage to the wheelchair and surrounding property.**

**This wheelchair has been designed to accommodate one individual. If more than one individual occupies the wheelchair this may adversely affect the stability of the wheelchair, resulting in serious bodily injury to the user and passenger and damage to the wheelchair and surrounding property.**

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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.

### 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**.

Also, be aware of detachable parts such as armrests or legrests. These **MUST NEVER** be used to move the wheelchair or as lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).

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

### **⚠ WARNING**

**The seat depth, back height/angle, seat to floor angle, size/position of the front casters, size/position of the rear wheels, anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the ten may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by a qualified technician.**

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.

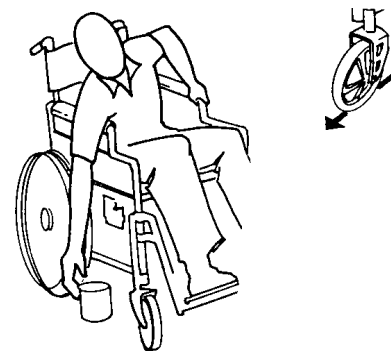
## Reaching, Leaning and Bending Forward

### **⚠ 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 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

## Tipping

### **⚠ WARNING**

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

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

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 one of the following methods to tackle curbs, short stairs, etc.

### **Method 1 - Wheelchair With Step Tubes**

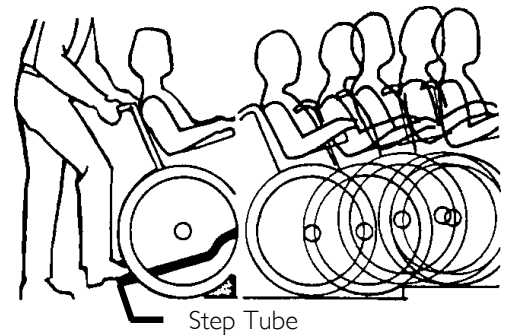
*NOTE: For this procedure, refer to FIGURE 2.3.*

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.

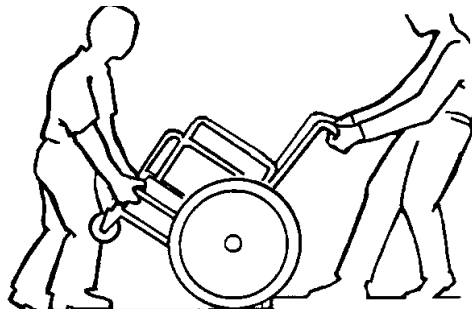


**FIGURE 2.3** Method 1 - Wheelchair With Step Tubes

### **Method 2 - Wheelchair Without Step Tubes**

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

This method requires two assistants. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.



**FIGURE 2.4** Method 2 - Wheelchair Without Step Tubes

The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. Turn the anti-tippers so the anti-tip wheels are pointing up. The wheelchair should be tilted back to the balance point and, in one continuous upward movement, the rear wheels should be pulled up and over the curb. **DO NOT** return the front casters to the ground until the wheelchair has been pulled backward far enough for the front casters to clear the edge of the curb.

**⚠ 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.**

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Roll the wheelchair backward and slowly lower the wheelchair in one continuous movement. Turn the anti-tippers so the anti-tip wheels are facing down.

## Stairways

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**⚠ WARNING**

**ALWAYS wear your seat positioning strap. Inasmuch as the seat positioning strap is an option on this wheelchair (you may order with or without the seat positioning strap), Invacare strongly recommends ordering the seat positioning strap as an additional safeguard for the wheelchair user. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt **MUST** be replaced **IMMEDIATELY**.**

**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**.**

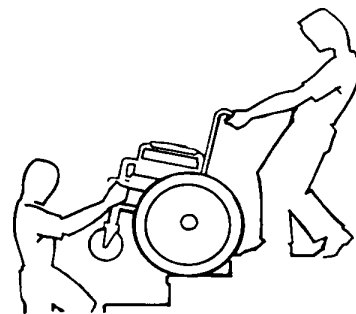
**Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two assistants and making thorough preparations. Make sure to use only secure,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

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*NOTE: For this procedure, refer to FIGURE 2.5 on page 14.*

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.
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.



**FIGURE 2.5** Stairways

## Escalators

### ⚠ WARNING

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

## Transferring To and From Other Seats

### ⚠ 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.

### 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.

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

*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 2.6** Transferring To and From Other Seats

## Unfolding and Folding Wheelchair

### ⚠ WARNING

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

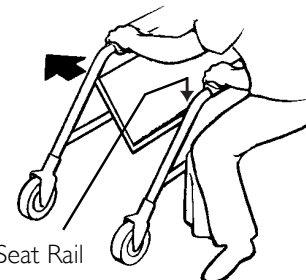
**DO NOT** place hand or fingers on the underside of seat frame rail when opening/closing the wheelchair.

**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 H-blocks.

*NOTE: For this procedure, refer to FIGURE 2.7 and FIGURE 2.8 on page 16.*

### 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.



Press DOWN on Seat Rail

**FIGURE 2.7** Unfolding and Folding 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 H-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 15.

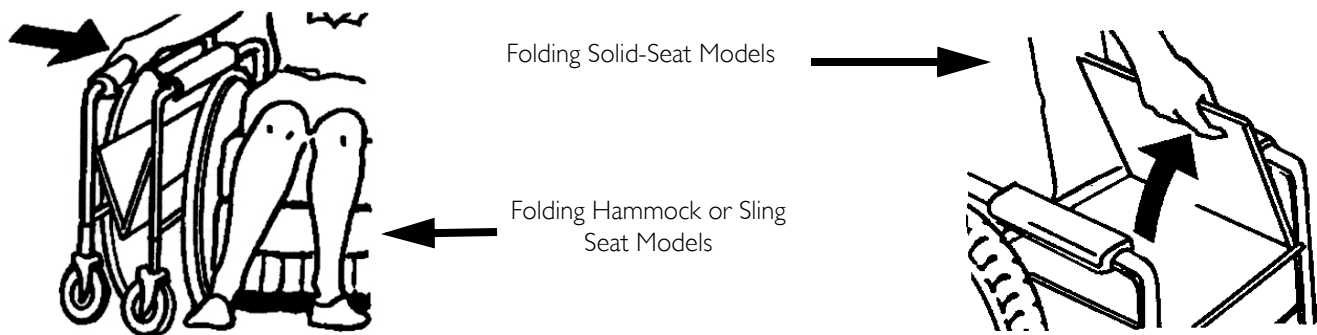
### Folding Hammock or Sling Seat Models

*NOTE: Swing footrest/legrest in locked position to the front of the wheelchair.*

1. Pivot footplates upward to vertical position.
2. With both hands, grasp the middle of the seat upholstery at the front and back edge and lift up.
3. Continue to close the wheelchair by grasping the armrest furthest from you and pulling the armrest towards you.

### Folding Solid-Seat Models

1. Swing footrest/legrest in locked position to the front of the wheelchair.
2. Pivot footplates upward to vertical position.
3. From behind the wheelchair, grasp the right hand edge of the solid seat.
4. Raise the seat to the hinged side.
5. With both hands, grasp the middle of the front and back edges of the solid folding seat and lift up until the wheelchair begins to close.
6. Continue to close the wheelchair by grasping the armrest furthest from you and pulling the armrest towards you.



**FIGURE 2.8** Folding Solid-Seat Models and Folding Hammock or Sling Seat Models



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

- If equipped, check that quick-release axles lock properly. Lubricate if necessary.
- Check that there is no excessive side movement or binding in the rear wheels when lifted and spun.
- 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.
- Inspect front casters for cracked, bent or broken spokes.
- Clean upholstery and armrests.

#### Inspect/Adjust Weekly

- Ensure that the wheel locks prevent the wheelchair from moving when engaged.
- Inspect tires for flat spots and wear.
- If equipped, check that quick-release axles lock properly. Lubricate if necessary.
- Inspect rear wheels for cracked, bent or broken spokes.

- Ensure all spokes are uniformly tight.
- 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.

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

**Inspect/Adjust Periodically**

- 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 handrims for signs of rough edges or peeling.
- Adjust front casters/forks bearing system if wheel wobbles noticeably or binds to a stop.
- Inspect casters for cracks and wear.
- Ensure that casters are free of debris.
- Ensure wheel bearings are clean and free of moisture.
- Clean upholstery and armrests.
- Check that all labels are present and legible. Replace if necessary.

**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 for loose nuts and bolts.
X	X		X			Check caster headtube angle.
X	X					Check that rear wheels are equally spaced away from seat frame.

---

## Maintenance

### Maintenance Safety Precautions

---

#### **⚠ WARNING**

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

---

#### **CAUTION**

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

---

### Suggested Maintenance Procedures

1. Before using your Insignia wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
  2. Keep quick-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to [Adjusting Quick-Release Axle](#) on page 31.
  3. Oil quick-release axles at least once a month (3-in-1 oil<sup>®</sup> or equivalent).
- 

#### **CAUTION**

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

---

4. The rear wheels, casters and tires should be checked periodically for cracks and wear, and should be replaced by a qualified technician if damaged.

*NOTE: Tire wear is excessive if:*

- Pneumatic Flat Free Tires - there is missing tread or the tires are bald.
- Urethane Tires - there are cuts, surface defects or the tires are loose on the rims.

*NOTE: Invacare recommends that tires and casters be replaced every five years.*

5. Periodically adjust wheel locks in correlation to tire wear. Refer to [Adjusting Patient-Operated Wheel Locks](#) on page 36.
  6. Periodically check handrims to ensure they are secured to the rear wheels. If loose, have them tightened by a qualified technician.
  7. Periodically check caster wheel bearings to make sure they are clean and free from moisture. Use a Teflon<sup>®</sup> lubricant if necessary.
- 

#### **⚠ 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.**

---

8. Hand grips should be checked monthly for wear/looseness/deterioration. Clean if desired. Replace if looseness or deterioration is found.
  9. Check upholstery for sagging, rips or tears.
  10. Replace any labels that are missing, worn, or torn. Refer to [Label Location](#) on page 6 for a listing of labels and their locations.
-

## 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 Assembly

NOTE: For this procedure, refer to FIGURE 4.1.

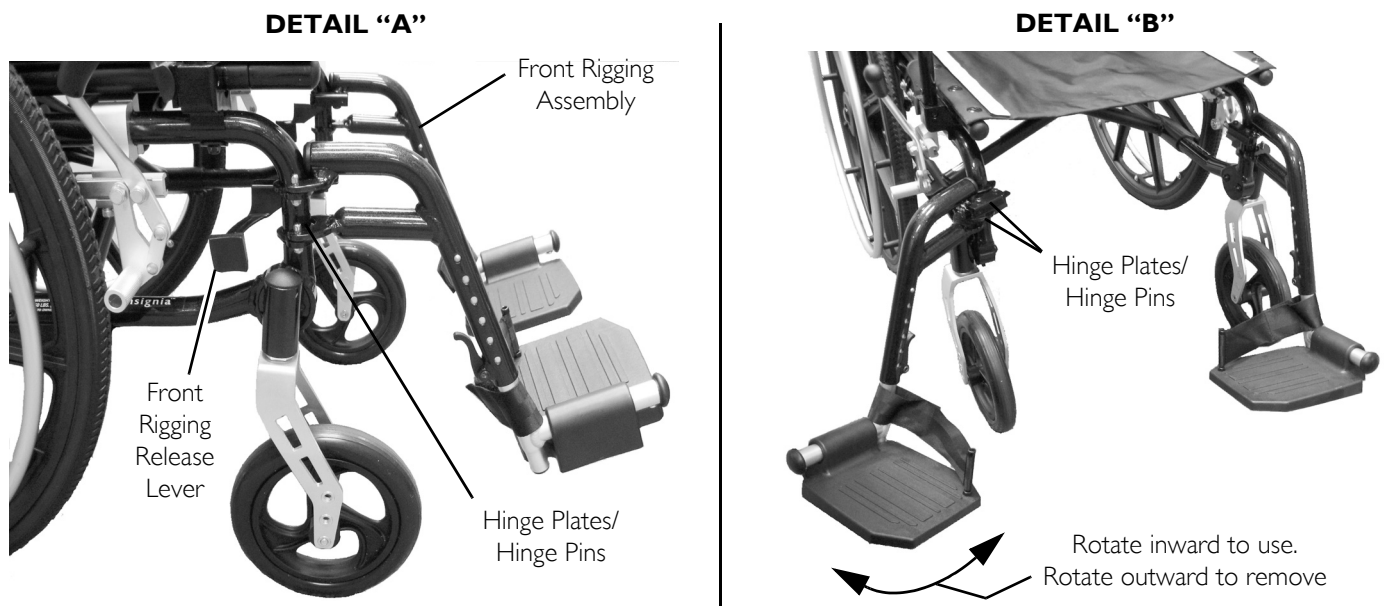
#### Installing

1. Turn the front rigging assembly to the side (open front rigging is perpendicular to wheelchair).
2. Install the hinge plates on the front rigging assembly onto the hinge pins on the wheelchair frame.
3. Push the front rigging assembly towards the inside of the wheelchair until it locks into place. An “audible” click will be heard when locked in place.

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

#### Removing

1. Push the front rigging release lever inward.
2. Rotate swingaway front rigging assembly outward.
3. Lift the swingaway front rigging assembly off the hinge pins.



**FIGURE 4.1** Installing/Removing Front Riggings Assembly

## Adjusting Footplate Height

NOTE: For this procedure, refer to FIGURE 4.2 on page 21.

NOTE: This procedure applies to the swingaway front riggings and swingaway elevating legrest.

1. Remove the front rigging assembly. Refer to [Installing/Removing Front Riggings Assembly](#) on page 20.

2. Pull the cam lock lever down to unlocked position.

NOTE: The elevating legrest has two sets of release buttons, one set above the other. Each set will be visible one at a time allowing finer footplate height adjustment.

3. Push in the spring buttons and reposition the footplate assembly to the desired height.
4. Ensure that the spring buttons fully protrude from adjustment holes on both sides of the front rigging support.
5. Rotate cam lock lever up to the locked position.
6. Reinstall the swingaway front rigging assembly. Refer to [Installing/Removing Front Riggings Assembly](#) on page 20.

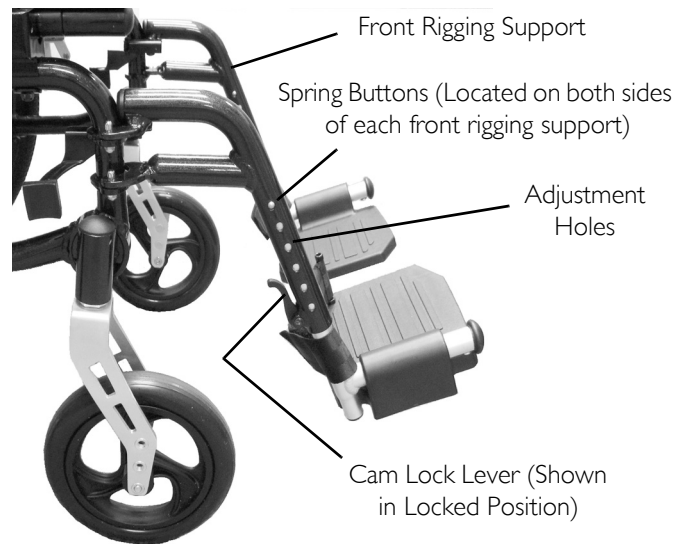


FIGURE 4.2 Adjusting Footplate Height

## Raising/Lowering Elevating Legrest Assembly

NOTE: For this procedure, refer to FIGURE 4.3.

### ⚠ WARNING

Ensure hands and fingers are clear of elevating legrest mechanism before pushing release lever to lower the elevating legrest. Otherwise injury may occur due to pinch points.

The user's leg **MUST** be supported by an assistant before attempting to lower legrest.

NOTE: For this procedure, refer to FIGURE 4.3 on page 21.

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

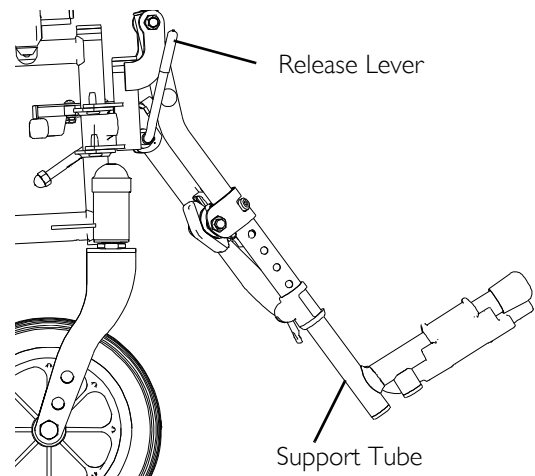


FIGURE 4.3 Raising/Lowering Elevating Legrest Assembly

## Replacing Heel Loop

*NOTE: For this procedure, refer to FIGURE 4.4.*

1. Pull the cam lock lever down to the unlocked position.
2. Push in the release buttons and remove the footplate assembly from the front rigging support.
3. Remove the mounting screw, spacer and locknut that secure the heel loop to the footplate.
4. Remove existing heel loop from slide tube.
5. Install new heel loop onto slide tube.
6. Install the mounting screw, spacer and locknut to secure the heel loop to the footplate. Tighten securely.
7. Insert the slide tube into the front rigging support and adjust to desired height.
8. Ensure that the release buttons fully protrude from holes on both sides of the front rigging support.
9. Rotate cam lock lever up to the locked position.



**FIGURE 4.4** Replacing Heel Loop

## 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 the Armrest

NOTE: For this procedure, refer to FIGURE 5.1.

#### Removing

1. While pressing and holding the release button, lift up on armrest and remove from the flip back arm.

#### Installing

1. Press and hold release button.
2. Insert channel of armrest into bracket on flip back arm.
3. Adjust armrest to desired height. Refer to [Adjusting Armrest Height](#) on page 23.

### Adjusting Armrest Height

### **⚠ WARNING**

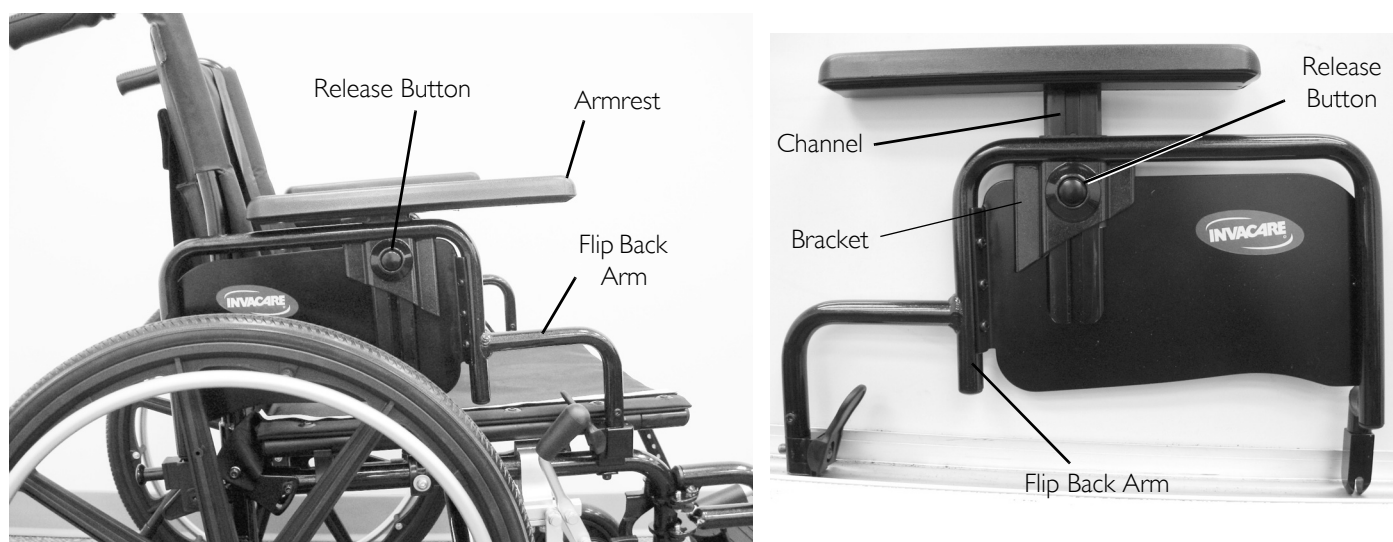
Make sure the armrest is locked in position before using the wheelchair.

NOTE: For this procedure, refer to FIGURE 5.1.

1. While pressing and holding the release button, adjust the armrest to the desired height.

NOTE: An “audible” click will be heard when armrest locks in position.

2. Let go of release button to lock armrest in place.



**FIGURE 5.1** Removing/Installing the Armrest/Adjusting Armrest Height

## Using Flip Back Armrest

*NOTE: For this procedure, refer to FIGURE 5.2.*

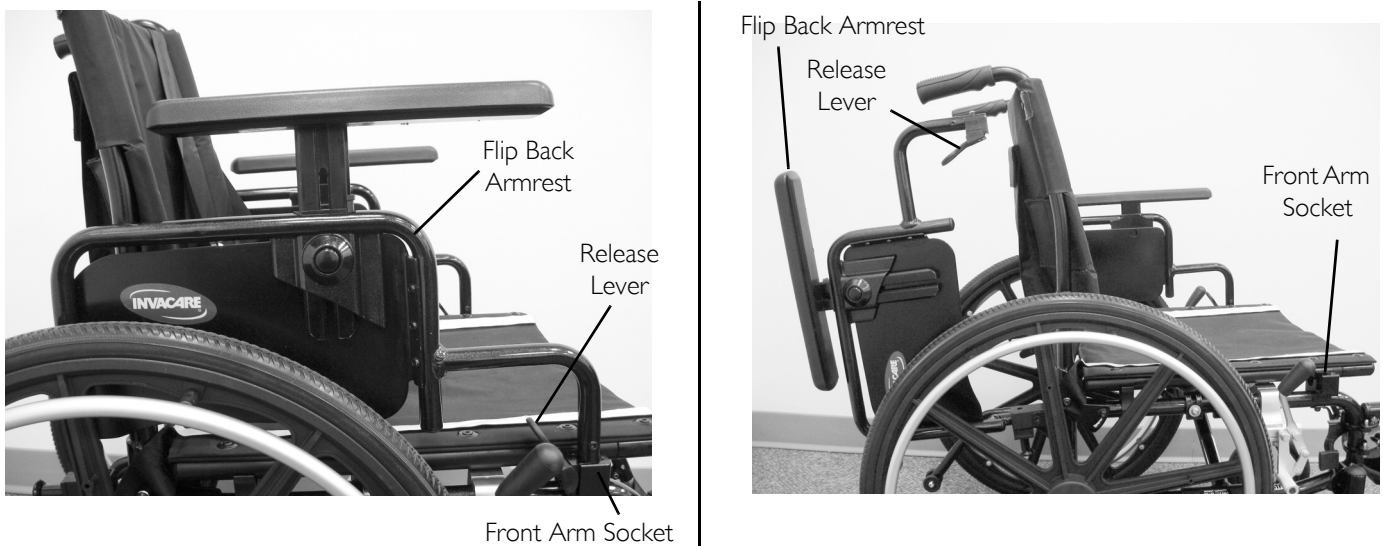
1. Unlock the flip back armrest by pressing the release lever toward the front of the wheelchair.
2. Pull the front of the flip back armrest straight up and out of the front arm socket and rotate towards the rear of the wheelchair.

### **⚠ WARNING**

**Make sure the flip back armrest is in the locked position before using the wheelchair.**

3. Rotate the flip back armrest towards the front of the wheelchair and then downward into the front arm socket.

*NOTE: Armrest is locked into armrest socket when "audible" click is heard.*



**FIGURE 5.2** Using Flip Back Armrest

## Removing/Installing the Flip Back Arm

*NOTE: For this procedure, refer to FIGURE 5.3 on page 25.*

### Removing

1. Push the release lever toward the front of the chair and remove the front of the flip back arm out of the front arm socket.
2. While pulling back on the plunger knob, pull flip back arm up and out of the front and rear arm sockets.

### Installing

1. Install flip back arm into front and rear arm sockets.

*NOTE: Ensure that the release lever and plunger pin secure the flip back arm in place.*

*NOTE: Armrest is locked into armrest socket when "audible" click is heard.*

2. Pull up on flip back arm to ensure arm is locked in place.



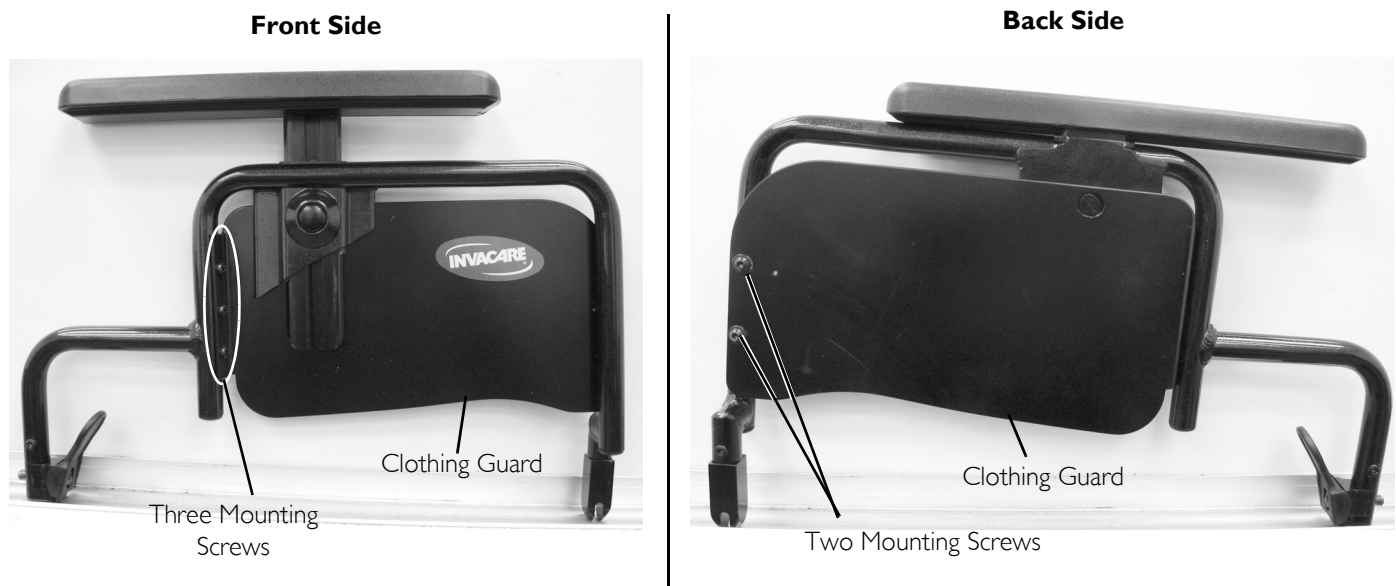


**FIGURE 5.3** Removing/Installing the Flip Back Arm

## Replacing Clothing Guards

*NOTE: For this procedure, refer to FIGURE 5.4.*

1. Remove the flip back arm. Refer to [Removing/Installing the Flip Back Arm](#) on page 24.
2. Remove the three mounting screws on the front side and two mounting screws on the back side that secure the clothing guard in place.
3. Secure new clothing guard in place with three mounting screws on the front side and two mounting screws on the back side.
4. Reinstall the flip back arm. Refer to [Removing/Installing the Flip Back Arm](#) on page 24.



**FIGURE 5.4** Replacing Clothing Guards

## Changing from Full Length Armrest to Desk Length Armrest and Vice Versa

*NOTE: For this procedure, refer to FIGURE 5.5 on page 26.*

1. Remove the armrest.
2. Rotate armrest 180°, ensuring that the scalloped edge of the channel remains facing toward the inside of the wheelchair, and install on opposite side of chair.

**Full Length Armrest**



**Desk Length Armrest**



**FIGURE 5.5** Changing from Full Length Armrest to Desk Length Armrest and Vice Versa

## SECTION 6—SEAT AND 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.

### Removing/Installing the Seat Upholstery

#### Removing

NOTE: For this procedure, refer to FIGURE 6.1.

1. Remove the mounting screws and washers that secure the seat upholstery to the seat rails.
2. Remove the seat upholstery.

#### Installing

1. Secure the seat upholstery to the seat rails with mounting screws and washers. Tighten securely.



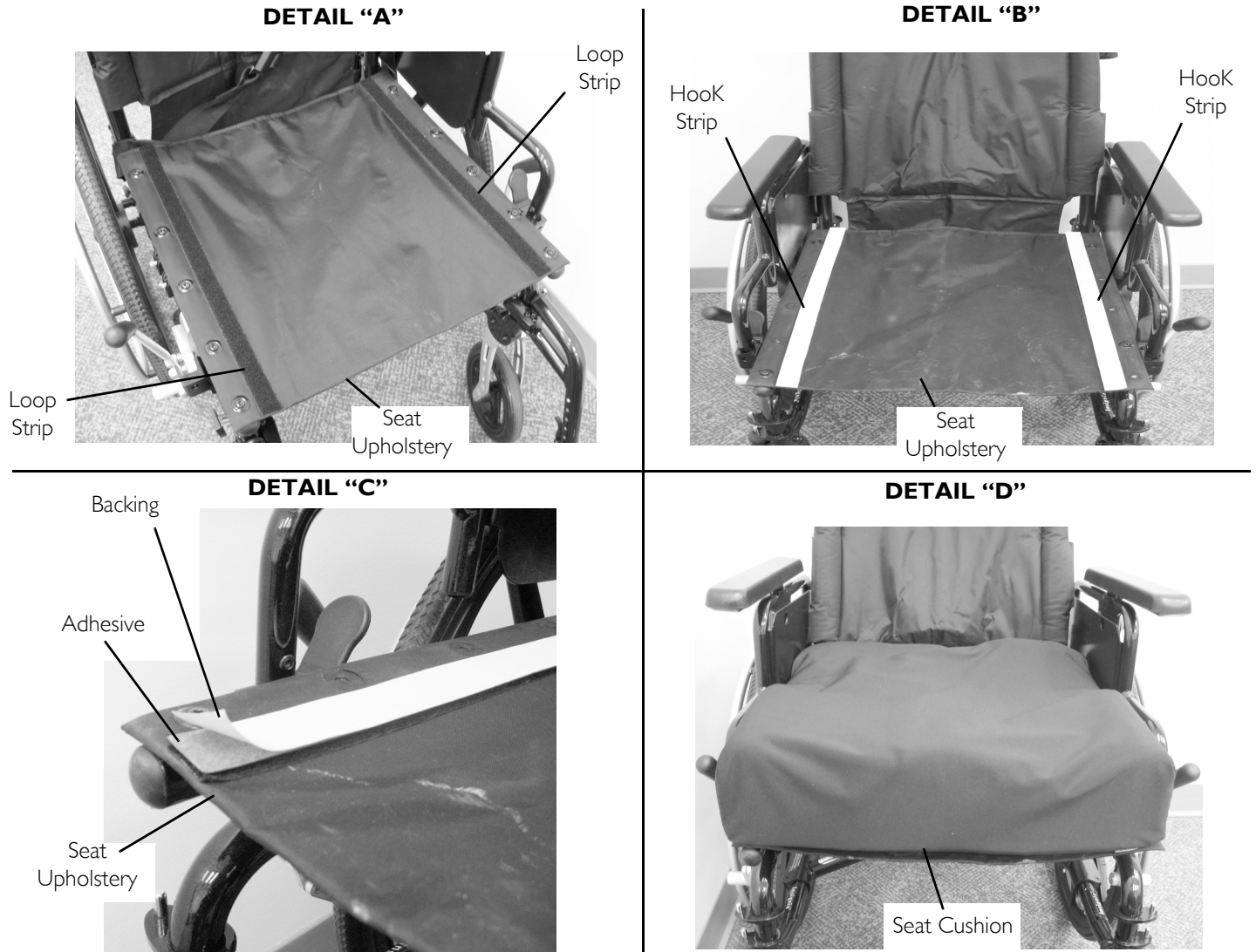
**FIGURE 6.1** Removing/Installing the Seat Upholstery

### Removing/Installing the Seat Cushion

NOTE: For this procedure, refer to FIGURE 6.2.

1. Remove the hook strips from the plastic bag shipped with the wheelchair.
2. Position one hook strip (Detail "B") on top of the loop strip (Detail "A") that are located on the seat upholstery.
3. Repeat STEP 2 for remaining loop strip on seat upholstery.
4. Remove the backing to expose the adhesive of each hook strip (Detail "C").
5. Position the seat cushion on top of both hook strips on the seat upholstery (Detail "D").
6. Firmly press down on both sides of cushion to ensure hook strips adhere to the underside of the seat cushion.

7. Remove seat cushion.



**FIGURE 6.2** Removing/Installing the Seat Cushion

## Removing/Installing the Back Upholstery

### Removing

*NOTE: For this procedure, refer to FIGURE 6.3 on page 29.*

1. Remove the two mounting screws and washers that secure the back upholstery to the back canes.
2. Remove the two height adjustment knobs that secure back cane to the wheelchair frame.
3. Pull the back canes out of the wheelchair frame.
4. Pull the back upholstery down and off the back canes.

### Installing

1. Install back upholstery onto the back canes.
2. Install back canes into wheelchair frame.
3. Secure the back canes to the wheelchair frame with the two adjustment knobs. Tighten securely.
4. Secure the back upholstery to the back canes with the two mounting screws and washers. Tighten securely.



**FIGURE 6.3** Removing/Installing the Back Upholstery

## Adjusting Back Height, Back Angle or Seat Depth

### **⚠ WARNING**

The seat depth, back height/angle, seat angle, size/position of the front casters, size/position of the rear wheels, anti-tipper model, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the ten may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by a qualified technician.

## Adjusting Seat Width

### **⚠ WARNING**

Adjusting the seat width **MUST** be performed by a qualified technician.

## 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.

---

#### Removing

*NOTE: For this procedure, refer to FIGURE 7.1 on page 31.*

*NOTE: If replacing the same size rear wheel, note the mounting position on the wheelchair frame for proper reinstallation of the new rear wheel.*

1. Push in the quick release axle button and pull the quick release axle with rear wheel out of the axle lug in the wheelchair frame (Detail "A" and "B").
2. Push in the quick release axle button again and pull the quick release axle out of the rear wheel (Detail "C").

#### Installing

---

### **⚠ WARNING**

**Make sure the detent pin and detent balls of the quick-release axle are fully released before operating the wheelchair.**

**The detent balls **MUST** be protruding past the inside of the rear wheel axle bushing for a positive lock.**

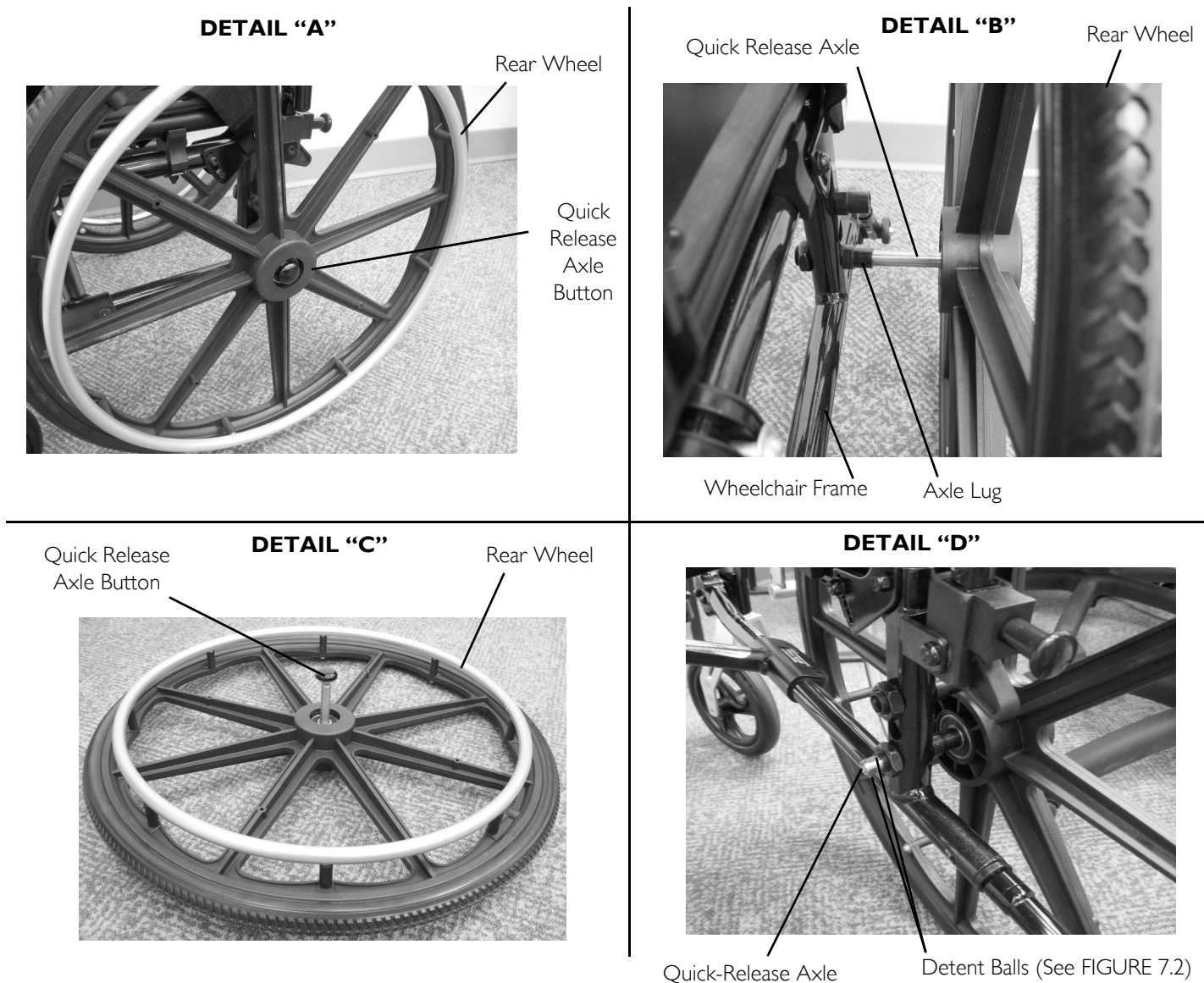
**Keep detent balls clean.**

---

1. Insert the quick release axle into the rear wheel (Detail "C").
2. Insert the quick release axle with rear wheel into the axle lug into the wheelchair frame (Detail "B").

*NOTE: The detent balls **MUST** be protruding past the inside of the rear wheel axle bushing for a positive lock (Detail "D").*

3. If the detent balls are not protruding past the inside of the axle bushing or there is too much side-to-side movement of the rear wheel assembly, refer to [Adjusting Quick-Release Axle](#) on page 31.



**FIGURE 7.1** Removing/Installing Rear Wheels - Removing

## Adjusting Quick-Release Axle

### **⚠ WARNING**

**Make sure detent pin and detent balls of the quick-release axles are fully released before operating the wheelchair.**

**Keep detent balls clean.**

*NOTE: For this procedure, refer to FIGURE 7.1 and FIGURE 7.2 on page 32.*

1. Push in the quick release axle button and pull the quick release axle with rear wheel out of the axle lug in the wheelchair frame (FIGURE 7.1).
2. Push in the quick release axle button again and pull the quick release axle out of the rear wheel (FIGURE 7.1).
3. Release quick release axle button and ensure that the detent balls are fully released (FIGURE 7.2).
4. Increase or decrease play by adjusting the locknut on the end of the quick-release axle.

5. Reinstall rear wheel onto the wheelchair. Refer to [Removing/Installing Rear Wheels](#) on page 30.

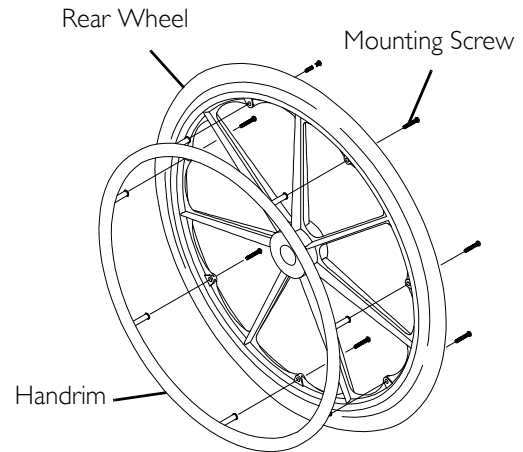


**FIGURE 7.2** Adjusting Quick-Release Axle

## Replacing Rear Wheel Handrim

*NOTE: For this procedure, refer to FIGURE 7.3.*

1. Remove the rear wheel from the wheelchair. Refer to [Removing/Installing Rear Wheels](#) on page 30.
2. Remove the mounting screws that secure the handrim to the rear wheel.
3. Remove the existing handrim.
4. Install the new handrim by reversing the preceding steps.



**FIGURE 7.3** Replacing Rear Wheel Handrim

---

### **⚠ WARNING**

**Make sure detent pin and detent balls of the quick-release axles are fully released before operating the wheelchair.**

---

5. Reinstall rear wheel to the wheelchair. Refer to [Removing/Installing Rear Wheels](#) on page 30.
6. If the detent balls of the quick-release axles (if applicable) are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to [Adjusting Quick-Release Axle](#) on page 31.
7. Repeat STEPS 1-6 for the opposite rear wheel if necessary.

## Replacing/Repairing Rear Wheel Tire

---

### **⚠ WARNING**

**Replacement of rear wheel tire or tube MUST be performed by a qualified technician.**

---



## 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.

### Removing/Installing Front Casters

NOTE: For this procedure, refer to FIGURE 8.1.

### ⚠ WARNING

When converting to different size casters, this procedure **MUST** be performed by a qualified technician.

NOTE: This procedure can be performed if replacing the exact same size front caster.

#### Removing

1. Remove the mounting screw that secures the caster to the fork.

#### Installing

1. Secure the caster to the fork with one mounting screw. Tighten securely.

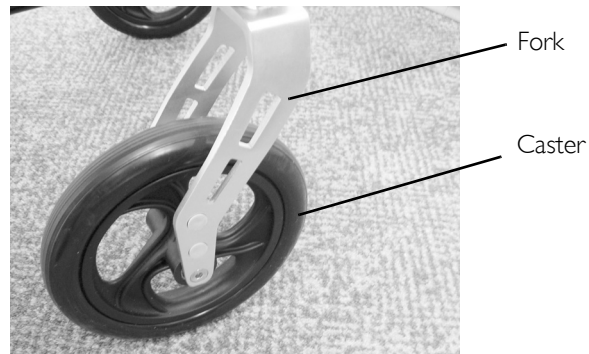


FIGURE 8.1 Removing/Installing Front Casters

### Removing/Installing the Caster/Fork/Headtube Assembly

#### Removing

NOTE: For this procedure, refer to FIGURE 8.2 on page 34.

1. Loosen the angle adjustment screws on the bottom of the round receptacle.
2. Remove the two mounting screws that secure the caster/fork/headtube assembly to the round receptacle (Detail "B").
3. Remove caster/fork/headtube assembly from the round receptacle (Detail "D").

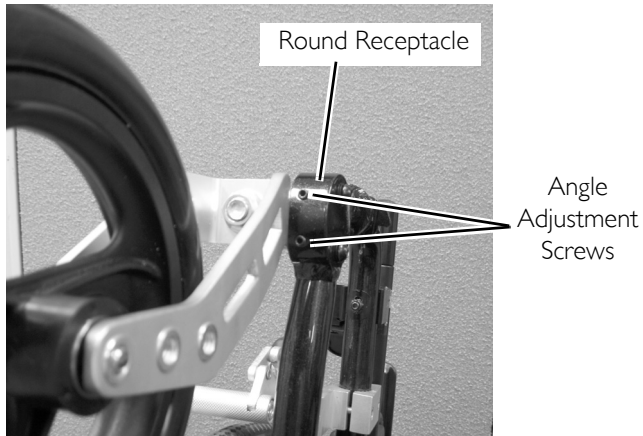
#### Installing

1. Install fork/headtube assembly into the round receptacle (Detail "B").
2. Using an "L" square, rotate the fork/headtube assembly so that the flat edge of the fork is 90° to the ground/floor (Detail "E").
3. Tighten the angle adjustment screws (Detail "A").
4. Secure the fork/headtube assembly to the round receptacle with two mounting screws (Detail "B"). Tighten securely.
5. To properly tighten caster journal system and guard against flutter, perform the following check:
  - A. Tip back of wheelchair to floor.
  - B. Pivot both forks and casters to top of their arc simultaneously.
  - C. Let casters drop to bottom of arc (wheels should swing once to one-side, then IMMEDIATELY rest in a straight downward position).
  - D. Remove dust cover and adjust locknuts according to freedom of caster swing.

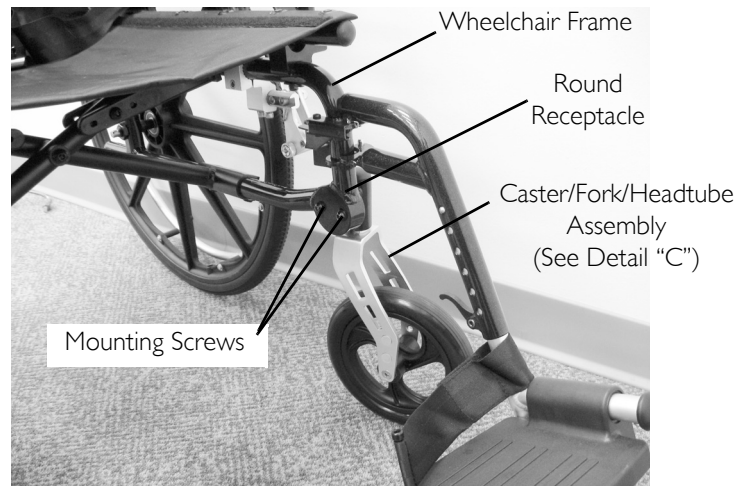
## SECTION 8—FRONT CASTERS

6. Test wheelchair for maneuverability.
7. Readjust locknuts if necessary, and repeat STEPS 5-6 until correct.
8. Snap dust cover over the locknut and stem (Detail "C").

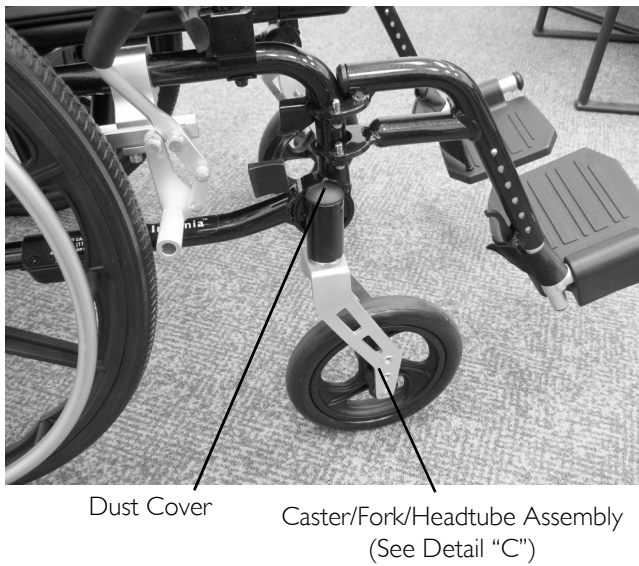
**DETAIL "A" - BOTTOM VIEW OF ROUND RECEPTACLE**



**DETAIL "B"**



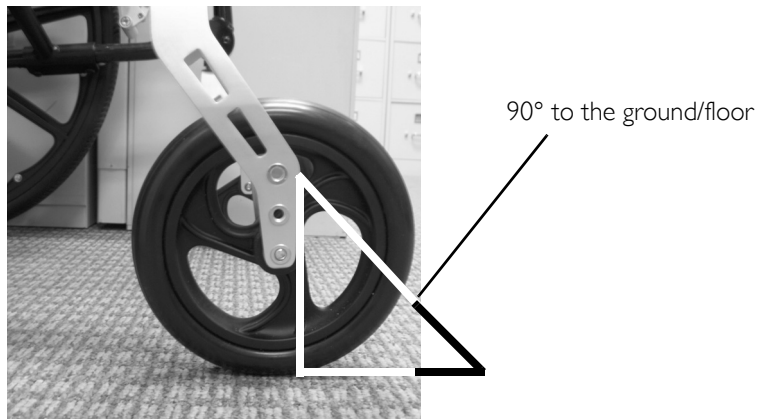
**DETAIL "C"**



**DETAIL "D" - CASTER/FORK/HEADTUBE ASSEMBLY**



**DETAIL "E" - CASTER/FORK/HEADTUBE ALIGNMENT**



**FIGURE 8.2** Removing/Installing the Caster/Fork/Headtube Assembly

## Replacing/Repairing Front Caster Tire/Tube

---

### **⚠ WARNING**

Replacement of front caster tire or tube **MUST** be performed by a qualified technician.

---

### **CAUTION**

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

---

## Adjusting Front Caster Mounting

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### **⚠ WARNING**

Front caster mounting adjustments **MUST** be performed by a qualified technician.

---

## SECTION 9—WHEEL LOCKS

### ⚠ WARNING

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

If wheel locks **DO NOT** hold the occupied wheelchair in place, contact a qualified technician. Otherwise injury or damage may occur.

### Using Patient Operated Wheel Locks

NOTE: For this procedure, refer to FIGURE 9.1.

1. To engage wheel lock - push the wheel lock handle forward.
2. To disengage wheel lock - pull the wheel lock handle back.

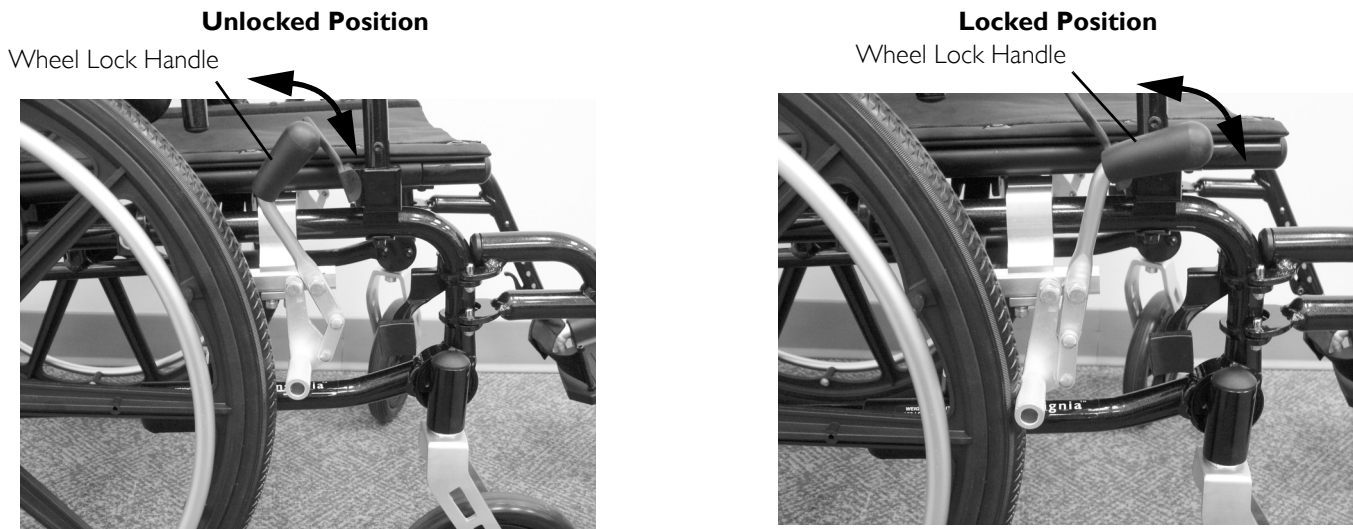


FIGURE 9.1 Using Patient Operated Wheel Locks

### Adjusting Patient-Operated Wheel Locks

NOTE: For this procedure, refer to FIGURE 9.2 on page 37.

1. Disengage the wheel locks. Refer to [Using Patient Operated Wheel Locks](#) on page 36.
2. Loosen the two socket screws that secure the wheel lock to the wheelchair frame (Detail "C").
3. Reposition the wheel lock so that when engaged, the wheel lock shoe embeds the tire 1/8-inch (3/16-inch for pneumatic tires) and holds the occupied wheelchair in place when pushed (Detail "B").
4. Securely tighten the two socket screws 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 FIGURE 9.2 on page 37.

NOTE: Any wheel lock adjustment should embed the wheel lock shoe at least 1/8-inch (3/16-inch if pneumatic tire) into the tire when engaged.

7. Repeat STEPS 1-6 until the wheel lock shoe embeds the tire 1/8-inch (3/16-inch for pneumatic tires) and holds the occupied wheelchair in place when pushed.

8. If wheel lock is unable to properly engage the wheel, contact your local dealer or Invacare at the number on the back cover.
9. Repeat STEPS 1-9 for the opposite wheel lock.
10. Engage both wheel locks and ensure the occupied wheelchair is held in place when pushed.

**DETAIL "A" - UNLOCKED****DETAIL "B" - LOCKED**

*NOTE: Wheel lock should embed the wheel lock shoe at least 1/8-inch (3/16-inch if pneumatic tire) into the tire when engaged.*

**DETAIL "C"****FIGURE 9.2** Adjusting Patient-Operated Wheel Locks

## SECTION 10—ANTI-TIPPERS

---

### **⚠ 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/Adjusting Anti-tippers

---

### **⚠ WARNING**

Anti-tippers are specific to the different seat-to-floor angles and/or seat-to-floor heights. Refer to the chart in this section for correct usage and adjustment. If these requirements cannot be achieved, **DO NOT** use the wheelchair. Contact a qualified technician. If changing the seat-to-floor height with or without a change to seat-to-floor angle, the correct anti-tippers must be used to maintain a 1½ to 2-inch ground clearance.

**Seat-to-floor angle of 0° or 3°:** If so equipped, anti-tippers must be attached at all times. Inasmuch as the anti-tippers are an option for 0° or 3° on this wheelchair, Invacare strongly recommends using the anti-tippers as a safeguard for the wheelchair user.

**Seat-to-floor angle of 6°:** If changing the seat-to-floor angle to 6°, anti-tippers must be installed.

**Anti-tippers MUST** be fully engaged and release buttons fully protruding out of adjustment holes.

**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.

**Ensure both anti-tippers are adjusted to the same mounting hole.**

---

### Installing Anti-Tippers

*NOTE: For this procedure, refer to FIGURE 10.1 on page 39.*

1. Remove plug button (not shown) from end of rear frame tubing.
2. Press the release button in and insert the anti-tipper into the step tube until the release button locks in the hole on the bottom of the step tube.
3. Ensure anti-tippers wheels are facing down. Refer to [Changing Orientation of Anti-Tip Wheels](#) on page 39.
4. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.

*NOTE: A 1½ to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.*

5. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 1½ to 2-inches, adjust anti-tippers. Refer to [Adjusting Anti-Tippers](#) on page 40.



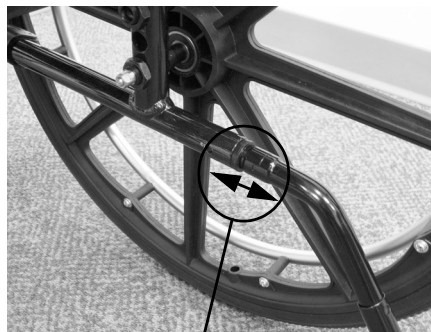
**FIGURE 10.1** Installing Anti-Tippers

## Changing Orientation of Anti-Tip Wheels

*NOTE: For this procedure, refer to FIGURE 10.2.*

1. Pull the spring loaded anti tipper out and rotate up or down.
2. Rotate until anti-tipper locks in the Up or Down position.

### Anti Tipper in Up Position



Anti Tipper is spring loaded at this point

### Anti Tipper in Down Position

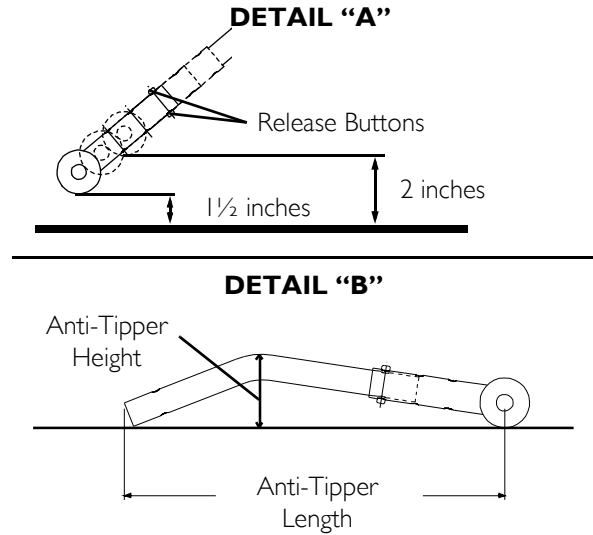


**FIGURE 10.2** Changing Orientation of Anti-Tip Wheels

**Adjusting Anti-Tippers**

NOTE: For this procedure, refer to FIGURE 10.3.

1. Press the release buttons on the wheeled portion of the anti-tipper and slide it up or down to achieve the 1-1/2 to 2-inch clearance (Detail "A").
2. Check to make sure that the release buttons are fully engaged in adjustment holes.



**FIGURE 10.3** Adjusting Anti-Tippers

NOTE: Refer to Detail "B" in FIGURE 10.3 and to the following chart to ensure the correct anti-tipper is installed in the wheelchair. Seat-to-Floor heights are approximate depending on front caster size and type. Anti-Tipper length measurement is taken with the extension tube in the longest position available. The anti-tipper height measurement MUST be taken with the anti-tipper on a flat surface.

INSIGNIA		
CASTER SIZE	SEAT-TO-FLOOR HEIGHT	ANTI-TIPPER LENGTH/HEIGHT
6-inch and 8 inch	16½, 17½, 18½, 19½ inches	13.5/3.8-inches



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## SECTION 11—OPTIONS

---

### **⚠ WARNING**

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

The I.V./O2 holder **MUST** be checked weekly to ensure it is tightly secured to the wheelchair frame. If there is any looseness whatsoever, tighten the attachment hardware securely before using.

**I.V. HOLDER ONLY** - Make sure the I.V. holder is tightly locked before placing I.V. medication on the pole.

The I.V. pole is designed to support I.V. medication only. **DO NOT** use it to support objects other than I.V. medication.

---

### Installing/Removing the I.V. Holder

#### Installing

*NOTE: For this procedure, refer to FIGURE 11.1 on page 42.*

1. Remove the anti-tipper from the wheelchair. Refer to [Installing/Adjusting Anti-tippers](#) on page 38.
2. Install the mounting tube of the I.V. holder onto the step tube (Detail "A").
3. Press the release button in and insert the anti-tipper into the step tube until the release button locks in the hole on the bottom of the step tube (Detail "B").
4. Remove the top mounting screw that secures the back upholstery to the back cane (Detail "C").
5. Secure the I.V. holder and back upholstery to the back cane using the mounting screw removed in STEP 4 (Detail "C").

#### Removing

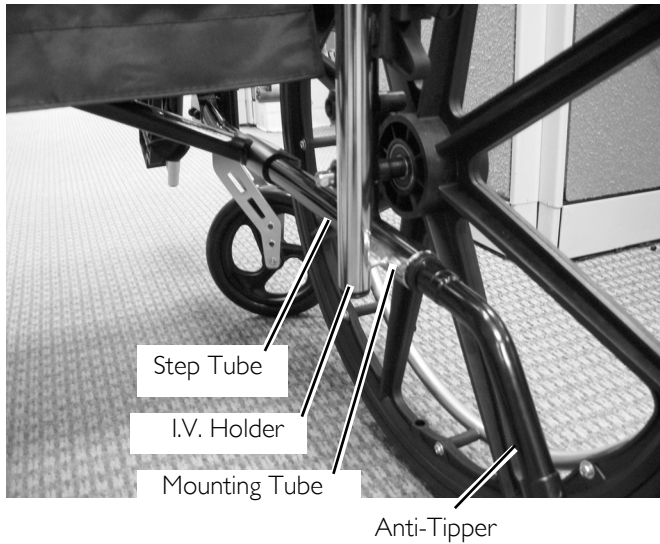
1. Press the release button in and remove the anti-tipper (Detail "B").
2. Remove the mounting screw that secures the I.V. holder and back upholstery to the back cane (Detail "C").
3. Remove the mounting tube of the I.V. holder off of the step tube (Detail "A").
4. Install the anti- tipper. Refer to [Installing/Adjusting Anti-tippers](#) on page 38
5. Secure the back upholstery to the back cane with the mounting screw removed in STEP 1 (Detail "C").

### Adjusting the Height of the I.V. Holder

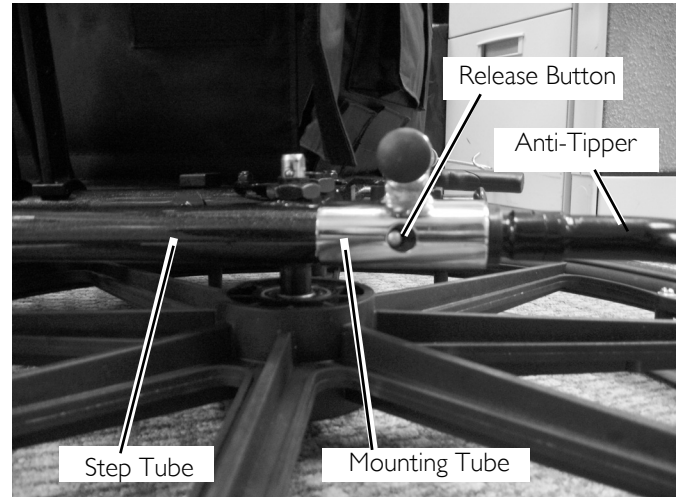
*NOTE: For this procedure, refer to FIGURE 11.1 on page 42.*

1. Loosen the height adjustment knob on the I.V. holder (Detail "D").
2. Adjust the I.V. pole to the desired height (Detail "D").
3. Retighten the height adjustment knob (Detail "D").

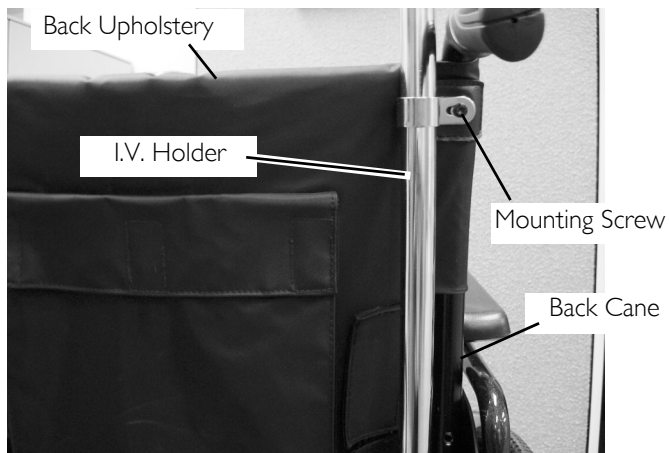
DETAIL "A"



DETAIL "B" - BOTTOM VIEW OF CHAIR



DETAIL "C"



DETAIL "D"

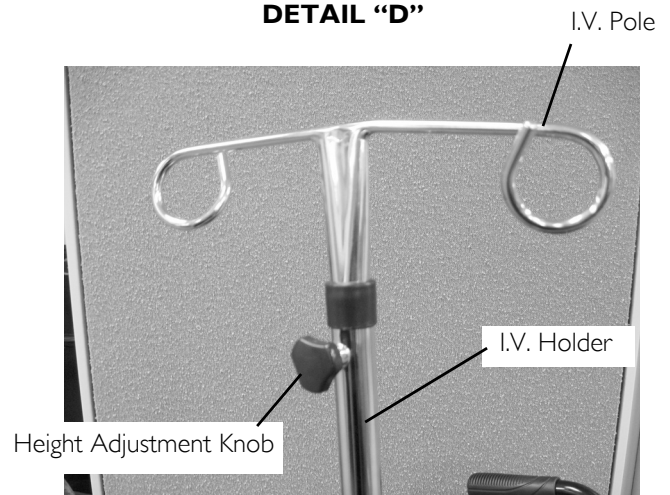


FIGURE 11.1 Installing/Removing the I.V. Holder - Adjusting the Height of the I.V. Holder

## Installing/Removing the O2 Holder

### CAUTION

The O2 holder can only be installed on the left side due to the angle of the plate between the step tube and the O2 holder frame. Installation of the O2 holder on the right side cannot be achieved due to interference of the O2 holder with the back upholstery.

NOTE: Right and left are determined by the sitting in the wheelchair.

NOTE: For this procedure, refer to FIGURE 11.2 on page 43.

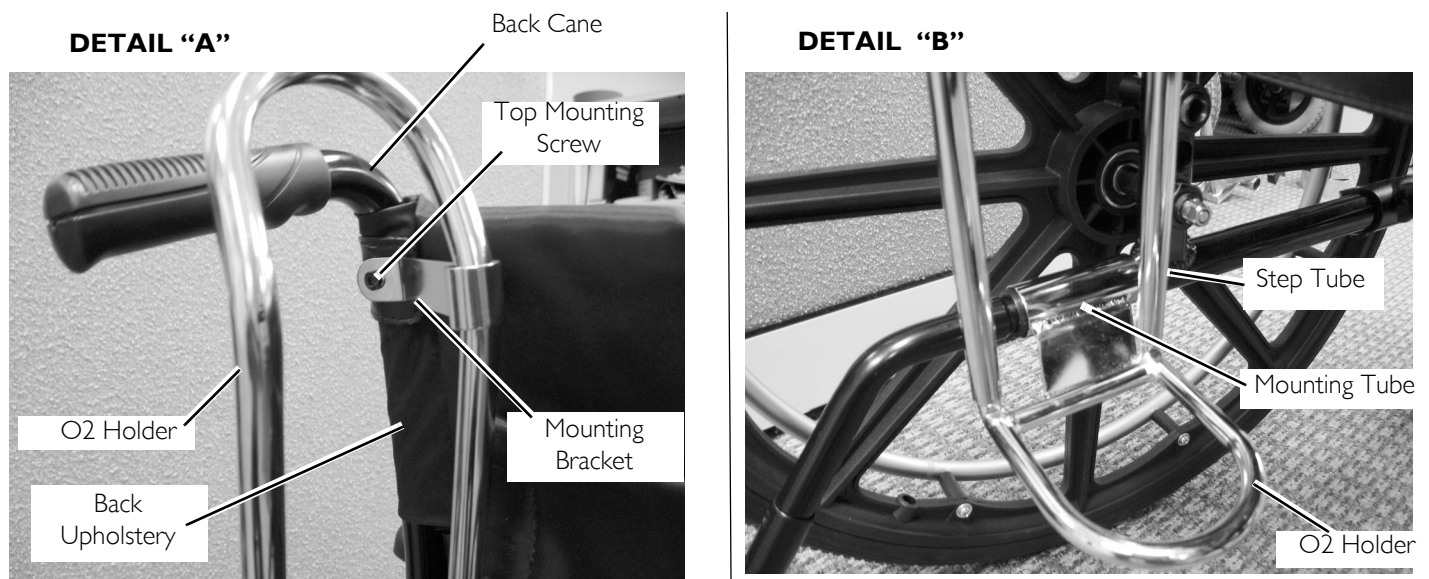
### Installing

1. Remove the anti-tipper from the wheelchair. Refer to [Installing/Adjusting Anti-tippers](#) on page 38.
2. Remove the top mounting screw that secures the back upholstery to the back cane (Detail "A").
3. Slide the mounting tube of the O2 holder onto the step tube (Detail "B").

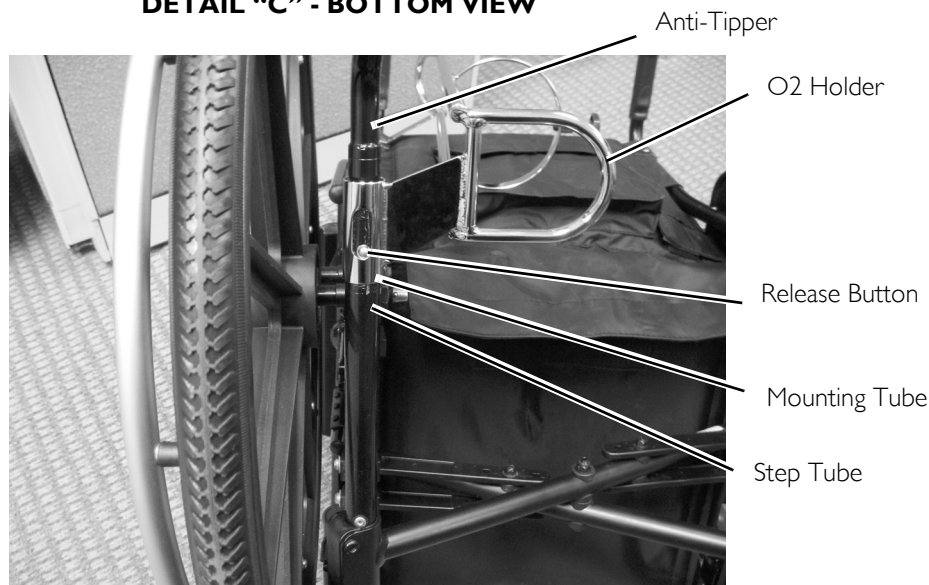
- Secure the mounting bracket of the O2 holder and back upholstery to the back cane with the mounting screw removed in STEP 2. Tighten securely (Detail "A").
- Press the release button in and insert the anti-tipper into the step tube until the release button locks in the hole on the bottom of the step tube (Detail "B").

### Removing

- Press the release button in and remove the anti-tipper (Detail "C").
- Remove the top mounting screw that secures the O2 holder and back upholstery to the back cane (Detail "A").
- Remove the mounting tube of the O2 holder off of the step tube (Detail "B").
- Install the anti-tipper. Refer to [Installing/Adjusting Anti-tippers](#) on page 38
- Secure the back upholstery to the back cane with the mounting screw removed in STEP 1 (Detail "A").



**DETAIL "C" - BOTTOM VIEW**



**FIGURE 11.2** Installing/Removing the O2 Holder

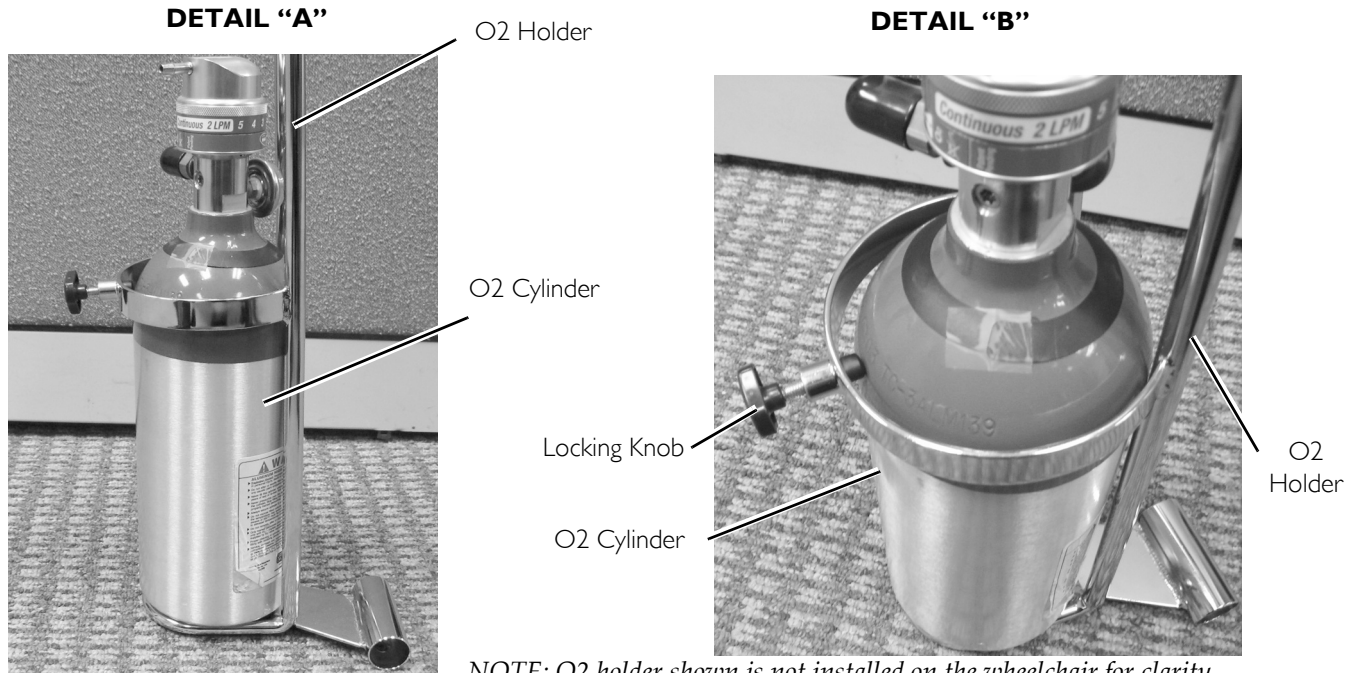
## Using the O2 Holder

### **⚠ WARNING**

**Only use O2 cylinders that are at least 10.7 inches in height and 4 3/8 inches in diameter. Smaller O2 cylinders will not secure in place properly which may result in injury and/or damage to the cylinder.**

*NOTE: For this procedure, refer to FIGURE 11.3.*

1. Place the O2 cylinder in the O2 holder as shown (Detail "A").
2. Secure the O2 cylinder in place by rotating the locking knob clockwise (Detail "B"). Hand tighten only.



*NOTE: O2 holder shown is not installed on the wheelchair for clarity.*

**FIGURE 11.3** Using the O2 Holder

## Cleaning the O2 Holder

### **⚠ WARNING**

**The user and O2 cylinder MUST be removed from the wheelchair when cleaning the O2 holder. Otherwise, injury or damage may occur if cleaning agents come in contact with the O2 regulator.**

1. Remove the user and the O<sub>2</sub> cylinder from the wheelchair.
2. The O2 holder cleans easily with any household glass type cleaner.

*NOTE: After the cleaning solution has dried, it is safe for the user to re-occupy the wheelchair.*

## Installing/Removing the IV/O2 Holder

### CAUTION

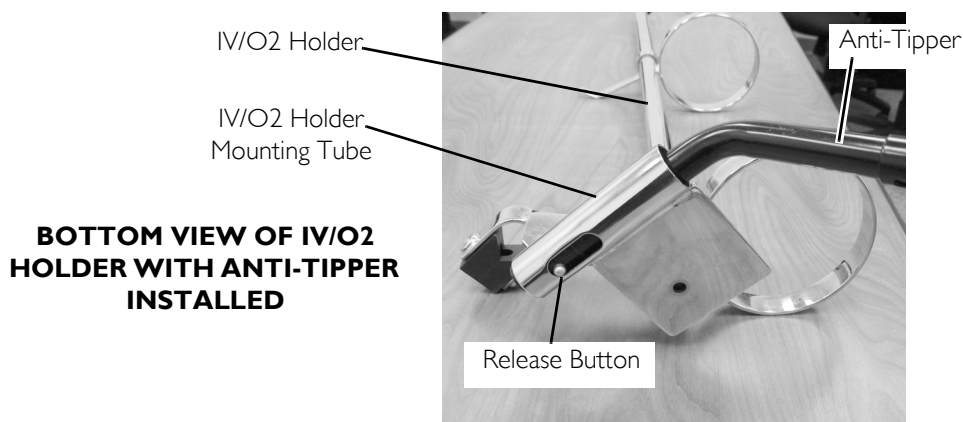
The IV/O2 holder can only be installed on the left side due to the angle of the plate between the step tube and the IV/O2 holder frame. Installation of the IV/O2 holder on the right side cannot be achieved due to interference of the IV/O2 holder with the back upholstery.

*NOTE: Right and left are determined by the sitting in the wheelchair.*

### Installing

*NOTE: For this procedure, refer to FIGURE 11.4 and FIGURE 11.5 on page 46.*

1. Remove the left anti-tipper. Refer to [Installing/Adjusting Anti-tippers](#) on page 37 of the owner's manual, p/n 1163197.
2. Insert the anti-tipper into the IV/O2 holder mounting tube until the release button is visible through the opening in the bottom of the IV/O2 holder mounting tube (FIGURE 11.4).



**FIGURE 11.4** Installing Anti-Tipper into IV/O2 Holder Mounting Tube

*NOTE: When performing STEP 3, the IV/O2 holder mounting tube will slide over top of the step tube while the anti-tipper will slide inside the step tube.*

3. Slide the IV/O2 holder and anti-tipper assembly onto the step tube and, while pressing the release button, insert the anti-tipper into the step tube (Detail "A" and "D" in FIGURE 11.5).
4. Ensure the release button locks in the hole on the bottom of the step tube (Detail "A" and "D" in FIGURE 11.5).

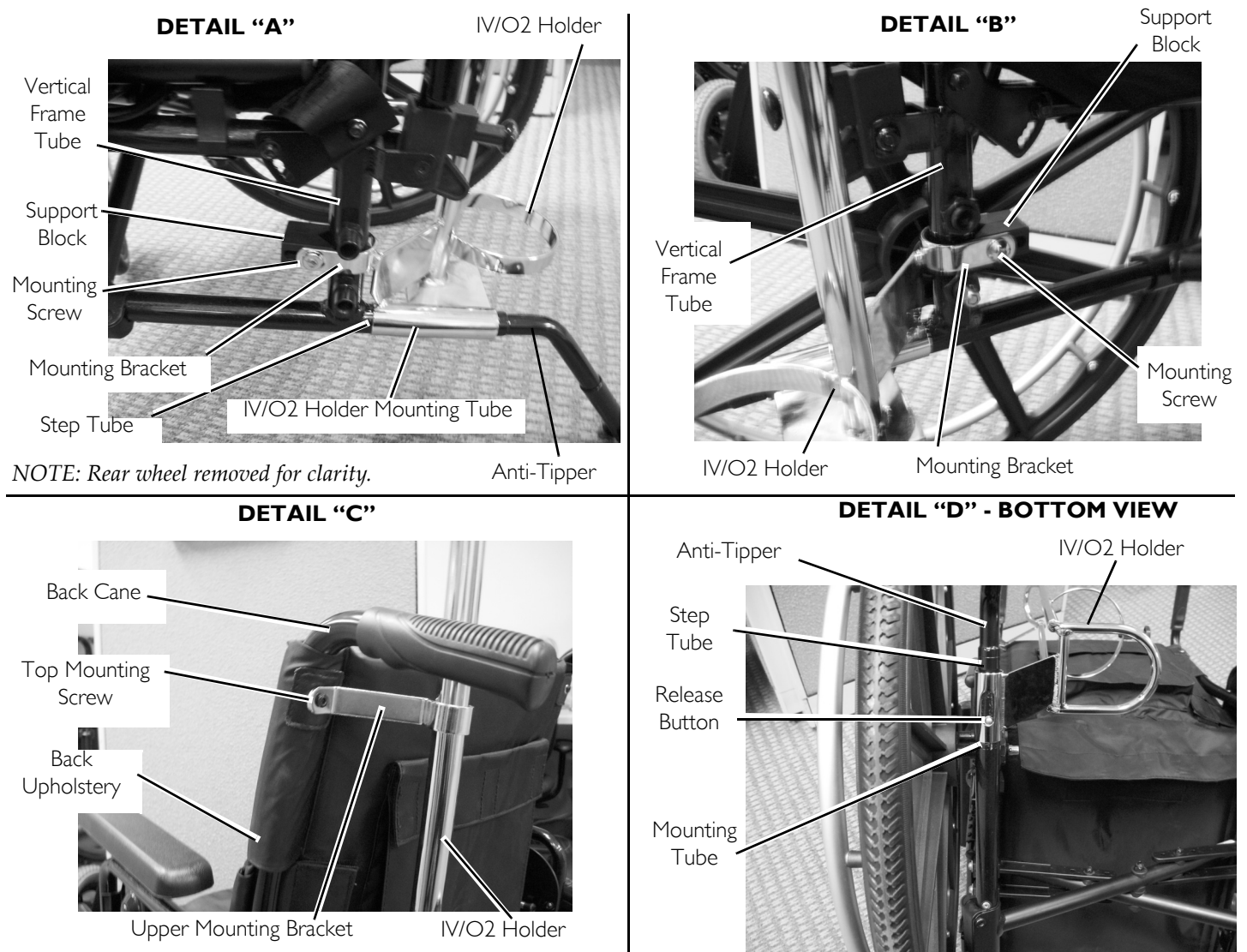
*NOTE: Mounting bracket of IV/O2 holder should be positioned between the two axle mounting positions on vertical frame tube.*

5. Secure mounting bracket and support block against vertical frame tube with mounting screw (Detail "A" and "B" in FIGURE 11.5). Tighten securely.
6. Remove the top mounting screw that secures the back upholstery to the back cane (Detail "A" in FIGURE 11.5).
7. Secure the upper mounting bracket of the IV/O2 holder and back upholstery to the back cane with the mounting screw removed in STEP 6. Tighten securely (Detail "C" in FIGURE 11.5).

### Removing

*NOTE: For this procedure, refer to FIGURE 11.5.*

1. Press the release button in and remove the anti-tipper (Detail "D").
2. Remove the mounting screw that secures the mounting bracket and support block against vertical frame tube (Detail "A" and "B").
3. Remove the top mounting screw that secures the IV/O2 holder and back upholstery to the back cane (Detail "C").
4. Remove the mounting tube of the IV/O2 holder off of the step tube (Detail "A").
5. Install the anti-tipper. Refer to [Installing/Adjusting Anti-tippers](#) on page 37 of the owner's manual, p/n 1163197.
6. Secure the back upholstery to the back cane with the mounting screw removed in STEP 2 (Detail "C").



**FIGURE 11.5** Installing/Removing the IV/O2 Holder

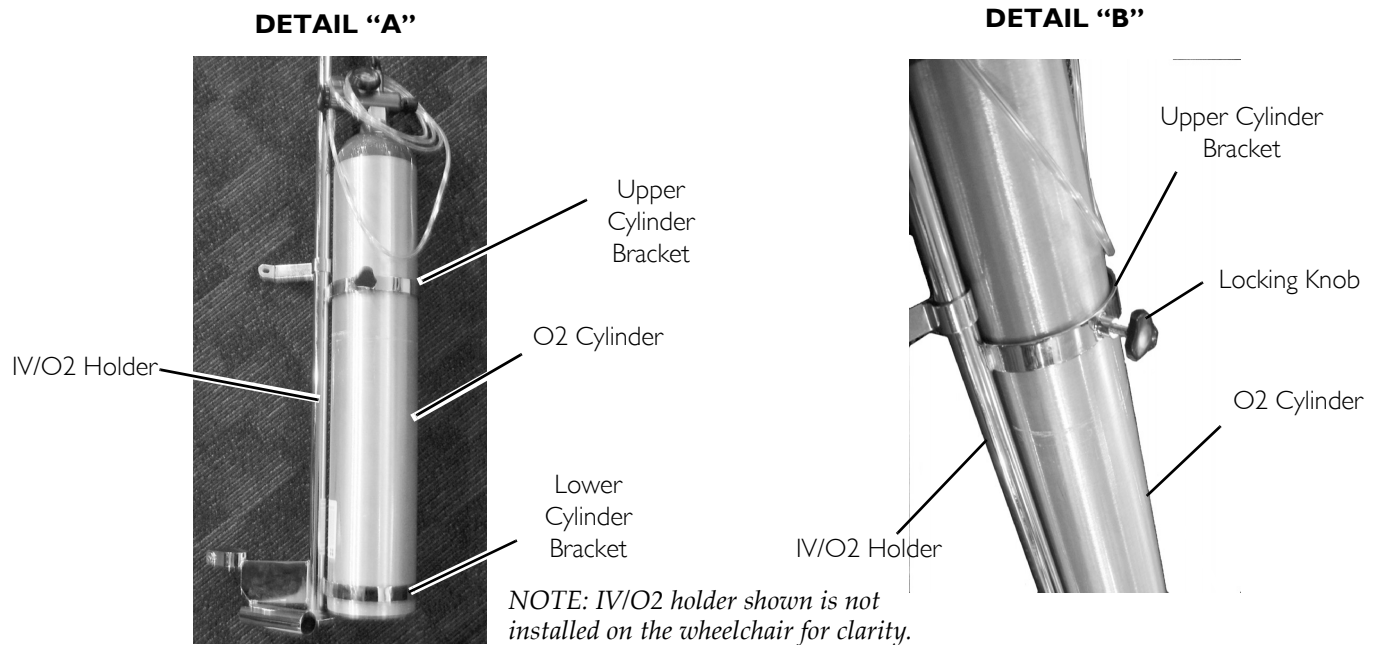
## Using the IV/O2 Holder

### **⚠ WARNING**

**Only use O<sub>2</sub> cylinders that are at least 24.9 inches in height and 4 <sup>3</sup>/<sub>8</sub> inches in diameter. Smaller O<sub>2</sub> cylinders will not properly secure in place which may result in injury and/or damage to the O<sub>2</sub> cylinder.**

*NOTE:* For this procedure, refer to FIGURE 11.6.

1. Slide the O<sub>2</sub> cylinder through the upper and lower cylinder brackets (Detail "A").
2. Rotate the locking knob clockwise until the O<sub>2</sub> cylinder is secured in place (Detail "B"). Hand tighten only.

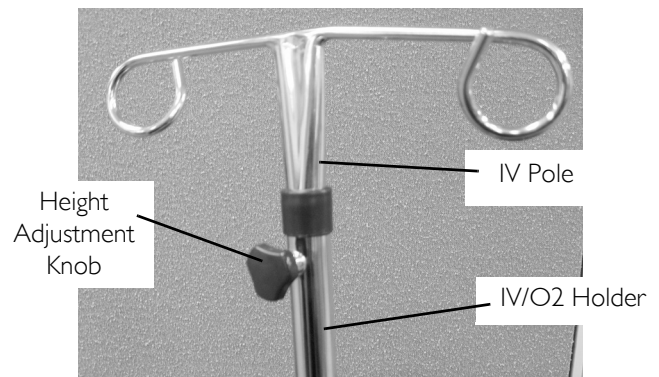


**FIGURE 11.6** Using the IV/O2 Holder

## Adjusting the Height of the IV Pole

*NOTE: For this procedure, refer to FIGURE 11.7.*

1. Loosen the height adjustment knob on the IV/O2 holder.
2. Adjust the IV pole to the desired height.
3. Retighten the height adjustment knob to secure the IV pole in place.



**FIGURE 11.7** Adjusting the Height of the IV Pole

## Cleaning the IV/O2 Holder

### **⚠ WARNING**

**The user and O<sub>2</sub> cylinder MUST be removed from the wheelchair when cleaning the O<sub>2</sub> holder. Otherwise, injury or damage may occur if cleaning agents come in contact with the O<sub>2</sub> regulator.**

1. Remove the user, any I.V. medication and the O<sub>2</sub> cylinder from the wheelchair.
2. The telescoping I.V. pole/O<sub>2</sub> holders clean easily with any household glass type cleaner.
3. After the cleaning solution has dried, it is safe for the user to re-occupy the wheelchair.

## Installing Crutch and Cane Carrier

### ⚠ WARNING

**Check base weekly to ensure proper placement.**

**When loading the crutch/cane carrier, ensure items are securely placed into the base. Also ensure that there is no interference with folding the wheelchair, the rear wheels, or the swing-back arms.**

**Strap MUST be securely fastened while carrying items.**

**NEVER insert or remove items while wheelchair is moving.**

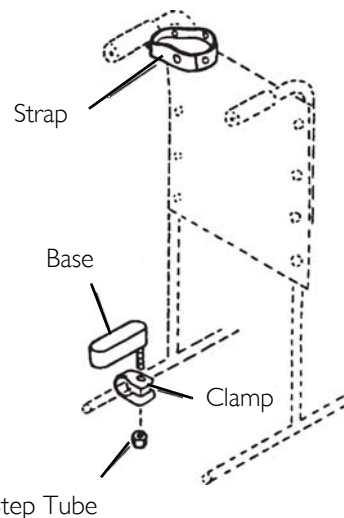
*NOTE: For this procedure, refer to FIGURE 11.8.*

1. Slide the clamp with the base attached over the end of the step tube of the wheelchair. Ensure the base is towards the inside of the wheelchair.
2. Position the base parallel to the step tube.

### CAUTION

**Base should be parallel to step tube to avoid bending spokes when folding the wheelchair.**

3. Securely tighten the locknut that secures the base to the step tube of the wheelchair.
4. Remove the upper back upholstery screw and washer.
5. Align the strap with the back upholstery screw mounting hole.
6. Reinstall the back upholstery screw and washer and secure the strap to the wheelchair.
7. The base cleans easily with any chrome or glass cleaner. The strap can be cleaned with mild soap and water.



**FIGURE 11.8** Installing Crutch and Cane Carrier

## Installing/Removing the Seat Positioning Strap

### Installing

*NOTE: For this procedure, refer to FIGURE 11.9 on page 49.*

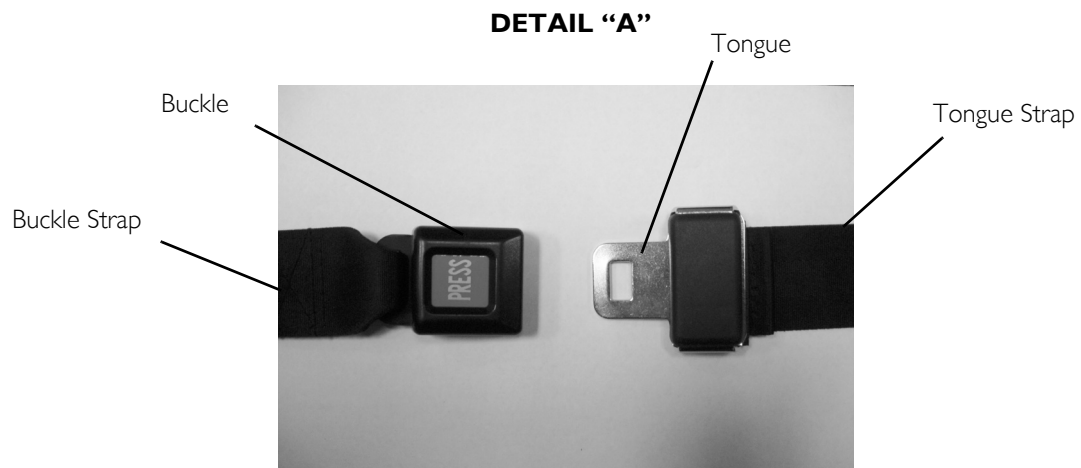
*NOTE: Right and left is determined by sitting in the wheelchair.*

1. Remove the mounting screw and locknut that secure the back angle bracket to the wheelchair.
2. Secure the buckle strap to the back angle bracket on the right side of the wheelchair with mounting screw and locknut. Tighten securely.
3. Secure the tongue strap to the back angle bracket on the left side of the wheelchair with mounting screw and locknut. Tighten securely.

### Removing

1. Remove the mounting screw and locknut that secures the buckle strap to the back angle bracket.
2. Remove the buckle strap.
3. Secure the back angle bracket to the wheelchair frame with the mounting screw and locknut. Tighten securely.
4. Remove the mounting screw and locknut that secures the tongue strap to the back angle bracket.
5. Remove the tongue strap.
6. Secure the back angle bracket to the wheelchair frame with the mounting screw and locknut. Tighten securely.



**DETAIL "B"**

*NOTE: Right side of wheelchair shown. Rear wheel removed for clarity.*

**DETAIL "C"**

**FIGURE 11.9** Installing/Removing the Seat Positioning Strap

# NOTES

## LIMITED WARRANTY

**PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.**

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

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

Invacare warrants the side frames and cross members of this product when purchased new and unused to be free from defects in materials and workmanship for a period of five years from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants the upholstered materials (seat, back and armrests of the arm assembly) and remaining components of this product when purchased new and unused to be free from defects in materials and workmanship for a period of thirteen months from date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option, with refurbished or new parts. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Product repairs shall not extend this warranty - coverage for repaired product shall end when this limited warranty terminates. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement. For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address at the bottom of this page. Provide dealer's name, address, the product model number, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

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**SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE.**

**THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.**



*Yes, you can.*

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