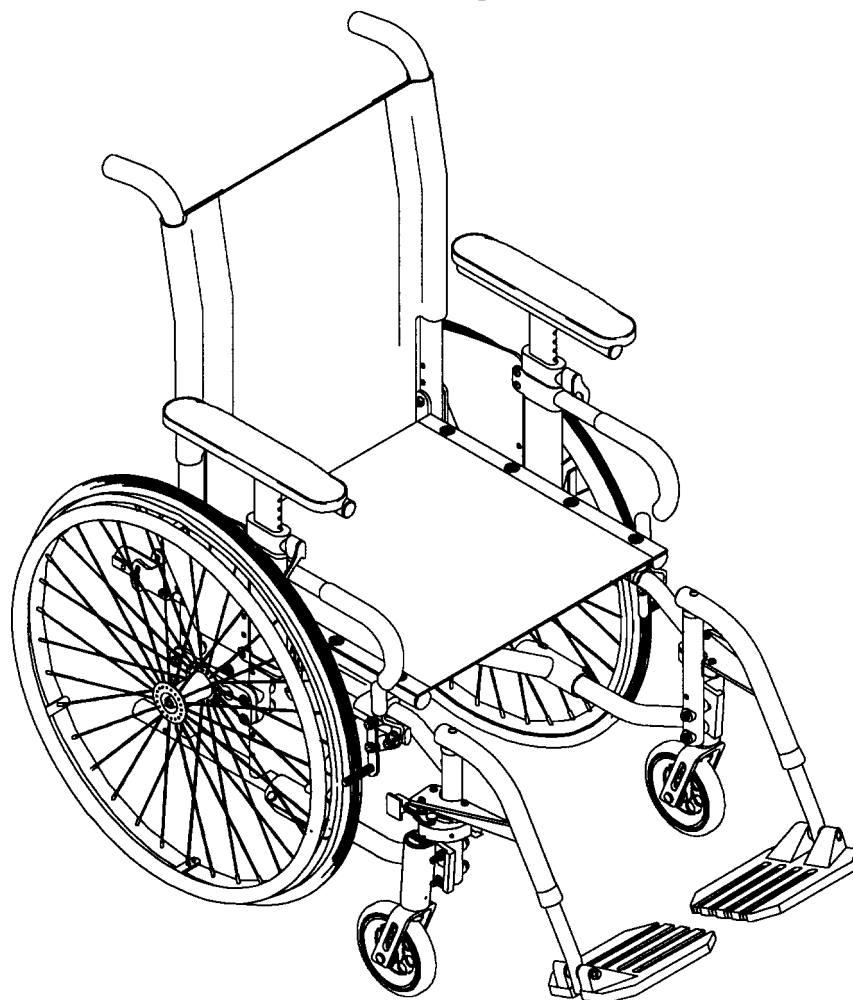


# OWNER'S OPERATOR and MAINTENANCE MANUAL

## Allegro



## SPECIAL NOTES

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**WARNING/CAUTION** notices as used in this manual apply to hazards or unsafe practices which could result in personal injury or 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 AND SEAT RESTRAINTS

Invacare recommends that wheelchair users 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.

**AS REGARDS RESTRAINTS - SEAT BELTS - IT IS THE OBLIGATION OF THE DME DEALER, THERAPISTS AND OTHER HEALTH CARE PROFESSIONALS TO DETERMINE IF A SEATING RESTRAINT 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.**

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### WARNING

**DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT A HEALTHCARE PROFESSIONAL, DEALER OR TECHNICAL PERSONNEL IF APPLICABLE BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.**

**SAVE THESE INSTRUCTIONS.**

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# SAFETY SUMMARY

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## STABILITY

### WARNING

The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

## OPERATING INFORMATION

### WARNING

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

**Non-Recliners Only** - Make sure the back is locked securely **BEFORE** using the wheelchair - otherwise injury can occur.

**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 from behind as this may cause the wheelchair to tip over.

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

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

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

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

Before attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. Turn both casters toward the object you are transferring onto. When transferring to and from the wheelchair, **ALWAYS ENGAGE BOTH WHEEL LOCKS.**

**DO NOT** operate on roads, streets or highways.

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

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

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

**DO NOT** use unauthorized parts, accessories, or adapters other than those authorized by Invacare.

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

**NEVER** try to lift or tip the wheelchair by cantilever arms or "T" arms, serious injury can occur.

**DO NOT** stand on the frame of the wheelchair.

Anti-tippers **MUST BE** attached at all times.

**DO NOT** use the footplate as a platform when getting in or out of the wheelchair.

**ALWAYS** wear your seat restraint. Inasmuch as the **SEAT RESTRAINT** is an option on this wheelchair (You may order with or without the seat restraint), Invacare strongly recommends ordering the seat restraint as an additional safeguard for the wheelchair user.

## SAFETY SUMMARY (continued)

### WARNING

#### TIRE PRESSURE

**DO NOT** use your wheelchair unless it has the proper tire pressure (p.s.i.). **DO NOT** overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.

Replacement of a tire or tube **MUST** be performed by an authorized Invacare Dealer or Qualified Technician.

#### 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 and the warranty will be voided immediately.

#### WEIGHT LIMITATION

The Allegro wheelchair weight limitations are: Folding Frames - 250 lbs., Rigid Frames - 150 lbs.

## RECLINER OPTION ONLY:

### WARNING

Before using **ANY** recline position of this wheelchair, make sure the rear wheels are in the **MOST REARWARD** position in the Extended Multi-Position axle plate to maintain the stability of the wheelchair. Do not change the handling/maneuverability of the wheelchair by moving the rear wheels to **ANY** of the forward positions. Moving the rear wheels to **ANY** of the forward positions **WILL** change the center of gravity of the wheelchair, making the wheelchair less stable.

**ALWAYS** make sure that the wheelchair is stable in the **FULL RECLINED** (back at 170°) position **AND** the **FULL UPRIGHT** (back at 90°) position **BEFORE** using the recliner option.

**NEVER** use the Standard Multi-Position or Offset Multi-Position axle plates with the recliner option. Using the Standard Multi-Position or Offset Multi-Position axle plates **WILL** reduce the stability of the wheelchair, causing injury to the user and/or assistant(s).

Before using the recliner option, make sure the anti-tipper wheel assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor).

**ALWAYS** use the seat restraint.

**ALWAYS** engage both wheel locks while reclining or inclining (reverse recline) the wheelchair.

Both gas cylinders **MUST** be operational and adjusted properly **BEFORE** using recliner. **DO NOT** operate the recliner option if only one (1) of the gas cylinders is operational or adjusted properly.

**NEVER** use the rear two (2) recliner bracket mounting holes when using the recliner option. Using the rear two (2) recliner bracket mounting holes **WILL** make the wheelchair less stable, possibly causing injury.

Make sure the patient is properly positioned in the wheelchair before reclining or inclining (reverse recline) to maintain maximum stability and safety. Refer to the **SAFETY/HANDLING** section of this manual.

When returning the occupant of the wheelchair to the full upright position, more body strength will be required for approximately the last twenty (20) degrees of incline (reverse recline). Make sure to use proper body mechanics (use your legs) or seek assistance to avoid injury.

## SAFETY/HANDLING OF WHEELCHAIRS

“Safety and Handling” of the wheelchair requires 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. 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

#### WARNING

**ALWAYS wear your seat restraint. Inasmuch as the SEAT RESTRAINT is an option on this wheelchair (You may order with or without the seat restraint), Invacare strongly recommends ordering the seat restraint as an additional safeguard for the wheelchair user.**

To assure stability and proper operation of your wheelchair, you must at all times wear your seat restraint and maintain proper balance. 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.

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 tilting the wheelchair or traversing curbs, or other impediments.

Also, be aware of any removable (detachable) parts. These must NEVER be used for hand-held or 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.

### TILTING

#### WARNING

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

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

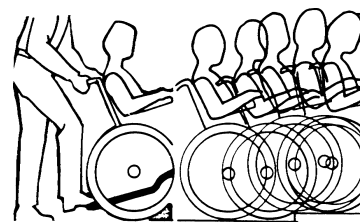
### TILTING - CURBS:

After mastering the techniques of tilting the wheelchair, use this procedure to tackle curbs, short stairs, etc.

#### Method 1 - Wheelchairs With Step Tubes

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.

Roll the wheelchair forward and slowly lower the wheelchair in one continuous movement onto the sidewalk. Do not let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant. Push the wheelchair forward until the rear wheels roll up and over the curb.



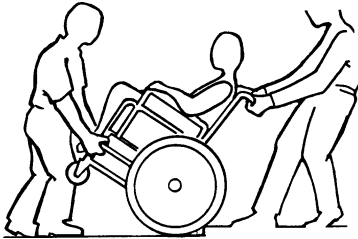
#### METHOD 1 - WHEELCHAIR WITH STEP TUBES

#### Method 2 - Wheelchairs Without Step Tubes

Unless the first assistant has exceptional upper body strength, it is recommended that **METHOD 2** use two (2) 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.

The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. The wheelchair should be tilted back to the balance point and, in one continuous downward 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.



#### METHOD 2 - WHEELCHAIR WITHOUT STEP TUBE 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 a wheelchair may result in injury to the user or damage to the wheelchair.

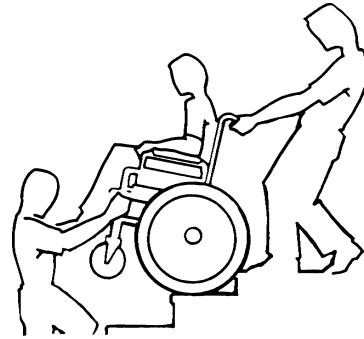
Extreme caution is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends using two (2) assistants and making thorough preparations. Make sure to use **ONLY** secure, non-detachable parts for hand-held supports.

**ALWAYS** wear your seat restraint. Inasmuch as the **SEAT RESTRAINT** is an option on this wheelchair (You may order with or without the seat restraint), Invacare strongly recommends ordering the seat restraint as an additional safeguard for the wheelchair user.

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

1. 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.

2. 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 (1) foot on the next stair and repeats **STEP 1**.
3. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.



##### ESCALATORS? SORRY!

**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 toward 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 prevent damaged upholstery and the possibility of the wheelchair tipping forward.

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



## SAFETY/HANDLING

Position the wheelchair as close as possible along side the seat to which you are transferring, with the front casters pointing toward it. Engage wheel locks. 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.

### PERCENTAGE OF WEIGHT DISTRIBUTION

#### 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.**

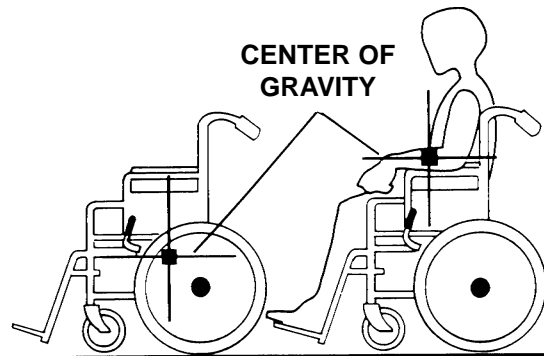
The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

**RECLINERS ONLY:** Before using ANY recline position of this wheelchair, make sure the rear wheels are in the **MOST REARWARD** position in the Extended Multi-Position axle plate to maintain the stability of the wheelchair. Do not change the handling/maneuverability of the wheelchair by moving the rear wheels to ANY of the forward positions. Moving the rear wheels to ANY of the forward positions **WILL** change the center of gravity of the wheelchair, making the wheelchair less stable.

**RECLINERS ONLY:** NEVER use the rear two (2) recliner bracket mounting holes when using the recliner option. Using the rear two (2) recliner bracket mounting holes **WILL** make the wheelchair less stable, possibly causing injury.

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 health professional **BEFORE** attempting active use of the wheelchair.

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



Example 46%	54%	103 lbs.	130 lbs.
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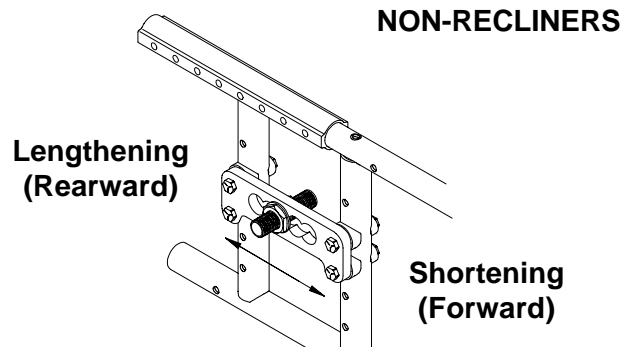
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**Lengthening the Wheelbase** will increase stability and maintain standard maneuverability of the wheelchair.

**Shortening the Wheelbase** will increase maneuverability and distribute additional weight onto the rear wheels.

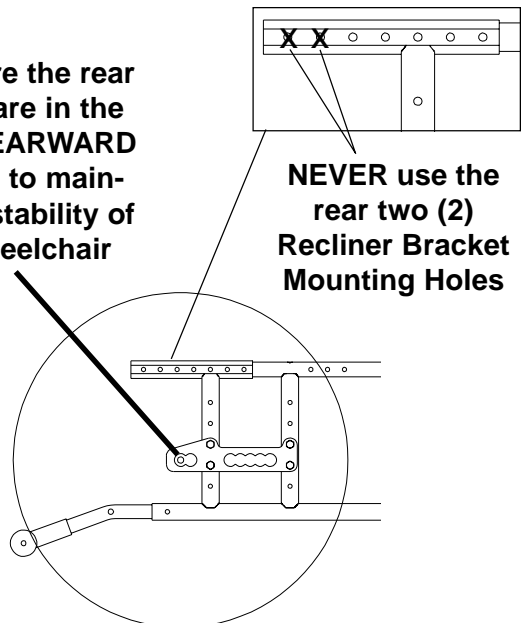
**Centering the Wheelbase** gives you maneuverability and stability.



### RECLINERS

Make sure the rear wheels are in the **MOST REARWARD** position to maintain the stability of the wheelchair

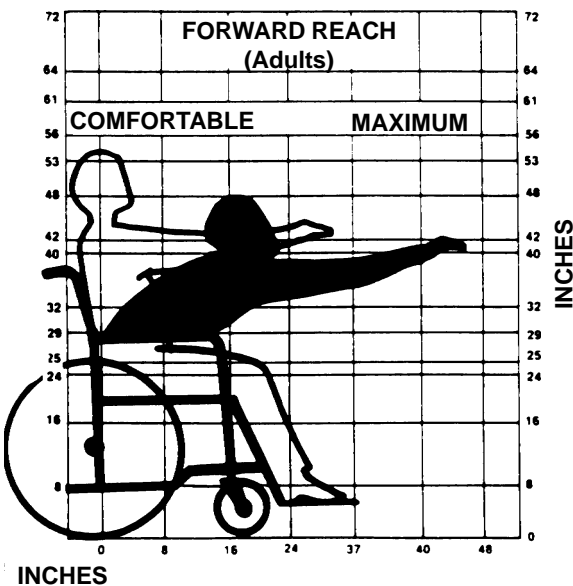
**NEVER** use the rear two (2) Recliner Bracket Mounting Holes





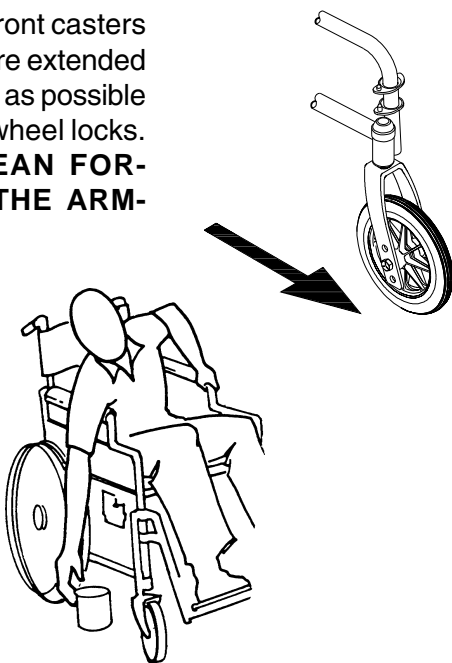
## FUNCTIONAL REACH FROM A WHEELCHAIR

The approximate reach-limit values shown in the accompanying graph were derived on the basis of a sample of 91 male and 36 female subject wheelchair users. Note the difference between the maximum and the comfortable reach limits, a subjective but important consideration in design.



## REACHING, LEANING and BENDING - FORWARD

Position the front casters so that they are extended as far forward as possible and engage wheel locks. **DO NOT LEAN FORWARD OF THE ARM-RESTS.**



## REACHING, LEANING - BACKWARDS

### WARNING

**DO NOT lean over the top of the back upholstery. This will change your center of gravity and may cause you to tip over.**



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.

## FOLDING AND UNFOLDING THE WHEELCHAIR

### WARNING

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

### Sling Seat Model Wheelchairs

#### UNFOLDING.

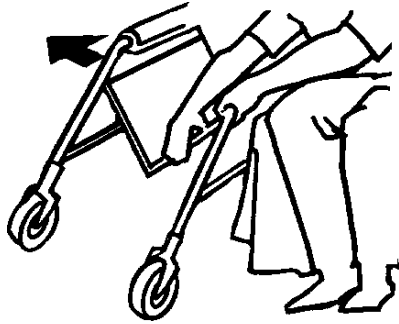
1. Grasp the push handle of the wheelchair closest to you.
2. Tilt the wheelchair towards you (raising the opposite wheel and caster off the ground/floor).
3. Push downward on the seat rail closest to you where the seat upholstery is attached until the wheelchair is fully open.
4. RECLINERS ONLY -
  - A. Slide the cover of the folding handle over the links in the center of the spreader bar.

### CAUTION

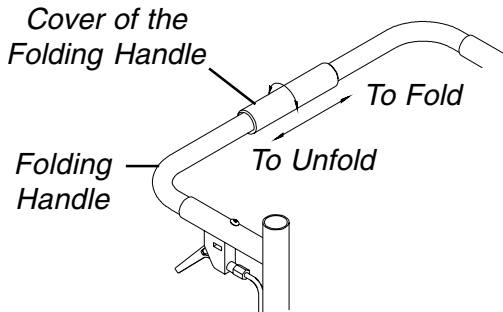
**Do not overtighten the cover of the folding handle. Damage to the folding handle will occur.**

- B. Turn the folding handle cover towards the front of the wheelchair approximately two (2) to four (4) revolutions.

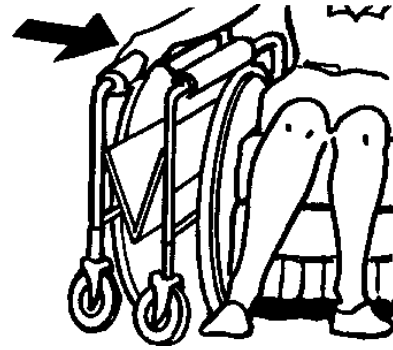
- Engage both wheel locks, open the footrest/legrest for clearance and transfer into the wheelchair. Refer to **TRANSFERRING TO AND FROM OTHER SEATS** in this section of the manual.



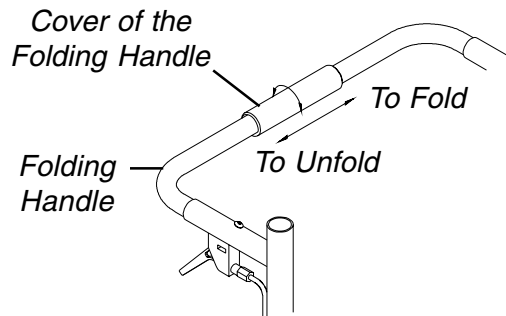
**RECLINERS ONLY**



**SLING SEAT MODEL WHEELCHAIRS - UNFOLDING**



**RECLINERS ONLY**



**SLING SEAT MODEL WHEELCHAIRS - FOLDING**

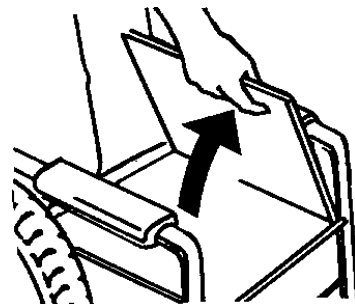
**FOLDING.**

- Swing footrest/legrest in locked position to the front of the wheelchair.
- Pivot footplates upward to vertical position.
- RECLINERS ONLY -**
  - Turn the folding handle cover towards the rear of the wheelchair approximately two (2) to four (4) revolutions.
  - Slide the cover of the folding over until the links of the spreader bar are visible.
- With both hands, grasp the middle of the seat upholstery at the front and back edge and lift up. Or, tilt the wheelchair to one side and close by the push handles.

**NOTE:** If wheelchair is equipped with carry straps, the wheelchair may be closed by pulling up on the straps.

**Solid Seat Model Wheelchairs**

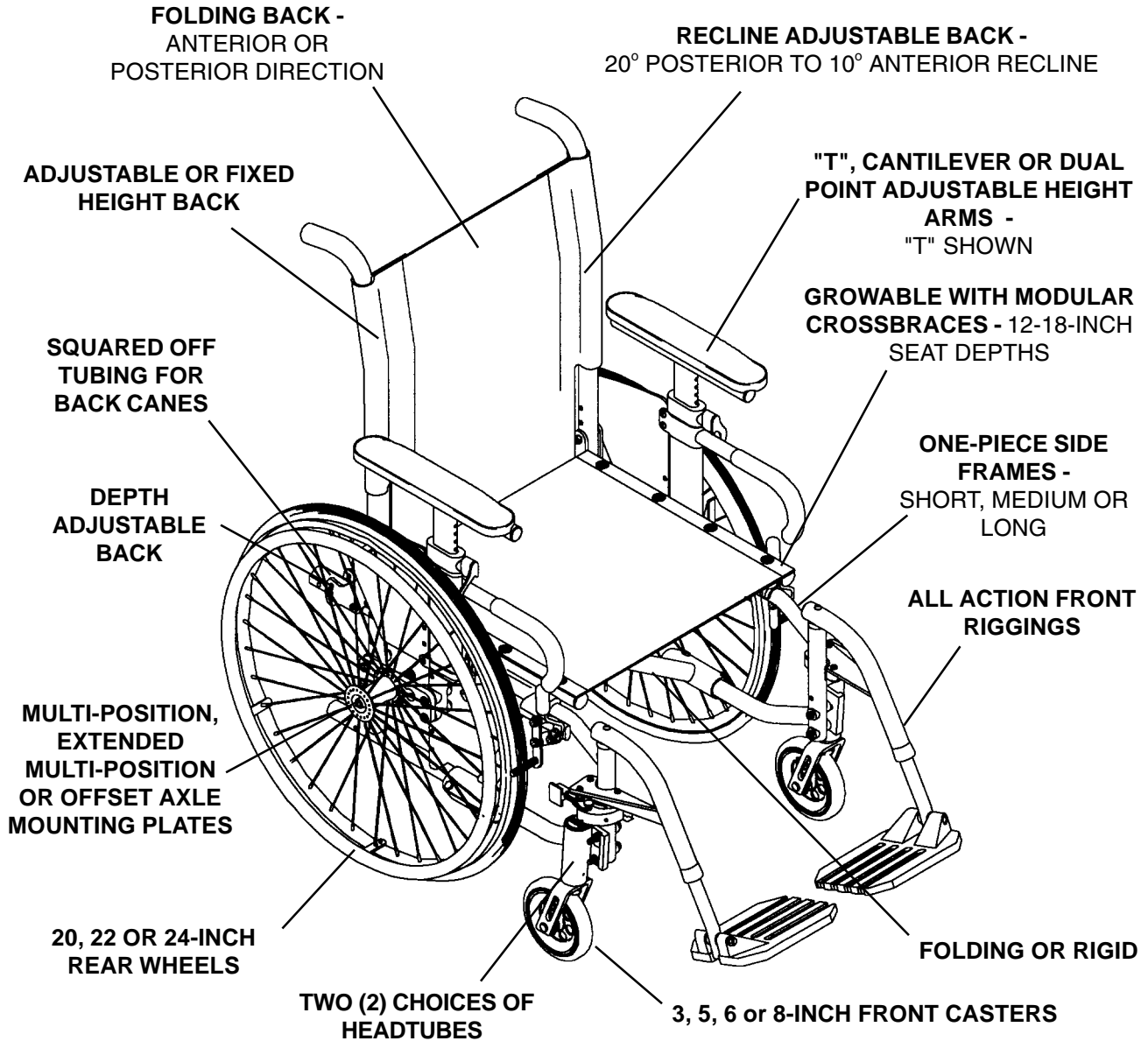
- From behind the wheelchair, grasp the right hand edge of the solid seat.
- Raise the seat to the hinged side.
- Swing footrest/legrest in locked position to the front of the wheelchair.
- Pivot footplates upward to vertical position.
- With both hands, grasp the middle of the seat upholstery at the front and back edge and lift up. Or, tilt the wheelchair to one side and close by the push handles.



**SOLID SEAT MODEL WHEELCHAIRS**

FEATURES

FEATURES



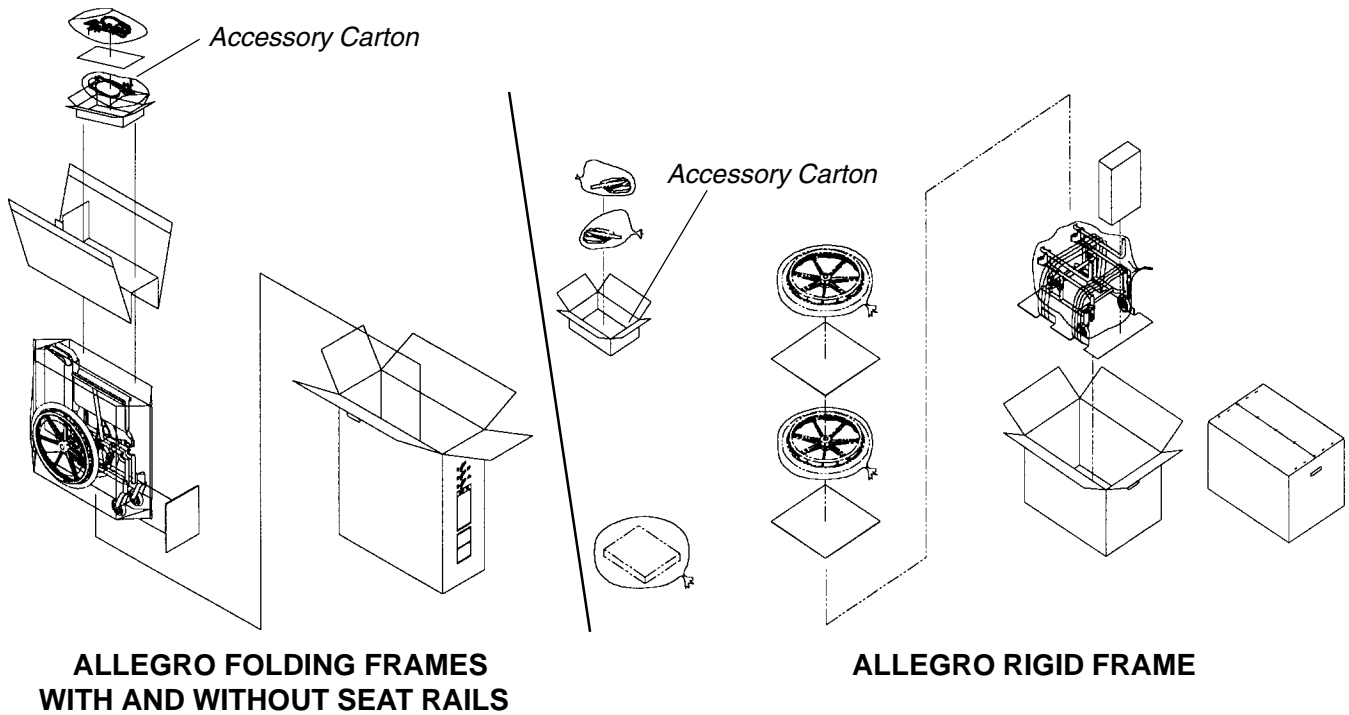
# SPECIFICATIONS

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PHYSICAL SPECIFICATIONS	ALLEGRO										
Overall Width:	<b>OPEN</b> - Seat Width plus approximately 9-inches <b>CLOSED</b> - 14-inches (with back upholstery)										
Overall Depth (w/o front riggings):	25-inches (20-inch rear wheels and casters in trailing position) to 35-inches (24-inch rear wheels and casters in leading position)										
Frame Depth:	Short - 14-inches, Medium - 16-inches, Long - 18-inches										
Seat Width:	12-18-inches for Standard Folding Frames and 12-16-inches - Rigid Frame (in one [1] inch increments)										
Seat Depth:	12-18-inches (in one [1] inch increments)										
Crossbrace Type:	Modular, Rigid or Less Seat Rails										
Frame Type:	Aluminum, One-piece. Available as Standard Folding Frame, Folding Frame w/o Seat Rails or Rigid Frame w/o Seat Rails										
⊕ Seat-to-Floor:	<table border="0"> <tr> <td style="vertical-align: top;"><b>REAR Seat-to-Floor Range (in inches)</b></td> <td style="vertical-align: top;"><b>FRONT Seat-to-Floor Range (in inches)</b></td> </tr> <tr> <td>20-inch rear wheels - 14-3/4 to 19-1/4</td> <td>3-inch Front Casters - 15 to 18-3/4</td> </tr> <tr> <td>22-inch rear wheels - 15-3/4 to 20-1/4</td> <td>5-inch Front Casters - 16 to 19-3/4</td> </tr> <tr> <td>24-inch rear wheels - 16-1/2 to 21</td> <td>6-inch Front Casters - 17 to 20-1/4</td> </tr> <tr> <td></td> <td>8-inch Front Casters - 18-3/4 to 21-1/4</td> </tr> </table>	<b>REAR Seat-to-Floor Range (in inches)</b>	<b>FRONT Seat-to-Floor Range (in inches)</b>	20-inch rear wheels - 14-3/4 to 19-1/4	3-inch Front Casters - 15 to 18-3/4	22-inch rear wheels - 15-3/4 to 20-1/4	5-inch Front Casters - 16 to 19-3/4	24-inch rear wheels - 16-1/2 to 21	6-inch Front Casters - 17 to 20-1/4		8-inch Front Casters - 18-3/4 to 21-1/4
<b>REAR Seat-to-Floor Range (in inches)</b>	<b>FRONT Seat-to-Floor Range (in inches)</b>										
20-inch rear wheels - 14-3/4 to 19-1/4	3-inch Front Casters - 15 to 18-3/4										
22-inch rear wheels - 15-3/4 to 20-1/4	5-inch Front Casters - 16 to 19-3/4										
24-inch rear wheels - 16-1/2 to 21	6-inch Front Casters - 17 to 20-1/4										
	8-inch Front Casters - 18-3/4 to 21-1/4										
Back Style and Height:	Adjustable Angle (80° to 110°), Fold Down - <b>Adjustable Height 10° Cane w/Push Handles</b> - 14-18-inch Height Range - <b>Adjustable Height Straight Cane w/Push Handles</b> - 12-18-inch Height Range - <b>Adjust. Height Sportster Cane (No Push Handles)</b> - 10-14-inch Height Range - <b>Fixed Height Anodized Cane w/Push Handles</b> - 16, 17, 18, 19 or 20-inch Recliner - 18, 20 or 24-inch										
Back Angle Range (Recliner Only):	90° to 170°										
Arm Styles:	"T" (Standard), Cantilever (Fixed Height Anodized Cane w/Push Handles Only) or Conventional (Dual Point Adjustable Height)										
Footrest:	Swingaway Footrests and Elevating Legrests										
Rear Axle:	Quick-Release, Quad-Release or Permanent										
Rear Axle Mounting Plates:	<b>Non-Recliner Wheelchairs</b> - Multi-Position - Standard, Extended Multi-Position or Offset Multi-Position <b>Recliner Wheelchairs</b> - Extended Multi-Position										
Rear Wheels:	20, 22 and 24-inch Composite or Spoke - Urethane, Pneumatic or Pneumatic with Flat Free Insert										
Handrims:	Aluminum, Plastic Coated and Projection										
Caster Size:	3 or 5-inch Aluminum or Composite Urethane 6 or 8-inch Composite Urethane, Pneumatic or Pneumatic w/Flat Free Insert										
Wheel Locks:	Push-To-Lock, Pull-To-Lock, Wheel Lock Extensions, Hill Holder										
Frame Colors:	Wet Black, Red, Super Teal, Sunny Yellow, Chrome, Pink Pearl, Metallic Blue, Deep Purple, Anthracite, Metallic Green, Cobalt Blue, White, Lollipop Pink, Silver Vein, Passion Purple, Shocking Blue, Hot Red, Grey Veil, Green Veil, Dark Purple, Gold Veil, Black w/Twilight Sparkle, Black w/Red Sparkle, Black w/Green Sparkle, Black w/Blue Sparkle, Black w/Gold Sparkle										
Upholstery:	U240 Nylon - Black										
Weight:	27-29 lbs. - without front riggings										
Shipping Weight (approx.):	37-39 lbs.										

⊕ **NOTE:** Invacare recommends that rear seat-to-floor height be **AT LEAST 3/8-inch** shorter than front seat-to-floor height. Otherwise a forward seat dump can occur. The rear seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed above. All heights are approximate to  $\pm 1/4$ -inch due to tire wear and air pressure. The front seat-to-floor heights are approximate to  $\pm 1/4$ -inch.

## PACKAGING



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## HANDLING

### UNPACKING

1. Check for any obvious damage to the carton or its contents. If damage is evident, notify your Dealer/Carrier.
2. Remove all loose packing from the carton.
3. Carefully remove all components from the carton.

**NOTE:** Unless the Allegro is to be assembled immediately, retain cartons and packing materials for use in storing the wheelchair until assembly is required.

### INSPECTION

1. Examine exterior of the Allegro for nicks, dents, scratches or other damages. Inspect all components. If damage is evident, notify your Dealer/Carrier.

### STORAGE

1. Store the packaged/repackaged Allegro in a dry area.
2. DO NOT place other objects on top of the packaged/repackaged wheelchair.

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# SAFETY INSPECTION CHECKLIST

**NOTE: Twice a year take your wheelchair to a qualified dealer 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.**

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

ITEM	INITIALLY	INSPECT/ ADJUST WEEKLY	INSPECT/ ADJUST MONTHLY	INSPECT/ ADJUST PERIODICALLY
<b>GENERAL</b> ● Wheelchair rolls straight (no excessive drag or pull to one side).	X	X		X
<b>SEAT AND BACK (PROCEDURES 3 and 4)</b> ● Inspect for rips or sagging. ● Inspect fastening flaps to ensure they securely latch. ● Inspect modular seat rail attaching hardware is securely tightened. ● Inspect back mounting plate attaching hardware is securely tightened. ● Inspect back fold down mechanisms to ensure they securely latch.	X X X X		X	X X X
<b>REAR WHEELS (PROCEDURE 6)</b> ● No excessive side movement or binding when lifted and spun. ● Quick/Quad-release axles lock properly.	X X	X		X
<b>HANDRIMS (PROCEDURE 6)</b> ● Inspect for signs of rough edges or peeling.	X			X
<b>SPOKES</b> ● Inspect for broken spokes.	X	X		
<b>FRONT CASTER (PROCEDURE 5)</b> ● Inspect wheel/fork assembly for proper tension by spinning caster; caster should come to a gradual stop. ● Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop. ● Wheel bearings are clean and free of moisture. <b>CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.</b>	X X X	X	X X	
<b>TIRES (PROCEDURES 5 and 6)</b> ● Inspect for flat spots and wear. ● If pneumatic tires, check for proper inflation (recommended tire pressure is listed on the side wall of the tire). <b>CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.</b>	X X	X X		X X
<b>WHEEL LOCKS (PROCEDURE 7)</b> ● Do not interfere with tires when rolling. ● Pivot points free of wear and looseness. ● Wheel locks easy to engage.	X X X		X X	X
<b>TRIGGER RELEASE LEVER/ CABLE (PROCEDURE 8)</b> ● Cables completely release and handles return when released.	X			X
<b>GAS CYLINDERS - PROCEDURE 8</b> ● Inspect for leaking oil.	X			X
<b>CLEANING</b> ● Clean upholstery and armrests.	X			X

## TROUBLESHOOTING

CHAIR VEERS RIGHT	CHAIR VEERS LEFT	SLUGGISH TURN OR PERFORMANCE	CASTERS FLUTTERS	SQUEAKS AND RATTLES	LOOSENESS IN CHAIR	CHAIR 3 WHEELS	SOLUTIONS
X	X	X	X			X	If pneumatic, check tires for correct and equal pressure.
		X	X	X	X		Check for loose stem nuts and bolts.
X	X		X				Check that both casters contact the ground at the same time.

## MAINTENANCE

### MAINTENANCE SAFETY PRECAUTIONS

#### WARNING

After adjustments and before use, make sure all attaching hardware is securely tightened.

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

#### WARNING

**Do not use the wheelchair unless it has the proper tire pressure (p.s.i.). DO NOT overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm.**

### SUGGESTED MAINTENANCE PROCEDURES

- Before using your Allegro, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
- Keep quick/quad-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to **ADJUSTING THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in **PROCEDURE 6** of this manual.
- Oil quick/quad-release axles at least once (1) a month (3-in-1 oil or equivalent).
- Periodically check the back fold down mechanisms to ensure that they lock the back securely in place. Disassemble and clean if necessary. Refer to **REPLACING THE LOCKING MECHANISM IN THE BACK CANE** in **PROCEDURE 3** of this manual.
- If tires are pneumatic, recommended tire pressure is listed on the side wall of the tire.
- The wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary at your authorized dealer or by a qualified technician.
- Periodically check handrims to ensure they are secured to the rear wheels. Refer to **HANDRIM REPLACEMENT** in **PROCEDURE 6** of this manual.
- Periodically adjust wheel locks in correlation to tire wear. Refer to **ADJUSTING THE WHEEL LOCKS** in **PROCEDURE 7** of this manual.
- Periodically check front caster wheel bearings to make sure they are clean and free from moisture. Use a Teflon lubricant if necessary.
- Check Upholstery for sagging, rips or tears.
- RECLINERS ONLY** - Periodically check gas cylinders for oil leaks. If oil leak is detected, replace the gas cylinder(s). Refer to **REPLACING THE GAS CYLINDERS** in **PROCEDURE 8** of this manual.

- This Procedure includes the following:**
- Installing Footrests*
  - Adjusting Footrest Height*
  - Installing 3-inch Extension*
  - Installing Elevating Legrests*
  - Raising/Lowering Elevating Legrests and/or Adjusting Calfpads*
  - Installing/Adjusting Adjustable Angle Flip-up Footplates*
  - Replacing Sector Block*
  - Optional Footrest Accessories*

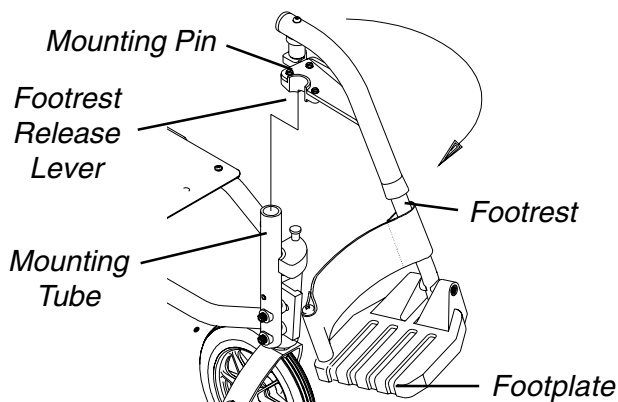
**WARNING**  
 After adjustments, and before use, make sure all attaching hardware is securely tightened.

**INSTALLING FOOTRESTS (FIGURE 1)**

1. Turn the footrest to the side (open footplate is perpendicular to wheelchair).
2. Insert mounting pin into mounting tube.
3. Push the footrest towards 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 this procedure for the opposite footrest.
5. To release the footrest, push the footrest release lever inward, rotate footrest outward.



**NOTE: All swingaway style footrests are installed the same way. Only one (1) style of footrest is shown for clarity.**

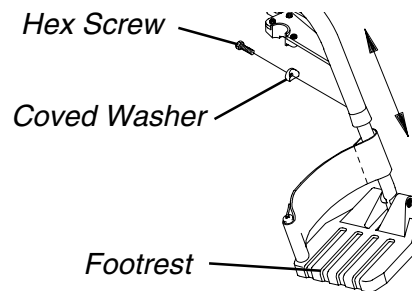
**FIGURE 1 - INSTALLING FOOTRESTS**

**ADJUSTING FOOTREST HEIGHT**

**NOTE: Release the footrest locking mechanism and lift the mounting pin out of the mounting tube. Lay the assembly on a flat surface to simplify procedure.**

**Pivot Slide Tube Height Adjustment (FIGURE 2)**

1. Remove any accessories that are attached to the footrests.
2. Remove the hex screw and covered washer and position the footrest assembly to the desired height.
3. Lineup the mounting hole in the footrest support, reinsert the hex screw and covered washer and securely tighten.
4. Repeat **STEPS 1-3** for the other footrest.
5. Reinstall any accessories that are attached to the footrest.



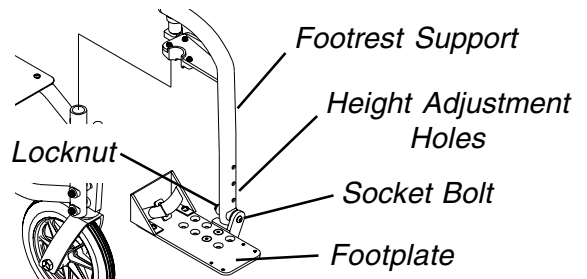
**FIGURE 2 - PIVOT SLIDE TUBE HEIGHT ADJUSTMENT**

**Footplate Height Adjustment (70° MFX and 90° Footrests Only) (FIGURE 3)**

1. Remove any accessories that are attached to the footrests.
2. Remove the socket bolt, covered washer and locknut that secure the footplate to the footrest support.
3. Reposition the footplate to the desire height.

**WARNING**  
**DO NOT overtighten. Footrest must be able to rotate upward from the horizontal to vertical position.**

4. Reinstall the socket bolt through the mounting holes of the footplate and footrest support.
5. Secure the footplate to the footrest support with the covered washer and locknut.



**FIGURE 3 - FOOTPLATE HEIGHT ADJUSTMENT (70° MFX AND 90° FOOTRESTS ONLY)**



**INSTALLING 3-INCH EXTENSION (FIGURE 4)**

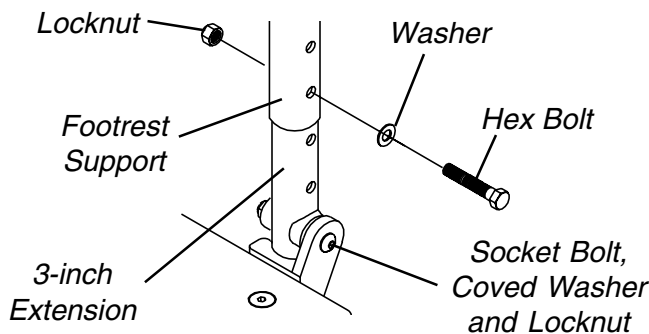
**NOTE:** Make sure to note position of hardware before disassembly of the footrest.

**NOTE:** If using ANY type of extension with the **ADJUSTABLE ANGLE FOOTPLATE**, refer to **INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES** in this section of the manual.

1. Remove any accessories that are attached to the footrests.
2. Remove the socket bolt, coved washer and locknut that secure the footplate to the footrest support.
3. Insert the 3-inch extension into the footrest support and align the mounting holes.
4. Secure the 3-inch extension to the footrest support with new hex bolt, washer and locknut.
5. Position the footplate at the desired height.

**WARNING**  
**DO NOT** overtighten. Footrest must be able to rotate upward from the horizontal to vertical position.

6. Reinstall the socket bolt through the mounting holes of the footplate and footrest support.
7. Secure the footplate to the footrest support with the coved washer and locknut.



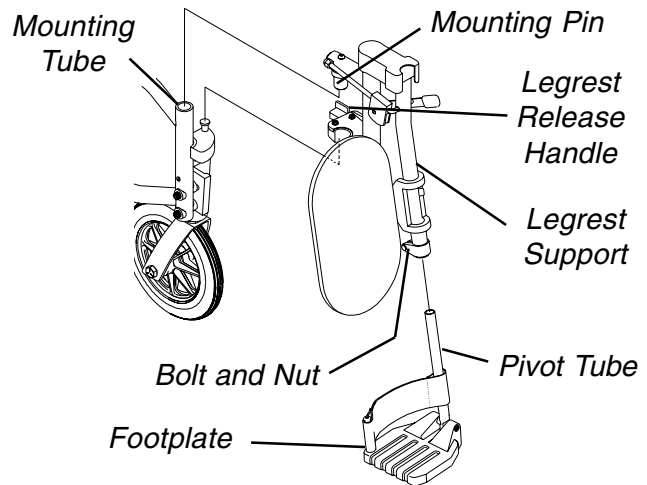
**FIGURE 4 - INSTALLING 3-INCH EXTENSION**

**INSTALLING ELEVATING LEGRESTS (FIGURE 5)**

1. Insert the pivot tube into the legrest support and secure it with the bolt and nut.
2. Place legrest on the outside of the wheelchair and insert the mounting pin into the mounting tube.
3. Rotate legrest toward the inside of the wheelchair until it locks in place.

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

4. Repeat **STEPS 1-3** for the opposite legrest.
5. After seated in wheelchair, adjust footrest to correct height by loosening nut and sliding the pivot tube up or down until desired height is obtained.
6. To release the legrest, push the legrest release handle toward the inside of the wheelchair and swing the legrest to the outside of the wheelchair.

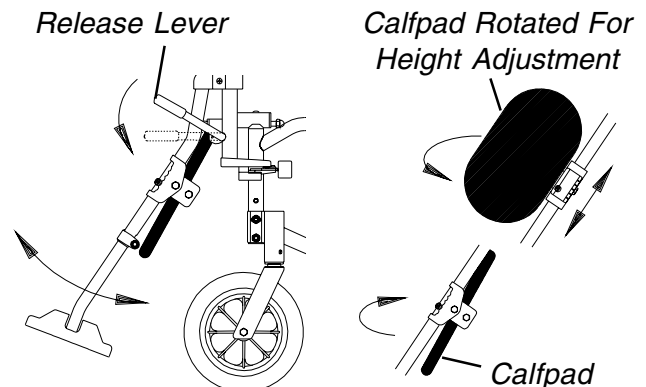


**FIGURE 5 - INSTALLING ELEVATING LEGRESTS**

**RAISING/LOWERING ELEVATING LEGRESTS AND/OR ADJUSTING CALFPADS (FIGURE 6)**

**Raising/Lowering Elevating Legrests**

1. Perform one (1) of the following:
  - RAISING -** Pull back on the release lever until the leg is at the desired height.
  - LOWERING -** Support leg with one (1) hand and push release lever downward with other hand.



**FIGURE 6 - RAISING/LOWERING ELEVATING LEGRESTS AND/OR ADJUSTING CALFPADS**

**Adjusting Calfpads**

1. To adjust the calfpad, turn pad towards the outside of the wheelchair.
2. Slide the calfpad up or down until the desired position is obtained.
3. To secure the calfpad, turn the calfpad towards the inside of the wheelchair.

**INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES**

**WARNING**  
When determining the angle of the footplates, make sure the rear of the footplates do not interfere with the movement of the front casters.

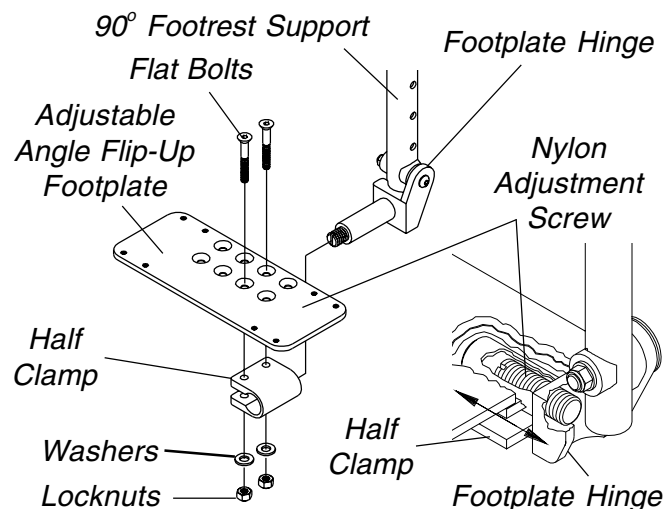
**Installing Adjustable Angle Flip-up Footplates (FIGURE 7)**

1. Slide the half clamp over the footplate hinge.
2. Loosely tighten the two (2) flat bolts, washers and locknuts that secure the footplate to the half clamp.
3. If necessary, adjust the footplates to the necessary angle and depth for the user. Refer to the following sections of this procedure.

**Adjustable Angle Flip-up Footplate Depth Adjustment (FIGURE 7)**

1. Remove the two (2) flat bolts, washers and locknuts that secure the adjustable angle flip-up footplate to the footplate hinge.

**NOTE:** Observe the angle of the articulating footplate for reinstallation.



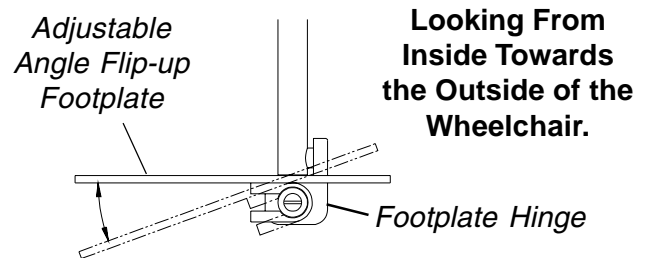
**FIGURE 7 - INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES**

2. Move the adjustable angle flip-up footplate to one (1) of four (4) mounting positions.
3. Retighten the two (2) flat bolts, washers and locknuts.

**NOTE:** The settings for positioning the adjustable angle flip-up footplates on the half-clamps may vary for each footplate.

**Adjustable Angle Flip-up Footplate Angle Adjustment (FIGURES 7 AND 8)**

1. Loosen, but do not remove the two (2) flat bolts and locknuts that secure the adjustable angle flip-up footplate to the footplate hinge.
2. Position the adjustable angle flip-up footplate to the necessary angle to accommodate the user.
3. Retighten the two (2) flat bolts and locknuts.

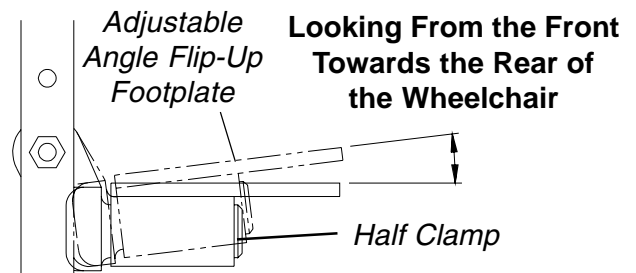


**FIGURE 8 - ADJUSTABLE ANGLE FLIP-UP FOOTPLATE ANGLE ADJUSTMENT**

**Adjustable Angle Flip-up Footplate Perpendicular and/or Inversion/Eversion Adjustment (FIGURES 7 AND 9)**

**NOTE:** It is not necessary to remove the footplate to perform this adjustment.

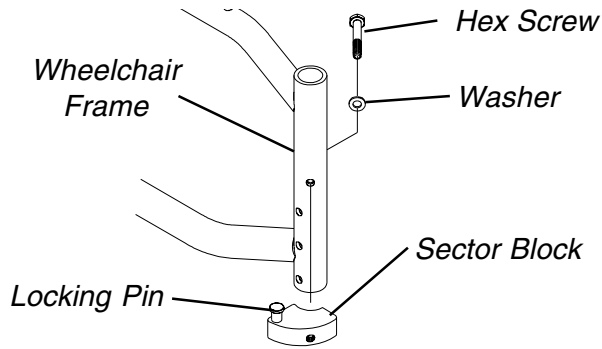
1. Insert a flathead screwdriver through the half clamp on the adjustable angle flip-up footplate.
2. Slowly turn the nylon adjustment screw in or out until the adjustable angle flip-up footplate is perpendicular to the footrest assembly or the desired inversion/eversion is obtained.



**FIGURE 9 - ADJUSTABLE ANGLE FLIP-UP FOOTPLATE PERPENDICULAR AND/OR INVERSION/EVERSION ADJUSTMENT**

**REPLACING SECTOR BLOCK (FIGURE 10)**

1. Remove the hex screw and washer that secure the existing sector block to the wheelchair frame.
2. Position the new sector block on the wheelchair frame. Make sure the locking pin is facing UP.
3. Secure the new sector block to the wheelchair frame with the existing hex screw and washer.



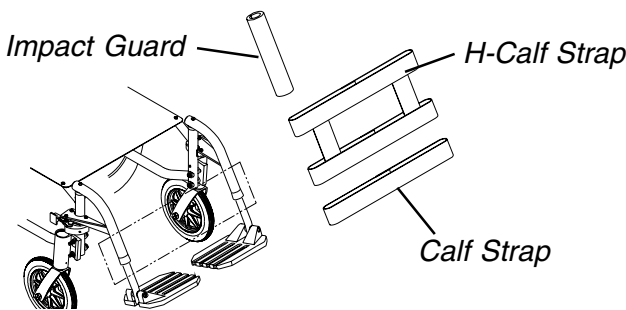
**FIGURE 10 - REPLACING SECTOR BLOCK**

**OPTIONAL FOOTREST ACCESSORIES**

**Impact Guards/Calf Strap/H-Calf Strap (FIGURE 11)**

**NOTE: Impact Guards are Standard Equipment on Model ST Footrests. No assembly is required.**

1. Remove impact guard/calf strap from packaged container.
2. Secure the impact guards to the footrest frame.
3. Secure the calf strap around the footrest frame (with the impact guards attached).



**FIGURE 11 - IMPACT GUARDS/CALF STRAP/H-CALF STRAP**

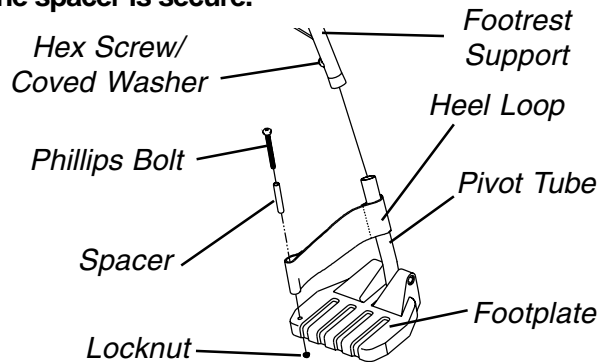
**Replacing Heel Loops**

**ALUMINUM OR COMPOSITE FOOTPLATES (FIGURE 12).**

1. Remove the hex screw and covered washer that secure the pivot tube and footplate to footrest support.
2. Remove the pivot tube and footplate from the footrest support.

3. Remove the phillips bolt and locknut that secure the heel loop to the footplate.
4. Slide heel loop over the pivot tube.
5. Replace heel loop.
6. Reverse **STEPS 1-5** to install the new heel loop.

**NOTE: When securing the heel loop to the footrest assembly, tighten the phillips bolt and locknut until the spacer is secure.**



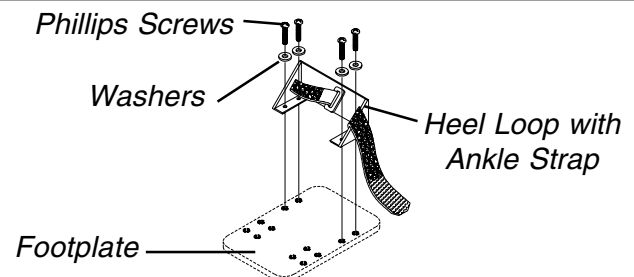
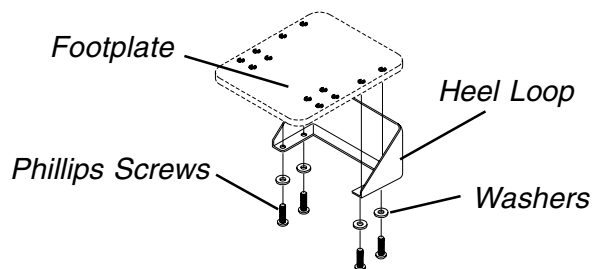
**FIGURE 12 - REPLACING HEEL LOOPS - ALUMINUM OR COMPOSITE FOOTPLATES**

**FLIP-UP FOOTPLATES (FIGURE 13).**

1. Remove the four (4) phillips screws and washers that secure the heel loop to the footplate.
2. Remove the existing heel loop from the footplate.
3. Position the new heel loop UNDER the footplate.

**NOTE: If the heel loop is equipped with an ankle strap, position the heel loop on TOP of the footplate.**

4. Line up mounting holes in footplate and heel loop.
5. Secure the new heel loop to the footplate with the four (4) existing phillips screws and washers.



**FIGURE 13 - REPLACING HEEL LOOPS - FLIP-UP FOOTPLATES**

<p><b>This Procedure Includes the Following:</b></p> <ul style="list-style-type: none"> <li><i>Installing the "T" Arm Sockets</i></li> <li><i>Installing/Removing the "T" Arms</i></li> <li><i>Adjusting the "T" Arms</i></li> <li><i>Adjusting the Transfer Assists and/or Side Guards - "T" Arms</i></li> <li><i>Replacing the Locking Lever - "T" Arms</i></li> <li><i>Using/Installing/Height Adjustment/Corresponding Adjustment to Back Angle - Cantilever Arms</i></li> <li><i>Replacing/Repositioning the Locking Mechanism in the Cantilever Arm</i></li> <li><i>Arm Pad Depth Adjustment/Replacement - Cantilever Arms</i></li> <li><i>Installing Fabric Clothing Guards</i></li> <li><i>Installing Rigid Side Guards</i></li> <li><i>Adjusting Conventional Arm Height, Removing or Replacing Conventional Arms</i></li> <li><i>Replacing Armrest Pads</i></li> <li><i>Repositioning the Conventional Arms</i></li> </ul>
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**WARNING**

**NEVER** try to lift or tip the wheelchair by cantilever arms or "T" arms, serious injury can occur.

After adjustments and before use, make sure all attaching hardware is securely tightened.

**INSTALLING THE "T" ARM SOCKETS (FIGURE 1)**

1. Remove the rear wheels from the wheelchair. If necessary, refer to the owner's manual supplied with the wheelchair.
2. Position the "T" arm socket and "T" arm clamp on the wheelchair frame as shown in **FIGURE 1**.

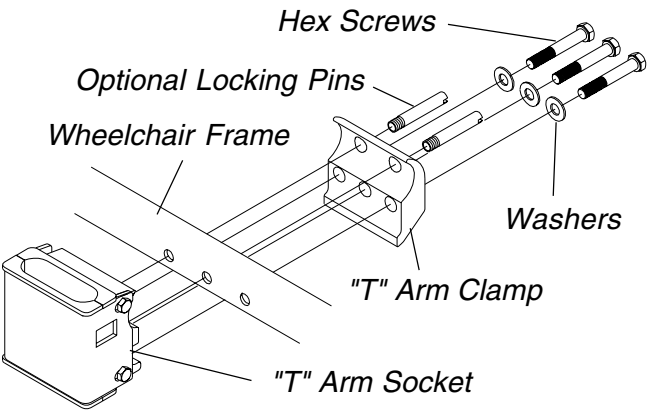
**NOTE: The "T" arm socket must be positioned on the outside of the wheelchair frame.**

3. Install the hex screws and washers through the "T" arm clamp and "T" arm socket and loosely tighten.
4. Tighten the hex screws and washers that secure the "T" arm mounting socket to the wheelchair frame in the following sequence:
  - A. Middle hex screw and washer.
  - B. The two (2) outside hex screws and washers.
5. Continue to repeat **STEP 5** until the hex bolts are torqued to 156-inch pounds.

**NOTE: Make sure the hex bolts are torqued to 156-inch pounds, otherwise the "T" arm sockets will be capable of rotating around the wheelchair frame.**

**NOTE: If desired, locking pins can be installed to secure the "T" arm brackets to the wheelchair frame, as shown in FIGURE 1.**

6. Repeat **STEPS 2-6** for the opposite side of the wheelchair.
7. Install the "T" arms into the "T" arm sockets. Refer to **INSTALLING/REMOVING THE "T" ARMS** in this section of the manual.



**FIGURE 1 - INSTALLING THE "T" ARM SOCKETS**

**INSTALLING/REMOVING THE "T" ARMS (FIGURE 2)**

**Installing**

1. Position the "T" arm over the "T" arm socket on the wheelchair frame.

**NOTE: Make sure the locking lever is towards the front of the wheelchair.**

2. Slide the "T" arm into the "T" arm socket until the locking lever is in the slot in the "T" arm socket and an audible "click" is heard.
3. Pull up on the "T" arm to make sure the "T" arm is locked in place.

**NOTE: If the "T" arm does not slide in the "T" arm socket as desired, adjust the "T" arm socket. Refer to ADJUSTING THE "T" ARMS in this section of the manual.**

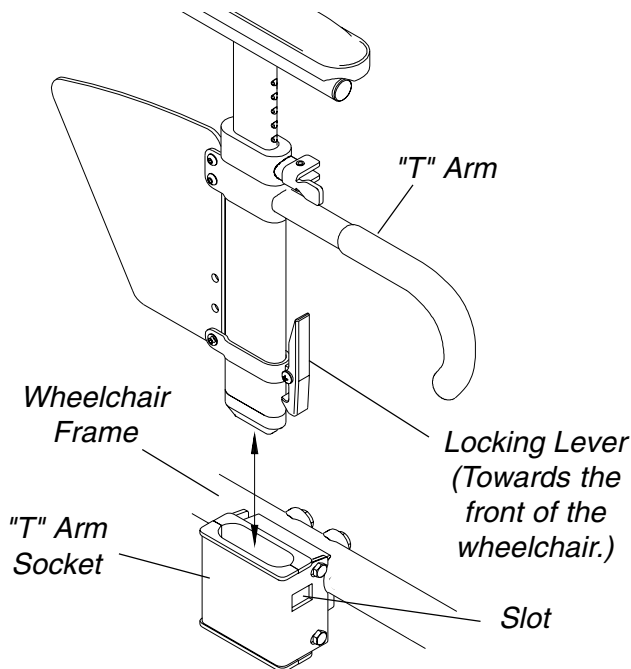
4. Adjust the "T" arm for desired height, width and depth, if necessary. Refer to **ADJUSTING THE "T" ARMS** in this section of the manual.
5. Repeat **STEPS 1-4** for the opposite side of the wheelchair.

## Removing

1. Press in on the locking lever and lift the "T" arm straight up and out of the "T" arm socket.

**NOTE:** If the "T" arm does not slide up and down in the "T" arm socket as desired, adjust the "T" arm socket. Refer to **ADJUSTING THE "T" ARMS** in this section of the manual.

2. Repeat **STEP 2** for the opposite side of the wheelchair.



**FIGURE 2 - INSTALLING/REMOVING THE "T" ARMS**

## ADJUSTING THE "T" ARMS

### Height (FIGURE 3)

1. Unlock the "T" arm by flipping the "T" arm release lever towards the inside of the wheelchair.

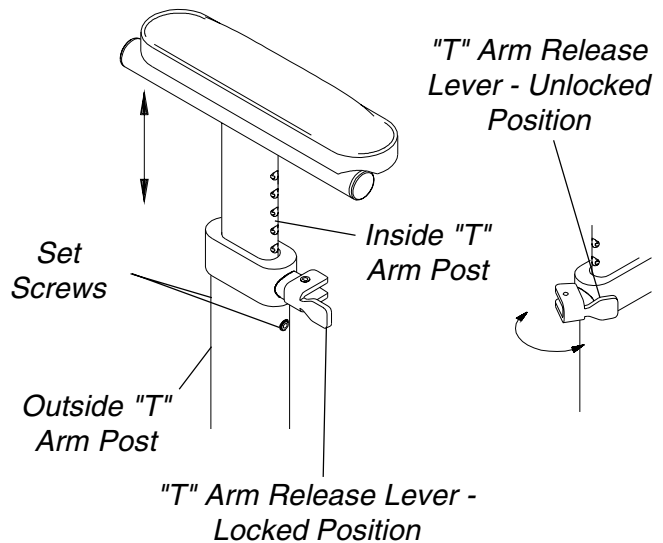
**NOTE:** If necessary, Pull out on the "T" arm release lever and rotate 180° so it can be flipped towards the outside of the wheelchair.

2. Slide the "T" arm to one (1) of:
  - A. **Low Height "T" Arms** - Nine (9) positions.
  - B. **High Height "T" Arms** - Seven (7) positions.

**NOTE:** If the inside "T" arm post does not slide up and down in the outside "T" arm post as desired, perform one (1) of the following:

- A. **Tighten** - Tightening the set screws on the outside "T" arm post **will make it harder** to move the inside "T" arm post up and down.

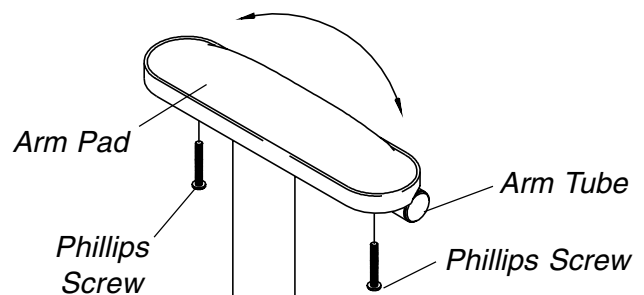
- B. **Loosen** - Loosening the set screws on the outside "T" arm post **will make it easier** to move the inside "T" arm post up and down.
3. Lock the "T" arm by flipping the "T" arm release lever towards the front of the wheelchair.



**FIGURE 3 - ADJUSTING THE "T" ARMS - HEIGHT**

### Width (FIGURE 4)

1. Remove the two (2) phillips screws that secure the arm pad to the arm tube.
2. Turn the arm pad around and reposition the arm pad on the arm tube.
3. Re-secure the arm pad to the arm tube with the two (2) phillips screws.
4. Repeat for the opposite side, if necessary.



**FIGURE 4 - ADJUSTING THE "T" ARMS - WIDTH**

### Depth (FIGURE 5)

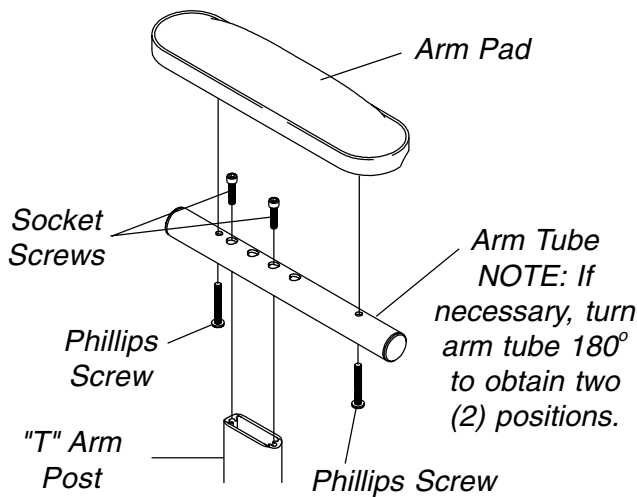
1. Remove the two (2) phillips screws that secure the arm pad to the arm tube.
2. Remove the two (2) socket screws that secure the arm tube to the "T" arm post.

3. Reposition the arm tube on the "T" arm post:
  - A. **Desk Length Arms** - to one (1) of three (3) positions depending on the desired arm pad depth.
  - B. **Full Length Arms** - to one (1) of five (5) positions depending on the desired arm pad depth.

**NOTE: Additional positions are obtainable by turning the arm tube 180°.**

4. Re-secure the arm tube to the "T" arm post with the two (2) socket screws.
5. Reattach the arm pad to the arm tube with the two (2) phillips screws.
6. Repeat for the opposite side, if necessary.

6. Squeeze the "T" arm socket together until the socket is flush with the "T" arm.
7. While holding the "T" arm socket together, tighten the four (4) hex screws and washers securely.
8. Press in on the locking lever and lift the "T" arm straight up and out of the "T" arm socket.
9. Repeat **STEPS 5-7**, if necessary until the "T" arm slides in the "T" arm socket as desired.
10. Reinstall the "T" arm socket onto the wheelchair. Refer to **INSTALLING THE "T" ARM SOCKETS** in this section of the manual.



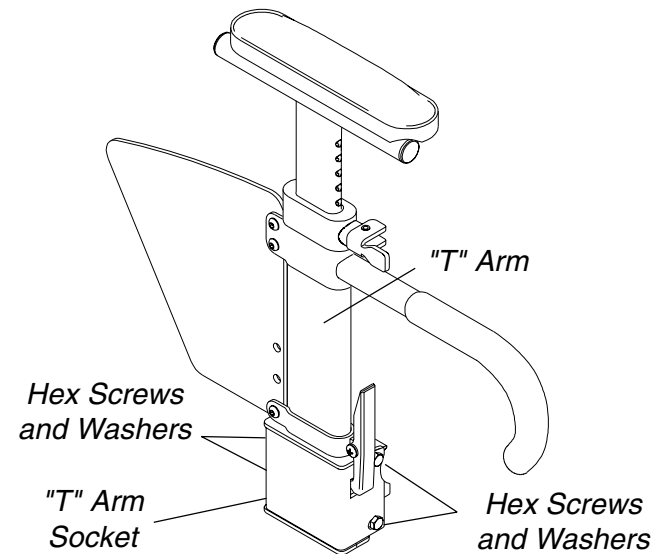
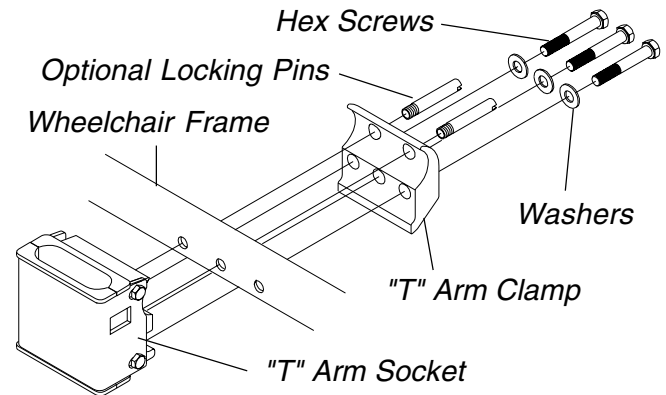
**FIGURE 5 - ADJUSTING THE "T" ARMS - DEPTH**

**"T" Arm Sockets (FIGURE 6)**

1. Remove the rear wheels from the wheelchair. If necessary, refer to the owner's manual supplied with the wheelchair.
2. Remove the three (3) hex screws and washers that secure the "T" arm socket and "T" arm clamp to the wheelchair frame and remove the "T" arm socket from the wheelchair.
3. If equipped with optional locking pins, remove the locking pins that secure the "T" arm socket to the wheelchair frame.
4. Loosen, but do not remove the four (4) hex screws and washers that secure the "T" arm socket together.

**NOTE: The "T" arm socket will disassemble if the four (4) hex screws and washers are removed.**

5. Slide the "T" arm into the "T" arm socket until the lock lever is in the slot in the "T" arm socket and an audible "click" is heard.



**FIGURE 6 - ADJUSTING THE "T" ARMS - "T" ARM SOCKETS**

**ADJUSTING THE TRANSFER ASSISTS AND/OR SIDE GUARDS - "T" ARMS (FIGURE 7)**

1. Remove the "T" arm from the wheelchair. Refer to **INSTALLING/REMOVING THE "T" ARMS** in this section of the manual.
2. Remove the bottom socket screw that secures the side guard to the bottom clamp.

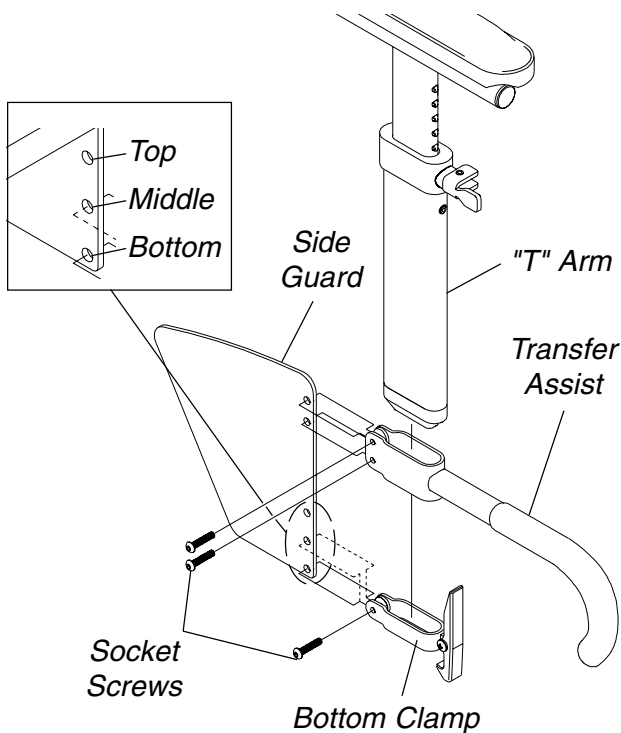
3. Move the bottom clamp to one (1) of three (3) mounting holes in the side guard.

**NOTE: The middle mounting hole is the standard mounting position for rigid wheelchairs.**

**NOTE: The bottom mounting hole is the standard mounting position for folding wheelchairs.**

**NOTE: The top mounting hole is an optional mounting position for folding or rigid wheelchairs.**

4. Re-secure the side guard to the bottom clamp with the socket screw.
5. Install the "T" arm onto the wheelchair. Refer to **INSTALLING/REMOVING THE "T" ARMS** in this section of the manual.



**FIGURE 7 - ADJUSTING THE TRANSFER ASSISTS AND/OR SIDE GUARDS - "T" ARMS**

### REPLACING THE LOCKING LEVER - "T" ARMS (FIGURE 8)

1. Remove the "T" arm from the wheelchair. Refer to **INSTALLING/REMOVING THE "T" ARMS** in this section of the manual.
2. Remove the phillips bolt and locknut that secure the existing locking lever to the bottom bracket.

#### CAUTION

**The locking lever is spring loaded. Place your free hand over the locking lever to prevent the parts from springing off of the bottom bracket.**

3. Remove the existing locking lever and spring from the bottom bracket.

**NOTE: Inspect the spring and replace if necessary.**

4. Position the spring on the bottom bracket as shown in **FIGURE 8**.
5. Position the new locking lever onto the spring and the bottom bracket.

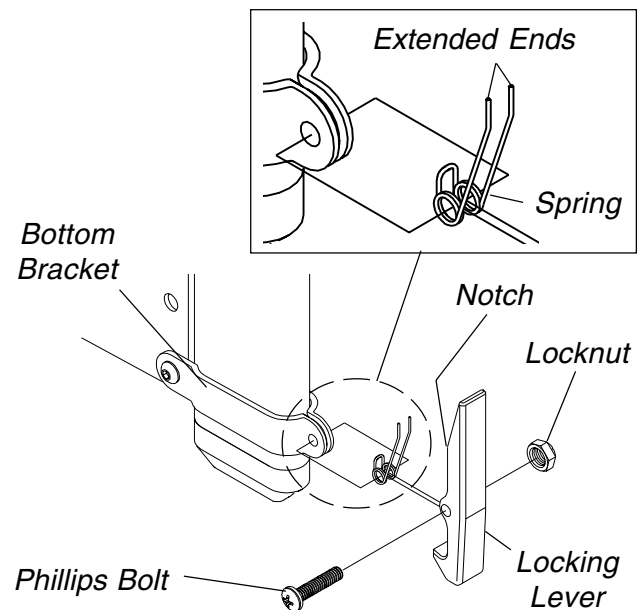
**NOTE: Make sure the two (2) extended ends of the spring are inside the notch in the locking lever.**

6. Line up the mounting holes in the new locking lever, spring and bottom bracket.

#### WARNING

**DO NOT over tighten the locknut that secures the locking lever to the bottom bracket. Over tightening this locknut will prevent the locking lever from operating properly, possibly causing injury.**

7. Install the phillips bolt and tighten securely with the locknut.
8. Install the "T" arm onto the wheelchair. Refer to **INSTALLING/REMOVING THE "T" ARMS** in this section of the manual.



**FIGURE 8 - REPLACING THE LOCKING LEVER - "T" ARMS**

**USING/INSTALLING/HEIGHT ADJUSTMENT/CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE - CANTILEVER ARMS**

**NOTE: The cantilever arms are designed for use with the fixed height back canes only.**

**Using (FIGURE 9)**

1. Pull the actuator of the locking mechanism towards the front of the wheelchair.
2. While holding the actuator of the locking mechanism, pull up on the cantilever arm.

**NOTE: If necessary, the locking mechanism in the cantilever arm can be repositioned so the cantilever arm will open down instead of up. Refer to REPLACING/REPOSITIONING THE LOCKING MECHANISM IN THE CANTILEVER ARM in this section of the manual.**

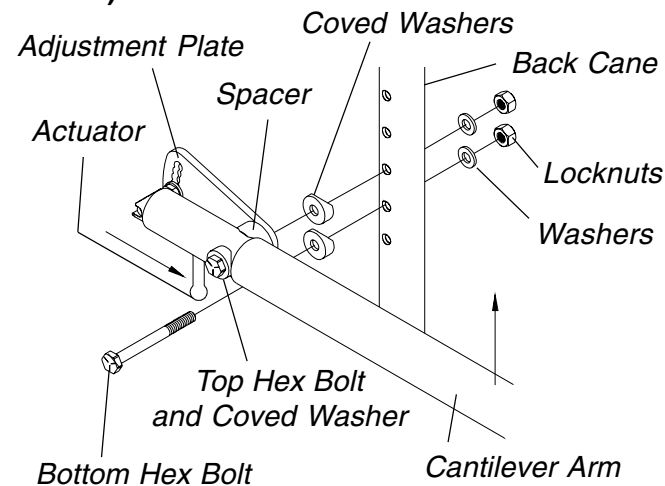
3. To lock the cantilever arm, push down until there is an audible click.
4. Pull up on the cantilever arm to make sure it is locked in place.

**Installing/Height Adjustment (FIGURE 9)**

**NOTE: When removing the locknuts and washers from the cantilever arm assembly, leave the top hex bolt, coved washers and spacer (between adjustment plate and cantilever arm) in place.**

1. Slide the partially assembled cantilever arm assembly w/mounting hardware through the back cane. Make sure the adjustment plate is towards the inside of the wheelchair.

**NOTE: This includes top hex bolt, coved washers and spacer (between adjustment plate and cantilever arm).**



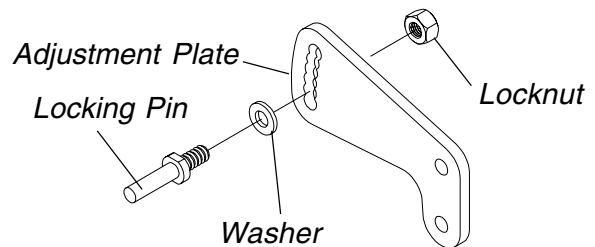
**FIGURE 9 - USING/INSTALLING/HEIGHT ADJUSTMENT - CANTILEVER ARMS**

2. Slide the bottom hex bolt (w/coved washer) through the adjustment plate and back cane.
3. Securely tighten the cantilever arm to the wheelchair with two (2) locknuts and washers.
4. Adjust the angle of the cantilever arm, if necessary. Refer to **CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE** in this section of the manual.

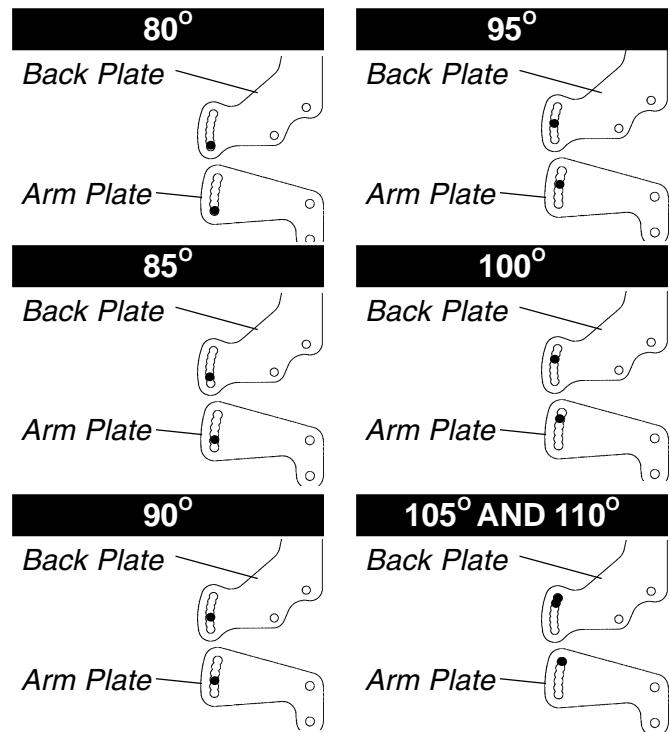
**Corresponding Arm Adjustment to Back Angle (FIGURES 10 and 11)**

**NOTE: This adjustment is recommended if the back angle has been changed to keep arm parallel to the ground/floor.**

1. Flip the cantilever arm up and out of the way.
2. Remove the locknut that secures the locking pin to the adjustment plate (FIGURE 10).



**FIGURE 10 - ADJUSTING THE CANTILEVER ARMS**



**FIGURE 11 - CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE - CANTILEVER ARMS**



- Refer to **FIGURE 6** to determine the mounting hole in the adjustment plate that will be used to correspond to the back angle.

**NOTE: Back angles of 105° and 110° will use the same arm adjustment plate mounting holes.**

- Securely tighten the locking pin and washer to the adjustment plate with a locknut.
- Repeat **STEPS 1-4** for the opposite side, if necessary.

### REPLACING/REPOSITIONING THE LOCKING MECHANISM IN THE CANTILEVER ARM (FIGURE 12)

- Move the cantilever arm up and out of the way.
- Remove the actuator from the locking mechanism.

#### CAUTION

**The locking mechanism is spring loaded. Place your free hand over the locking mechanism to prevent the parts from springing out of the cantilever arm.**

- Slowly let the locking mechanism and spring slide out of the cantilever arm.

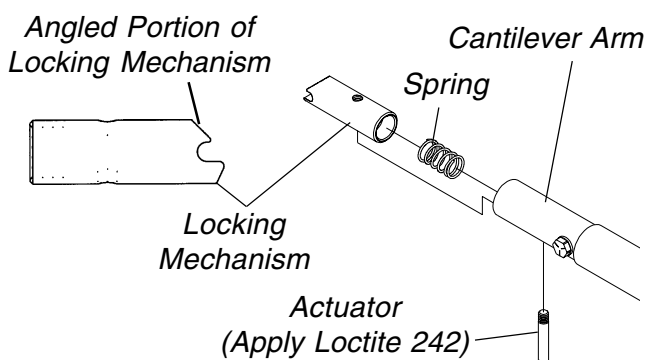
**NOTE: Inspect the spring and replace if necessary.**

- Slide the new locking mechanism and spring into the cantilever arm.
- Position the angled portion of the locking mechanism in one (1) of two (2) ways:

Angled Portion Facing Up - Arm will flip **UP**

Angled Portion Facing Down - Arm will flip **DOWN**

- Use Loctite 242 and securely tighten the actuator into the locking mechanism.
- To lock the cantilever arm, push down until there is an audible click.
- Pull up on the cantilever arm to make sure it is locked in place.



**FIGURE 12 - REPLACING/REPOSITIONING THE LOCKING MECHANISM IN THE FLIP-UP HALF ARM**

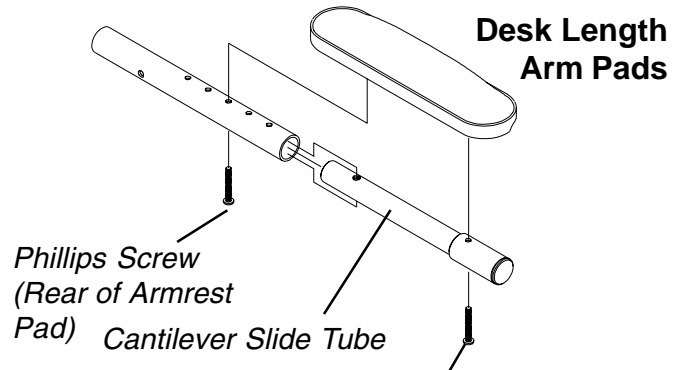
### ARM PAD DEPTH ADJUSTMENT/REPLACEMENT - CANTILEVER ARMS (FIGURE 13)

#### Adjustment

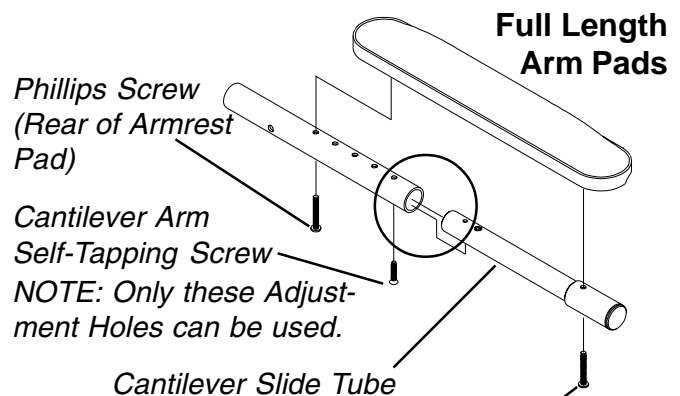
- Remove the phillips screw from the rear of the armrest pad and self-taping screw if **FULL LENGTH ARM PADS**.
- Depending on the desired arm pad depth, reposition the cantilever slide tube to one (1) of five (5) positions for **DESK LENGTH ARM PADS** and into the **FIRST** adjustment hole for the **FULL LENGTH ARM PADS**.
- Reattach the arm pad/cantilever slide tube to the arm tube with existing hardware.
- Repeat for the opposite side, if necessary.

#### Replacement

- Remove the phillips screws from the armrest pad.
- Replace with **NEW** armrest pad.
- Secure with existing hardware.



**NOTE: This Phillips Screw only needs to be removed when Armrest Pad is replaced.**

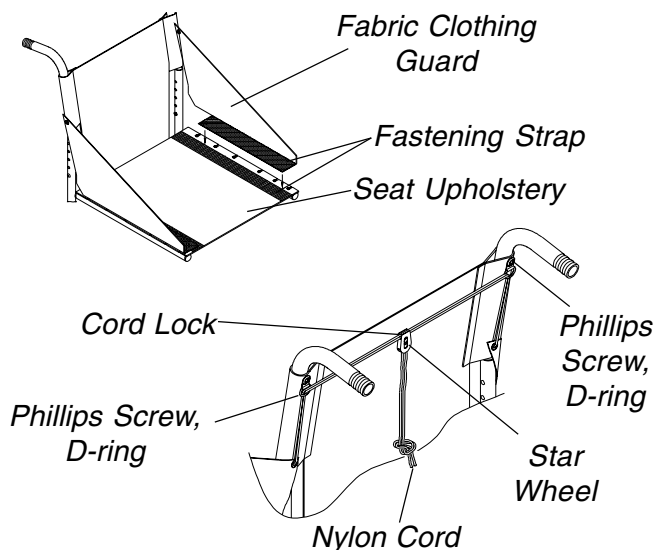


**NOTE: This Phillips Screw only needs to be removed when Armrest Pad is replaced.**

**FIGURE 13 - ARM PAD DEPTH ADJUSTMENT/REPLACEMENT - CANTILEVER ARMS**

**INSTALLING FABRIC CLOTHING GUARDS (FIGURE 14)**

1. Remove the seat cushion, if necessary.
2. Secure the fastening straps of the fabric clothing protectors to the seat upholstery.
3. Reinstall the seat cushion, if necessary.
4. Remove the two (2) phillips screws that secure the back upholstery to the back canes.
5. Position the D-rings on the mounting holes in the back canes.
6. Reinstall the two (2) phillips screws and securely tighten.
7. Run the nylon cord evenly through the two (2) D-rings.
8. Run the nylon cord through the cord lock.
9. Push star wheel into cord lock to hold the nylon cord in place.
10. Tie a knot in the nylon cord and cut the excess, if desired.

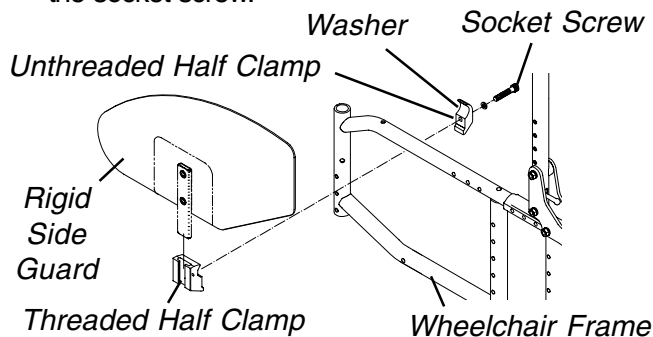


**FIGURE 14 - INSTALLING FABRIC CLOTHING GUARDS**

**INSTALLING RIGID SIDE GUARDS (FIGURE 15)**

1. Position the unthreaded half clamp on the INSIDE of the wheelchair frame.
2. Position the threaded half clamp on the OUTSIDE of the wheelchair frame.
3. Install the washer and socket screw through the two (2) half clamps and loosely tighten.
4. Slide the rigid side guard into the slot on the threaded half clamp.

5. Determine the necessary position for the rigid side guard.
6. Securely tighten the two (2) half clamps together with the socket screw.



**FIGURE 15 - INSTALLING RIGID SIDE GUARDS**

**ADJUSTING CONVENTIONAL ARM HEIGHT, REMOVING OR REPLACING CONVENTIONAL ARMS (FIGURE 16)**

**WARNING**  
Make sure the armrest release levers are secured before using the wheelchair.

**Adjusting Conventional Arm Height**

1. Unlock the conventional arm by flipping the armrest release lever on the top front of the armrest to the UP (HORIZONTAL) position.
2. Adjust conventional arm to desired height.

**NOTE: Height adjustment levers MUST be in the unlocked position when placing upper arm into the arm assembly.**

3. Lock the conventional arm by pressing the release lever into the DOWN (VERTICAL) position when the desired armrest height is achieved.

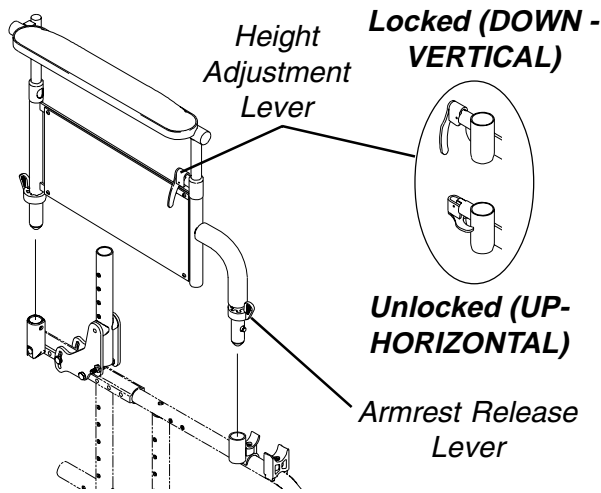
**Removing Conventional Arms**

1. Unlock the conventional by turning the armrest release lever located on the side rail to the unlocked position.
2. Remove the conventional arm from the wheelchair.

**Replacing Conventional Arms**

**NOTE: Armrest release levers MUST be in the unlocked position when placing armrests into the arm sockets.**

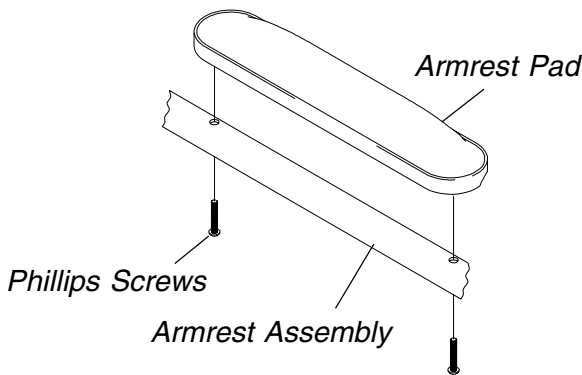
1. Position the conventional arm in the arm sockets and lock the conventional arm by turning the armrest release levers into the locked position.



**FIGURE 16 - ADJUSTING CONVENTIONAL ARM HEIGHT, REMOVING OR REPLACING CONVENTIONAL ARMS**

**REPLACING ARMREST PADS (FIGURE 17)**

1. Remove the phillips screws that secure the armrest pad to the armrest assembly.
2. Replace armrest pad and securely tighten with the existing phillips screws.



**FIGURE 17 - REPLACING ARMREST PADS**

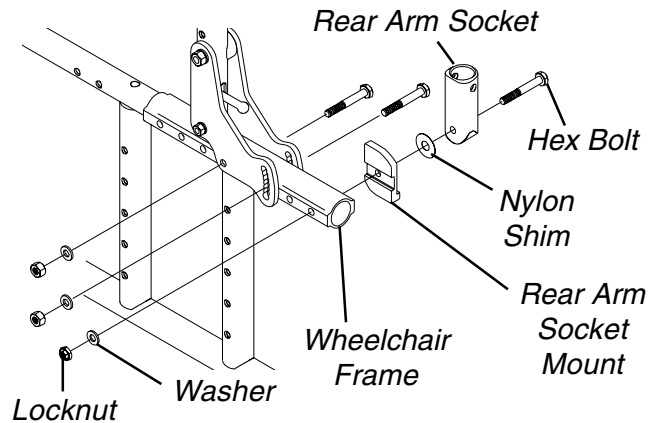
**REPOSITIONING THE CONVENTIONAL ARMS**

**NOTE:** Conventional arms can only be repositioned on medium and long frame wheelchairs. There is only one (1) position for conventional arms on short frame wheelchairs.

**Rear Arm Sockets (FIGURE 18)**

1. Determine the necessary rear arm socket position for the necessary seat depth. Refer to **CHANGING SEAT DEPTHS** in **PROCEDURE 10** of this manual.
2. Remove the hex bolt, washer and locknut that secure the rear arm socket, nylon shim and rear arm socket mount to the wheelchair frame.

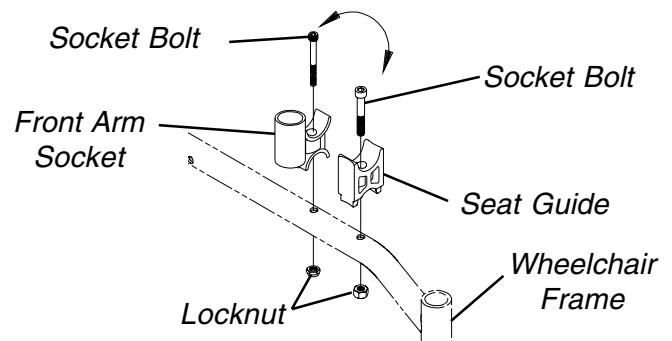
3. Move the rear arm socket, nylon shim and rear arm socket mount to the position determined in **STEP 1**.
4. Reinstall the rear arm socket, nylon shim and rear arm socket mount onto the wheelchair with the hex bolt, washer and locknut. Refer to **FIGURE 13** for correct orientation.
5. Repeat **STEPS 1-4** for the opposite side of the wheelchair.



**FIGURE 18 - REPOSITIONING THE CONVENTIONAL ARMS - REAR ARM SOCKETS**

**Front Arm Sockets (FIGURE 19)**

1. Determine the necessary front arm socket and seat guide position for the necessary seat depth. Refer to **CHANGING SEAT DEPTHS** in **PROCEDURE 10** of this manual.
2. Remove the socket bolts and locknuts that secure the front arm socket and seat guide to the wheelchair.
3. Move the front arm socket and seat guide to the position determined in **STEP 1**.
4. Resecure the front arm socket and seat guide to the wheelchair with the socket bolts and locknuts.
5. Repeat **STEPS 1-4** for the opposite side of the wheelchair.



**FIGURE 19 - REPOSITIONING THE CONVENTIONAL ARMS - FRONT ARM SOCKETS**

<b><i>This Procedure Includes the Following:</i></b>
<i>Folding/Unfolding the Back</i>
<i>Replacing Back Upholstery</i>
<i>Adjusting the Back Height</i>
<i>Replacing the Locking Mechanism in the Back Cane</i>
<i>Changing the Back Angle</i>
<i>Repositioning the Back (Changing Seat Depth)</i>
<i>Repositioning Back for 2 or 3-Inch Seat Cushion - Recliners Only</i>
<i>Replacing Folding Push Handle - Recliners Only</i>
<i>Installing and Removing a Seating System</i>

**WARNING**  
After adjustments and before use, make sure all attaching hardware is securely tightened.

**FOLDING/UNFOLDING THE BACK (FIGURE 1)**

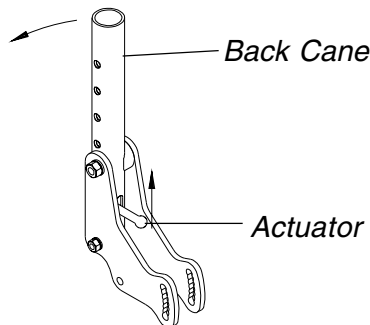
**WARNING**  
Make sure the back is locked securely BEFORE using the wheelchair - otherwise injury can occur.

**NOTE:** The following procedure is for non-recliner wheelchairs only.

1. Pull the actuator of the locking mechanism up towards the top of the wheelchair.
2. While holding the actuator of the locking mechanism, push the back down.

**NOTE:** The back can be pushed towards the anterior (front) or the posterior (rear) of the wheelchair depending on need.

3. To lock the back into place, pull up until there is an audible click.
4. Push on the back to make sure it is locked in place.



**FIGURE 1 - FOLDING/UNFOLDING THE BACK**

**REPLACING BACK UPHOLSTERY**

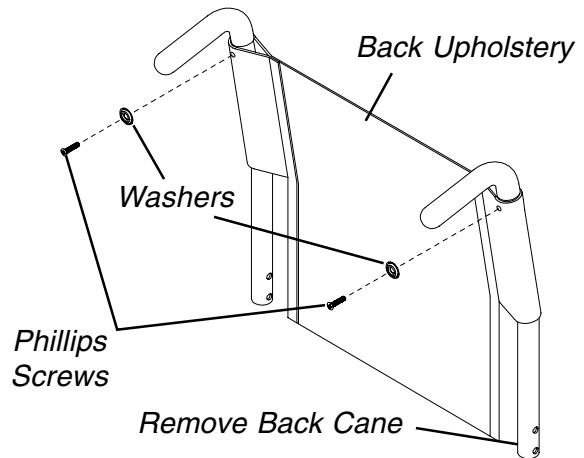
**NOTE:** If the back upholstery HEIGHT is being changed, the back canes may also have to be changed. Refer to ADJUSTING THE BACK HEIGHT in this section of the manual.

**Standard Back Upholstery (FIGURE 2)**

1. Remove the two (2) phillips screws and washers that secure the existing back upholstery to the back canes.
2. Remove the hex screw and locknut that secure one (1) back cane to the wheelchair frame.

**NOTE:** It is necessary to remove only one (1) back cane to replace the back upholstery.

3. Pull the loose back cane out of the existing back upholstery.
4. Pull the existing back upholstery up and over the mounted back cane.
5. Install the new back upholstery over the mounted back cane.
6. Slide the loose back cane through the new back upholstery.
7. Secure the back cane to the wheelchair frame with the hex screw and locknut.
8. Secure the new back upholstery to the back canes with the existing phillips screws and washers.



**FIGURE 2 - REPLACING STANDARD BACK UPHOLSTERY**

**Adjustable Back Upholstery**

**INSTALLING ADJUSTABLE BACK UPHOLSTERY (FIGURE 3).**

1. Remove the existing back upholstery from the wheelchair. Refer to REPLACING STANDARD BACK UPHOLSTERY in this section of the manual.

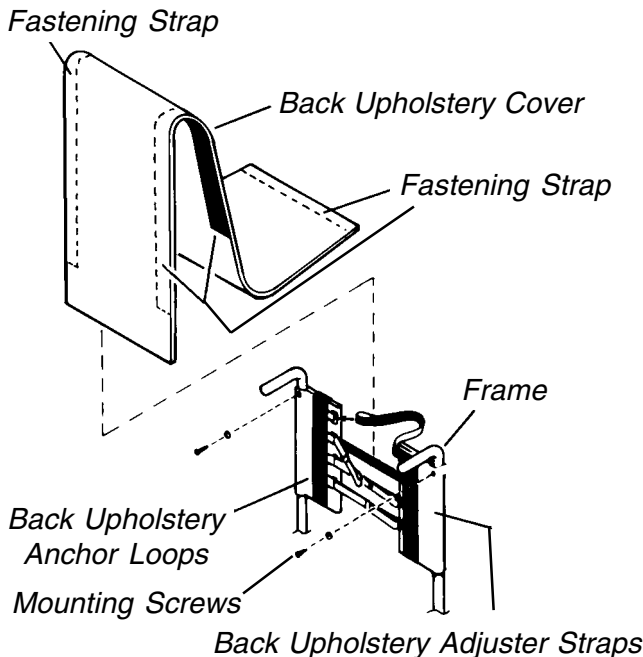
2. Slide each section (anchor loop/adjuster strap) of the adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
3. Secure the adjustable back upholstery to the back posts with the mounting screws.

**NOTE: Clean the upholstery with warm water and mild detergent to remove superficial soil.**

**WARNING**

After the adjustable back upholstery has been positioned to the end-users individual needs, the fastening straps **MUST** be securely fastened **BEFORE** applying the back upholstery cover. The adjustable back should be checked whenever entering the wheelchair to ensure that the fastening straps are securely fastened.

4. Slip adjuster straps through corresponding anchor loops and adjust the back upholstery. Secure with the fastening straps.
5. Secure the back upholstery cover (fastening strap) to the back of the adjustable back upholstery (fastening strap).
6. Flip the back upholstery cover over the adjustable back upholstery and secure the fastening straps to the front of the adjustable back upholstery.
7. Lay the front portion of the back upholstery cover on the seat upholstery.
8. Adjust the slack in the back upholstery cover and then secure to the seat upholstery.



**FIGURE 3 - INSTALLING/REPLACING ADJUSTABLE BACK UPHOLSTERY**

**REPLACING ADJUSTABLE BACK UPHOLSTERY (FIGURE 3).**

1. Lift up on the existing back upholstery cover and remove the cover from the wheelchair.
2. Remove the two (2) phillips screws and washers that secure the existing adjustable back upholstery to the back canes.
3. Slide each section (anchor loop/adjuster strap) of the existing adjustable back upholstery off of the back canes.
4. Slide each section (anchor loop/adjuster strap) of the new adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
5. Secure new adjustable back upholstery to the back posts with the two (2) phillips screws and washers.

**WARNING**

After the adjustable back upholstery has been positioned to the end-users individual needs, the fastening straps **MUST** be securely fastened **BEFORE** applying the back upholstery cover. The adjustable back should be checked whenever entering the wheelchair to ensure that the fastening straps are securely fastened.

6. Slip adjuster straps through corresponding anchor loops and adjust the back upholstery. Secure with the fastening straps.
7. Secure the new back upholstery cover (fastening strap) to the back of the new adjustable back upholstery (fastening strap).
8. Flip the new back upholstery cover over the new adjustable back upholstery and secure the fastening straps to the front of the new adjustable back upholstery.
9. Lay the front portion of the new back upholstery cover on the seat upholstery.
10. Adjust the slack in the new back upholstery cover and then secure to the seat upholstery.

**THE ADJUSTABLE TENSION STRAPS.**

The straps can be adjusted at various levels of tension to accommodate individual end-users. In a typical scenario, the bottom two (2) straps can be adjusted tightly to support and/or assist the extensor muscles.

The top two (2) straps would be left looser to allow the upper body to lean back over the upholstery to fight gravity. This configuration may enable the back canes to be lowered for a quad. In another instance, you might loosen all of the straps and allow the end-user to sink all the way back into the wheelchair.

Every person will be different. Let the therapist experiment with different positions and then decide. It is easy to change.

**THE BACK UPHOLSTERY COVER.**

**The back upholstery cover is designed for three (3) reasons:**

1. It is as a modesty cover to prevent one's posterior from protruding out of the wheelchair.
2. It keeps the cushion from sliding out of the back of the wheelchair.
3. It is a sacral support depending upon how far or tight the flap is pulled under the seat cushion.

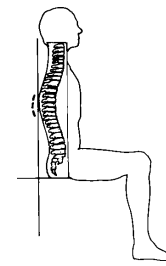
**WHY USE ADJUSTABLE BACK UPHOLSTERY: A CLINICAL DISCUSSION.**

The flexible sling upholstery commonly used on wheelchairs allows the wheelchair to fold without removing rigid components. Sling upholstery will stretch with use. Unfortunately, stretched upholstery does not support the back well. Stretched upholstery often allows the pelvis to drift into posterior tilt while the back assumes a kyphotic posture.

With the adjustable tension backrest, the sag can be taken out of the sling restoring the original tightness. Adjustable tension upholstery can also provide significant improvement to the seated posture and function of the wheelchair. By changing the tension of the strap, the backrest can be adjusted to accommodate back postures such as kyphosis, lordosis, stabilize the pelvis and back, and provide lateral stability.

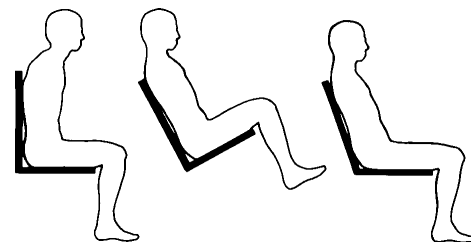
In addition to restoring the sling to original tension, the adjustable tension backrest can be adjusted to help maintain the pelvis and back position, which can improve posture balance and function.

The wheelchair backrest should be able to follow the natural anatomical contours of the back. When viewing a person from the side, the thoracic portion of the back will extend posteriorly to the pelvis and buttocks (**FIGURE 4**).



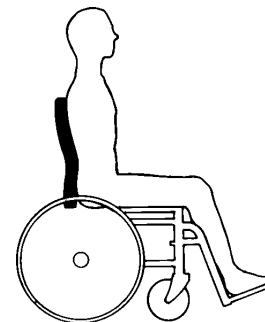
**FIGURE 4**

When using a nonadjustable flat backrest, the top portion of the upholstery will usually push the trunk forward of the center of gravity over the pelvis. To maintain the trunk in the upright posture, the user must have and use the back extensor musculature, or add tilt or recline to backrest (**FIGURE 5**).



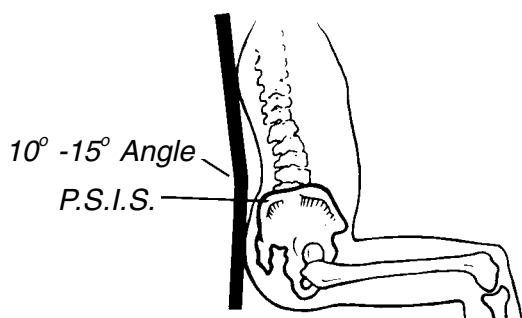
**FIGURE 5**

When using adjustable upholstery, it is possible to tighten the lower portion of the backrest which assists in maintaining a neutral pelvis. The upper portion can then be adjusted to follow the natural curvature of the spine bringing the back over the pelvis in a position of balance relative to the center of gravity (**FIGURE 6**).



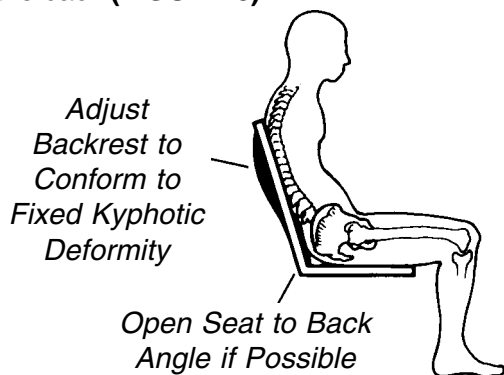
**FIGURE 6**

The best point of control for the pelvis is near the Posterior Superior, Iliac Spine (P.S.I.S.). The upper trunk should be relined until a balanced posture is achieved, approximately 10 to 15 degrees (**FIGURE 7**).



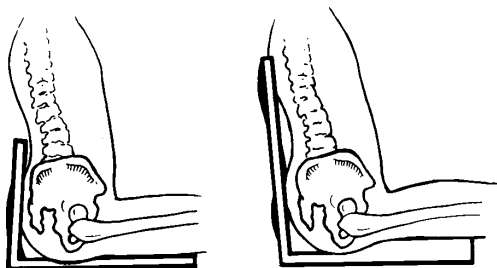
**FIGURE 7**

For individuals who have fixed kyphotic spine, the backrest can be adjusted to allow for an increased recline while providing increased contact and support of the back (**FIGURE 8**).



**FIGURE 8**

The height of the backrest and the amount of control provided by the adjustable tension upholstery will vary depending on the abilities of the user. An active paraplegic (SCI) may require minimal back height which adds posterior stability to the pelvis and lets the trunk assume a natural balance over the top edge of the wheelchair upholstery. A less active para (with a higher level of injury) or a quadriplegic may require a higher backrest with an increased level of recline (**FIGURE 9**).



**FIGURE 9**

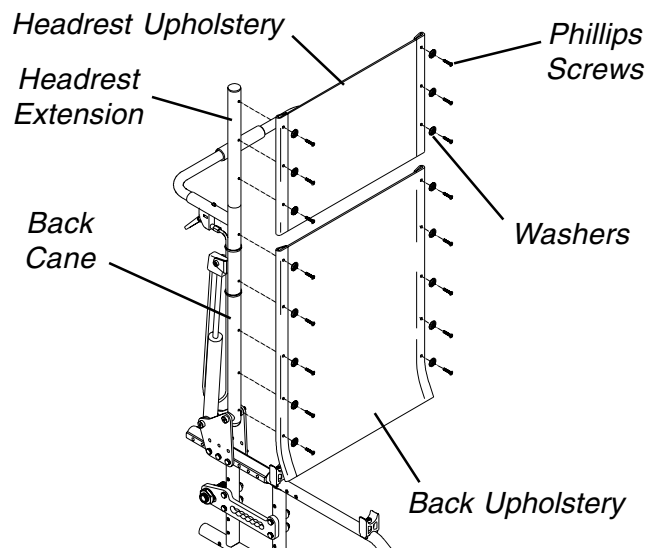
The effect of back support and the angle of the backrest are interconnected. Changes to one often requires change to the other if optimal support and balance are to be achieved. Use of a wheelchair with adjustable tension upholstery can significantly increase function, postural condition, balance and comfort.

**Recliner Back Upholstery (FIGURE 10)**

1. Remove the ten (10) or twelve (12) phillips screws and washers (depending on back height) that secure the back upholstery to the back canes.
2. Remove existing back upholstery from back canes.
3. Install new back upholstery onto the back canes.
4. Install the ten (10) or twelve (12) phillips screws and washers (depending on back height) that secure the back upholstery to the recliner back canes.

**Recliner Headrest Upholstery (FIGURE 10)**

1. Remove the six (6) phillips screws and washers that secure the headrest upholstery to the headrest extensions.
2. Remove the existing headrest upholstery from the headrest extensions.
3. Install the new headrest upholstery onto the headrest extensions.
4. Install the six (6) phillips screws and washers that secure the headrest upholstery to the headrest extensions.



**FIGURE 10 - REPLACING RECLINER BACK OR HEADREST UPHOLSTERY**

**ADJUSTING THE BACK HEIGHT**

**Adjustable Height Backs (FIGURE 11)**

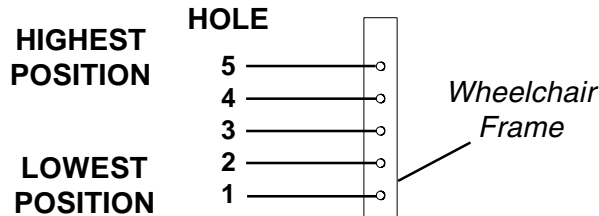
1. Remove the two (2) hex bolts and locknuts that secure the two (2) back canes to the wheelchair frame.
2. Reposition the back canes to one (1) of five (5) height adjustment positions. Refer to the **SPECIFICATION PAGE** of this manual for the height range of the individual back canes.

**WARNING**

The back canes **MUST** be fastened securely to the seat frame **BEFORE** using the wheelchair.

**DO NOT** overtighten hex bolts. Overtightening hex bolts will prohibit the free movement of the back canes, preventing the back canes from locking properly.

- Reinstall the two (2) hex bolts and locknuts that secure the back canes to the wheelchair frame. Torque to 35-inch pounds.



⊕ Holes numbered from bottom to top for reference only. (There are no numbers on the back canes or wheelchair frame.)

**FIGURE 11 - ADJUSTING THE BACK HEIGHT - ADJUSTABLE HEIGHT BACKS**

**Fixed Height Backs (FIGURE 12)**

- If the wheelchair is equipped with cantilever arms, remove them from the wheelchair. Refer to **USING/INSTALLING/HEIGHT ADJUSTMENT/CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE - CANTILEVER ARMS** in **PROCEDURE 2** of this manual.

**NOTE:** Note the position of the cantilever arms for reinstallation.

- Remove the two (2) hex bolts and locknuts that secure the back canes to the back angle plates.

**CAUTION**

The locking mechanism in the back canes is spring loaded. Slowly remove the back canes from the wheelchair to prevent the springs from being lost.

- Slowly remove the two (2) backs canes from the wheelchair.
- Position the mounting holes in the new back canes with the mounting holes in the back angle plates.

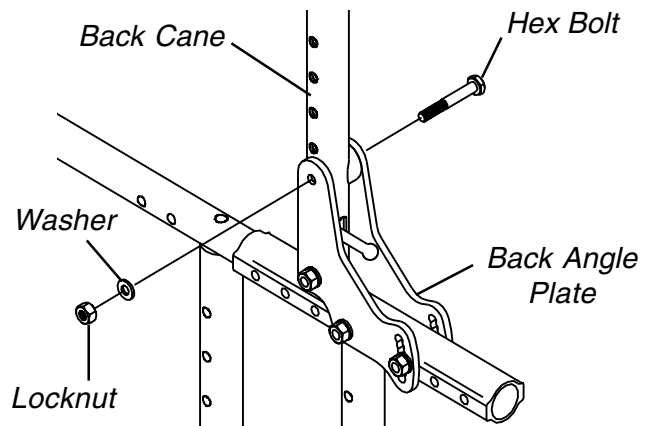
**WARNING**

The back canes **MUST** be fastened securely to the seat frame **BEFORE** using the wheelchair.

**WARNING**

**DO NOT** overtighten hex bolts. Overtightening hex bolts will prohibit the free movement of the back canes, preventing the back canes from locking properly.

- Secure the new back canes to the back angle plates with hex bolts and locknuts. Torque to 35-inch pounds. Refer to **FIGURE 12** for correct hardware orientation.
- If necessary, reinstall the cantilever arms onto the wheelchair. Refer to **USING/INSTALLING/HEIGHT ADJUSTMENT/CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE - CANTILEVER ARMS** in **PROCEDURE 2** of this manual.



**FIGURE 12 - ADJUSTING THE BACK HEIGHT - FIXED HEIGHT BACKS**

**Recliner Backs (FIGURE 13)**

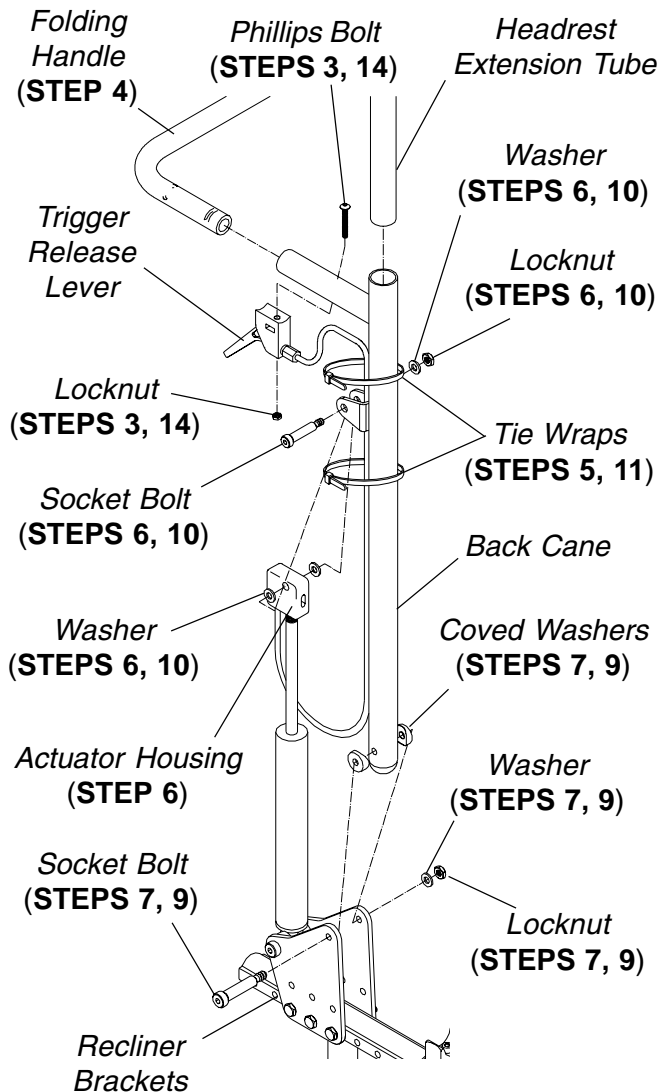
- Press the push pins on the headrest extension tubes in and remove the headrest extension from the back canes.
- Remove the existing recliner back upholstery from the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in this section of the manual.
- Remove the phillips bolts and locknuts that secure the existing folding push handle and trigger release levers to the back cane.
- Remove the folding handle from the wheelchair.
- Cut the tie wraps that secure the recliner cables to the existing back canes.
- Remove the socket bolts, washers and locknuts that secure the actuator housing to the existing back canes.
- Remove the socket bolts, coved washers, washers and locknuts that secure the existing back canes to the recliner brackets.



- Remove the existing back canes from the recliner brackets.

**WARNING**  
The back canes **MUST** be fastened securely to the seat frame **BEFORE** using the wheelchair.

- Position the new back canes on the recliner brackets and tighten securely with the socket bolts, coved washers, washers and locknuts.
- Position the actuator housings on the new back canes and tighten securely with the socket bolts, washers and locknuts.
- Secure the recliner cables to the new back canes with tie wraps.
- Insert the folding handle into the new back canes.
- Position the recliner handles on the new back canes.



**FIGURE 13 - ADJUSTING THE BACK HEIGHT - RECLINER BACKS**

- Securely tighten the recliner handles and folding handle to the new back canes with the phillips bolts and locknuts.
- Install the new back upholstery onto the back canes. Refer to **REPLACING BACK UPHOLSTERY** in this section of the manual.
- Install the headrest extension into the new back canes.

**REPLACING THE LOCKING MECHANISM IN THE BACK CANE (FIGURE 14)**

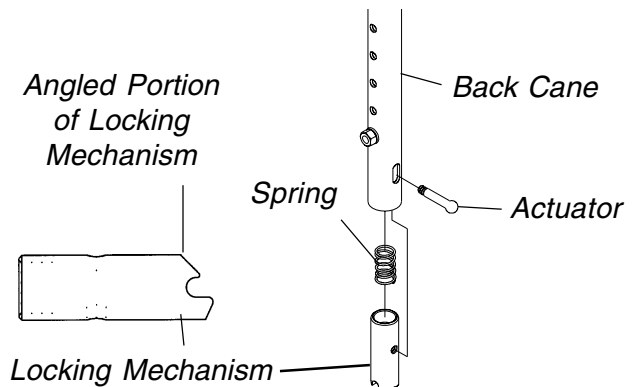
**CAUTION**  
The locking mechanism in the back canes is spring loaded. Slowly remove the back canes from the wheelchair to prevent the springs from being lost.

**NOTE:** The following procedure is for non-recliner wheelchairs only.

- Move the back cane down and out of the way.
- Unthread the actuator from the locking mechanism.
- Slowly let the locking mechanism and spring slide out of the back cane.

**NOTE:** Inspect the spring and clean or replace if necessary.

- Slide the new locking mechanism and spring into the back cane.
- Make sure the angled end of the locking mechanism is pointing up towards the locking pin on the adjustment plate.
- Use Loctite 242 and securely tighten the actuator into the locking mechanism.
- To lock the back canes, pull up on the back canes until there is an audible click.
- Push back and forth on the back canes to make sure they are locked in place.



**FIGURE 14 - REPLACING THE LOCKING MECHANISM IN THE BACK CANE**

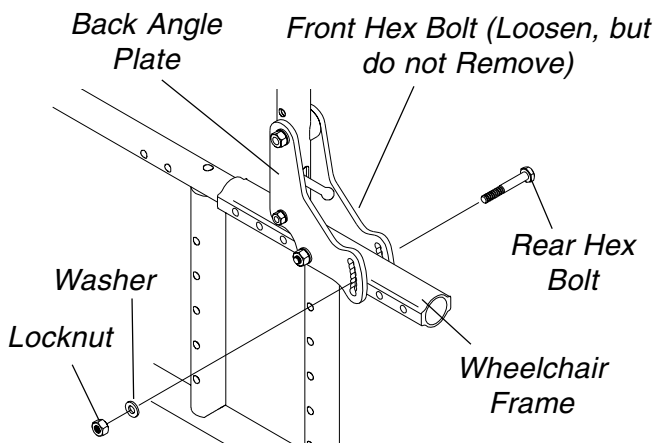
**B  
A  
C  
K**

**CHANGING THE BACK ANGLE**

**WARNING**

The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

1. Loosen, but do not remove the front hex bolt that secures the back angle plate to the wheelchair frame (FIGURE 15).



**FIGURE 15 - CHANGING THE BACK ANGLE**

2. Remove the rear hex bolt, washer and locknut that secure the back angle plates to the wheelchair frame (FIGURE 15).
3. Refer to FIGURE 16 to determine the mounting hole in the back angle plates for the necessary back angle.
4. Reinstall the rear hex bolt, washer and securely tighten with locknut. Refer to FIGURE 15 for correct hardware orientation.
5. If the wheelchair is equipped with cantilever arms, adjust the arms to keep them parallel to the ground/floor. Refer to USING/INSTALLING/HEIGHT ADJUSTMENT/CORRESPONDING ARM ADJUSTMENT TO BACK ANGLE - CANTILEVER ARMS in PROCEDURE 2 of this manual.

**NOTE:** If the wheelchair has become less stable after changing the back angle, reposition the rear wheels. Refer to ADJUSTING THE WHEELBASE LENGTH in PROCEDURE 6 of this manual.

**REPOSITIONING THE BACK (CHANGING SEAT DEPTH)**

**WARNING**

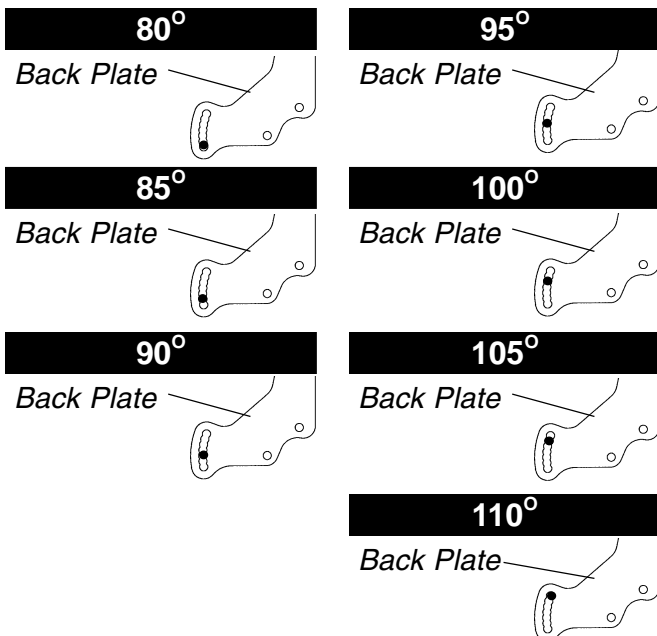
The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

**Non-Recliners (FIGURE 17)**

1. Determine the necessary back position for the desired seat depth of the wheelchair. Refer to CHANGING SEAT DEPTHS in PROCEDURE 10 of this manual.
2. Remove the rear wheels from the wheelchair. Refer to REMOVING/INSTALLING REAR WHEELS in PROCEDURE 6 of this manual.
3. Remove the four (4) hex bolts, washers and locknuts that secure the four (4) back angle plates to the wheelchair frame.

**NOTE:** Note the back angle before removing the hex screws for reinstallation.

4. Line up the mounting holes in the back angle plates with the mounting holes determined in STEP 1.



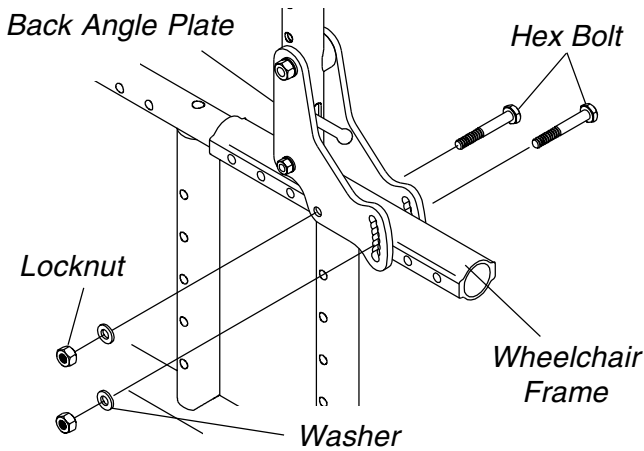
**FIGURE 16 - BACK ANGLE PLATE MOUNTING HOLES FOR CORRESPONDING BACK ANGLES**

- Reinstall the hex bolts that secure the back angle plates to the wheelchair frame. Make sure the back is at the desired angle.

**NOTE: Make sure the four (4) back angle plates are at the same angle BEFORE using the wheelchair**

- Secure the back angle brackets to the wheelchair frame with the washers and locknuts.
- Reinstall the rear wheels onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.

**NOTE: If the wheelchair has become less stable after repositioning the back to the desired seat depth, reposition the rear wheels. Refer to ADJUSTING THE WHEELBASE LENGTH in PROCEDURE 6 of this manual.**



**FIGURE 17 - REPOSITIONING THE BACK (CHANGING SEAT DEPTH) - NON-RECLINERS**

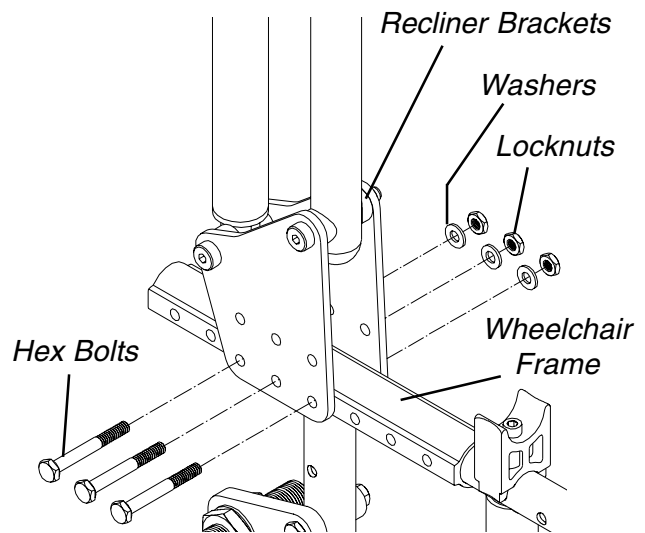
**Recliners (FIGURE 18)**

**WARNING**  
**NEVER use the rear two (2) recliner bracket mounting holes when using the recliner option. Using the rear two (2) recliner bracket mounting holes WILL make the wheelchair less stable, possibly causing injury.**

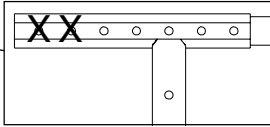
- Determine the necessary back position for the desired seat depth of the wheelchair. Refer to **CHANGING SEAT DEPTHS** in **PROCEDURE 10** of this manual.
- Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
- Remove the hex bolts, washers and locknuts that secure the recliner brackets to the wheelchair frame.

- Line up the mounting holes in the recliner brackets with the mounting holes determined in **STEP 1**.
- Reinstall the hex bolts, washers and locknuts through the recliner brackets and wheelchair frame and tighten securely. Refer to **FIGURE 18** for correct hardware orientation.
- Reinstall the rear wheels onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.

**NOTE: If the wheelchair has become less stable after repositioning the back to the desired seat depth, reposition the rear wheels. Refer to ADJUSTING THE WHEELBASE LENGTH in PROCEDURE 6 of this manual.**



**NEVER USE THE REAR TWO (2) RECLINER BRACKET MOUNTING HOLES**



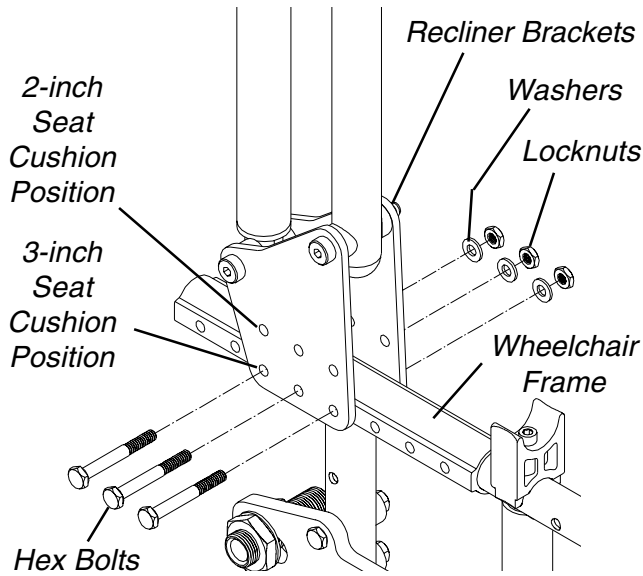
**FIGURE 18 - REPOSITIONING THE BACK (CHANGING SEAT DEPTH) - RECLINERS**

**REPOSITIONING BACK FOR 2 OR 3-INCH SEAT CUSHION - RECLINERS ONLY (FIGURE 19)**

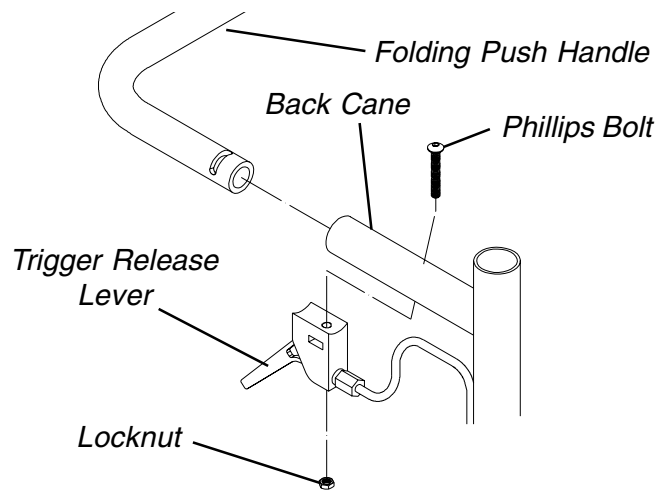
- Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
- Remove the hex bolts, washers and locknuts that secure the recliner brackets to the wheelchair frame.
- Refer to **FIGURE 19** to determine the recliner bracket mounting position for the corresponding seat cushion height.

**B  
A  
C  
K**

4. Position the recliner brackets on the wheelchair frame at the position determined in **STEP 3**.
5. Reinstall the hex bolts, washers and locknuts through the recliner brackets and wheelchair frame and tighten securely. Refer to **FIGURE 19** for correct hardware orientation.
6. Reinstall the rear wheels onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.



**FIGURE 19 - REPOSITIONING BACK FOR 2 OR 3-INCH SEAT CUSHION - RECLINERS ONLY**



**FIGURE 20 - REPLACING FOLDING PUSH HANDLE - RECLINERS ONLY**

**INSTALLING AND REMOVING A SEATING SYSTEM**

If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal.

**REPLACING FOLDING PUSH HANDLE - RECLINERS ONLY (FIGURE 20)**

**NOTE: Refer to the SAFETY/HANDLING section of this manual to fold and unfold the wheelchair.**

1. Remove the phillips bolts and locknuts that secure the existing folding push handle and trigger release levers to the back cane.
2. Remove the existing folding push handle from the back canes.
3. Install the new folding push handle into the back canes.
4. Line up the mounting holes in the new folding push handle with the mounting holes in the back canes.
5. Reinstall the phillips bolts through the trigger release levers, back canes and the new folding push handle and tighten securely with the locknuts.

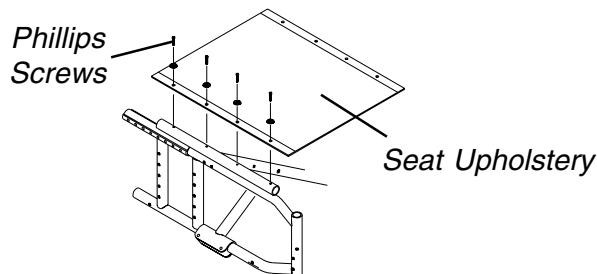
***This Procedure Includes the Following:******Replacing Seat Upholstery******Changing/Repositioning Seat Rails******Repositioning the Crossbraces******Changing Seat Width*****WARNING**

After adjustments and before use, make sure all attaching hardware is securely tightened.

**REPLACING SEAT UPHOLSTERY (FIGURE 1)**

**NOTE:** The following procedure is for standard folding frames only.

1. Remove the phillips screws that secure the existing seat upholstery to the crossbraces.
2. Remove the existing seat upholstery from the crossbraces.
3. Install the new seat upholstery by reversing **STEPS 1-2**.

**FIGURE 1 - REPLACING SEAT UPHOLSTERY****CHANGING/REPOSITIONING SEAT RAILS (FIGURE 2)**

**NOTE:** The following procedure is for standard folding frames only.

**WARNING**

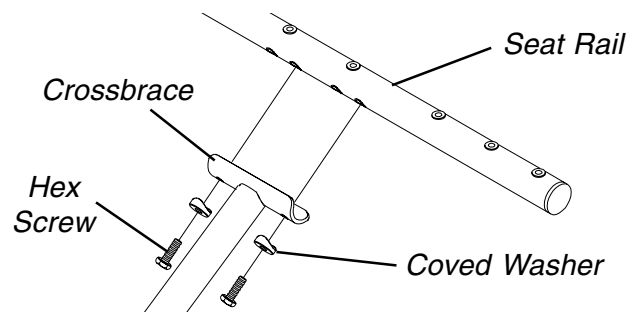
The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

1. Determine if new seat rails are needed or if the existing seat rails need to be repositioned for the desired seat depth of the wheelchair. Refer to **CHANGING SEAT DEPTH** in **PROCEDURE 10** of this manual.
2. Remove the seat upholstery from the wheelchair. Refer to **REPLACING THE SEAT UPHOLSTERY** in this section of the manual.

**NOTE:** If adjusting the seat width of the wheelchair, the back and seat upholstery **MUST** be changed as well.

3. Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
4. Unfold the wheelchair and lay wheelchair on its side. If necessary, refer to the **SAFETY/HANDLING** section of this manual.
5. Remove the four (4) hex screws and covered washers that secure the existing seat rails to the crossbraces.
6. Install the new or reposition the existing seat rails to the position determined in **STEP 1**.
7. Secure the new/existing seat rails to the crossbraces with the existing covered washers and hex screws.
8. Install the new seat upholstery. Refer to **REPLACING THE SEAT UPHOLSTERY** in this section of the manual.
9. Reposition the back if necessary. Refer to **REPOSITIONING THE BACK** in **PROCEDURE 3** of this manual.
10. Reinstall the rear wheels onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.

**NOTE:** If the wheelchair has become less stable after repositioning the seat rails to the desired seat depth, reposition the rear wheels. Refer to **ADJUSTING THE WHEELBASE LENGTH** in **PROCEDURE 6** of this manual.

**FIGURE 2 - CHANGING/REPOSITIONING SEAT RAILS**

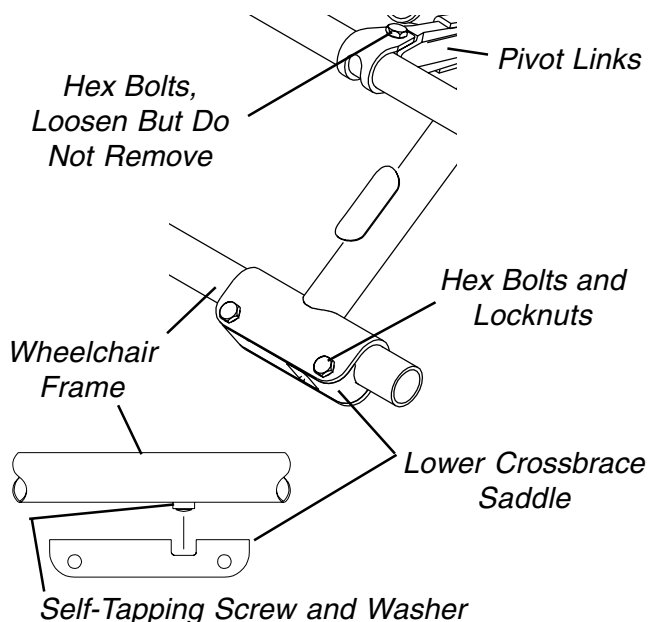
**REPOSITIONING THE CROSSBRACES  
(FIGURE 3)**

**WARNING**

The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

1. Determine the necessary self-tapping screw and washer position for the desired seat depth of the wheelchair. Refer to **CHANGING SEAT DEPTHS** in **PROCEDURE 10** of this manual.
2. Remove the hex bolts, locknuts and lower crossbrace saddles that secure the bottom of the two (2) crossbraces to the wheelchair frame.
3. Loosen, but do not remove the hex bolts and locknuts that secure the two (2) pivot links to the wheelchair frame and crossbraces.
4. Reposition the self-tapping screw and washer to the position determined in **STEP 1**.
5. Reverse **STEPS 2-3** to reassemble wheelchair.

**NOTE: If the wheelchair has become less stable after repositioning the self-tapping screw and washer to the desired seat depth, reposition the rear wheels. Refer to ADJUSTING THE WHEELBASE LENGTH in PROCEDURE 6 of this manual.**



**FIGURE 3 - REPOSITIONING THE CROSSBRACES**

**CHANGING SEAT WIDTH**

**WARNING**

The following procedure must be performed by an authorized Invacare dealer or qualified technician.

**Standard Folding Frames (FIGURE 4)**

1. Remove existing back and seat upholstery from the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** and **REPLACING SEAT UPHOLSTERY** in this section of the manual.

**NOTE: If adjusting the seat width of the wheelchair, the back and seat upholstery MUST also be changed.**

2. Remove the seat rails from the crossbraces. Refer to **CHANGING/REPOSITIONING SEAT RAILS** in this section of the manual.
3. Remove the hex bolts and locknuts that secure the two (2) pivot links to the wheelchair frame and crossbraces.
4. Remove the hex bolts, locknuts and lower crossbrace saddles that secure the bottom of the two (2) crossbraces to the wheelchair frame.
5. Remove the hex bolt, coved spacers, washers and locknut that secure the two (2) existing crossbraces together.

**NOTE: Note orientation of coved spacer, washer and locknut order for reinstallation.**

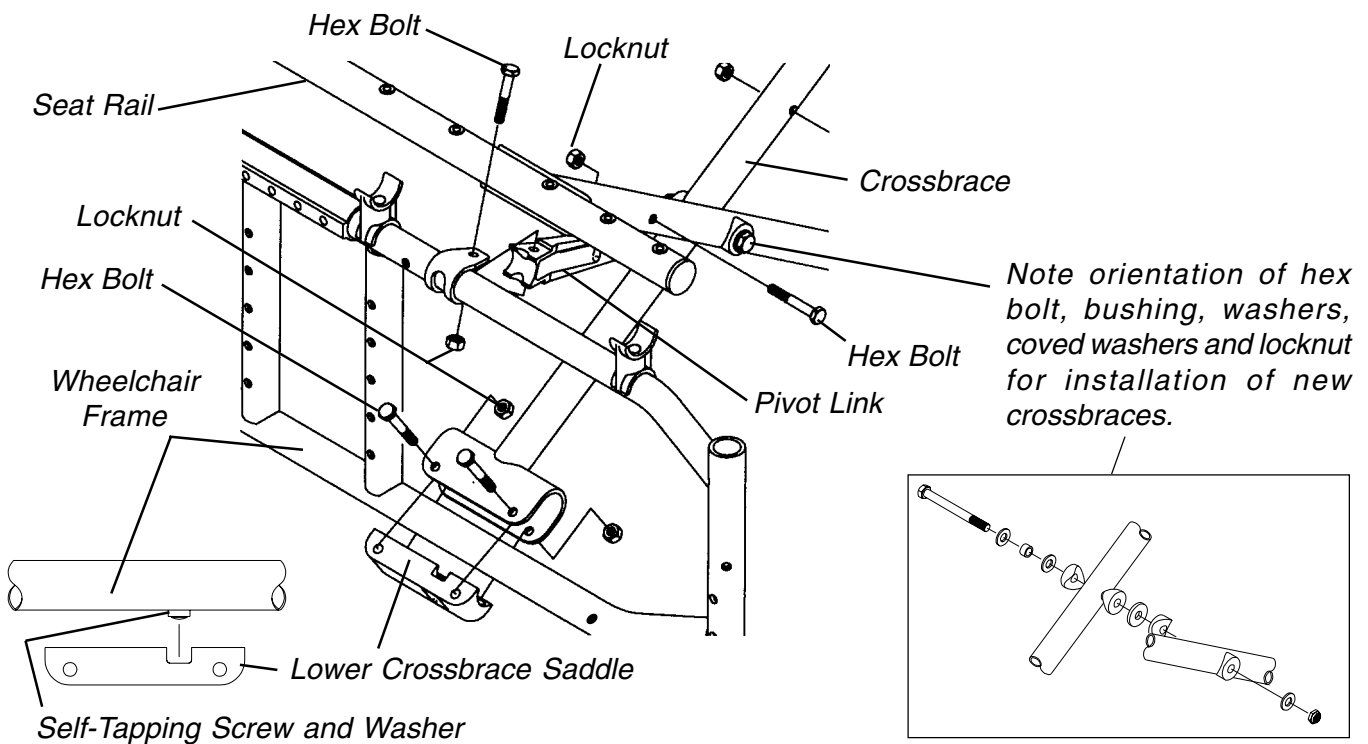
6. Assemble the two (2) new crossbraces together. Refer to **FIGURE 4** for hardware orientation.
7. Determine the mounting hole in the pivot link for the corresponding seat width.

**NOTE: Seat widths are stamped on the pivot link.**

8. Reinstall the hex bolts and locknuts that secure the pivot link to the wheelchair frame and crossbrace.
9. Reinstall the hex bolts, locknuts and crossbrace saddles that secure the bottom of the two (2) new crossbraces to the wheelchair frame.

**NOTE: Position the crossbrace saddle on wheelchair frame using the self tapping screw and washer on the underside of wheelchair frame as reference. Refer to FIGURE 4.**

10. Reinstall the seat rails onto the crossbraces. Refer to **CHANGING/REPOSITIONING SEAT RAILS** in this section of the manual.
11. Install the new back and seat upholstery onto the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** and **REPLACING SEAT UPHOLSTERY** in this section of the manual.



**FIGURE 4 - CHANGING SEAT WIDTH - STANDARD FOLDING FRAMES**

#### Folding Frames Without Seat Rails (FIGURE 5)

1. Remove upholstery or seating system from the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** of this manual.

**NOTE: If adjusting the seat width of the wheelchair, the back (if equipped) and seat upholstery MUST be changed as well.**

**NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal.**

2. Remove the hex bolts and locknuts that secure the two (2) pivot links and two (2) link stops to the wheelchair frame and crossbraces.
3. Remove the hex bolts, locknuts and lower crossbrace saddles that secure the bottom of the two (2) crossbraces to the wheelchair frame.
4. Remove the hex bolt, coved spacers, washers and locknut that secure the two (2) existing crossbraces together.

**NOTE: Note orientation of coved spacer, washer and locknut order for reinstallation.**

5. Assemble the two (2) new crossbraces together. Refer to **FIGURE 5** for hardware orientation.
6. Determine the mounting hole in the pivot link for the corresponding seat width.

**NOTE: Seat widths are stamped on the pivot link. Always align the holes in the pivot link and link stop.**

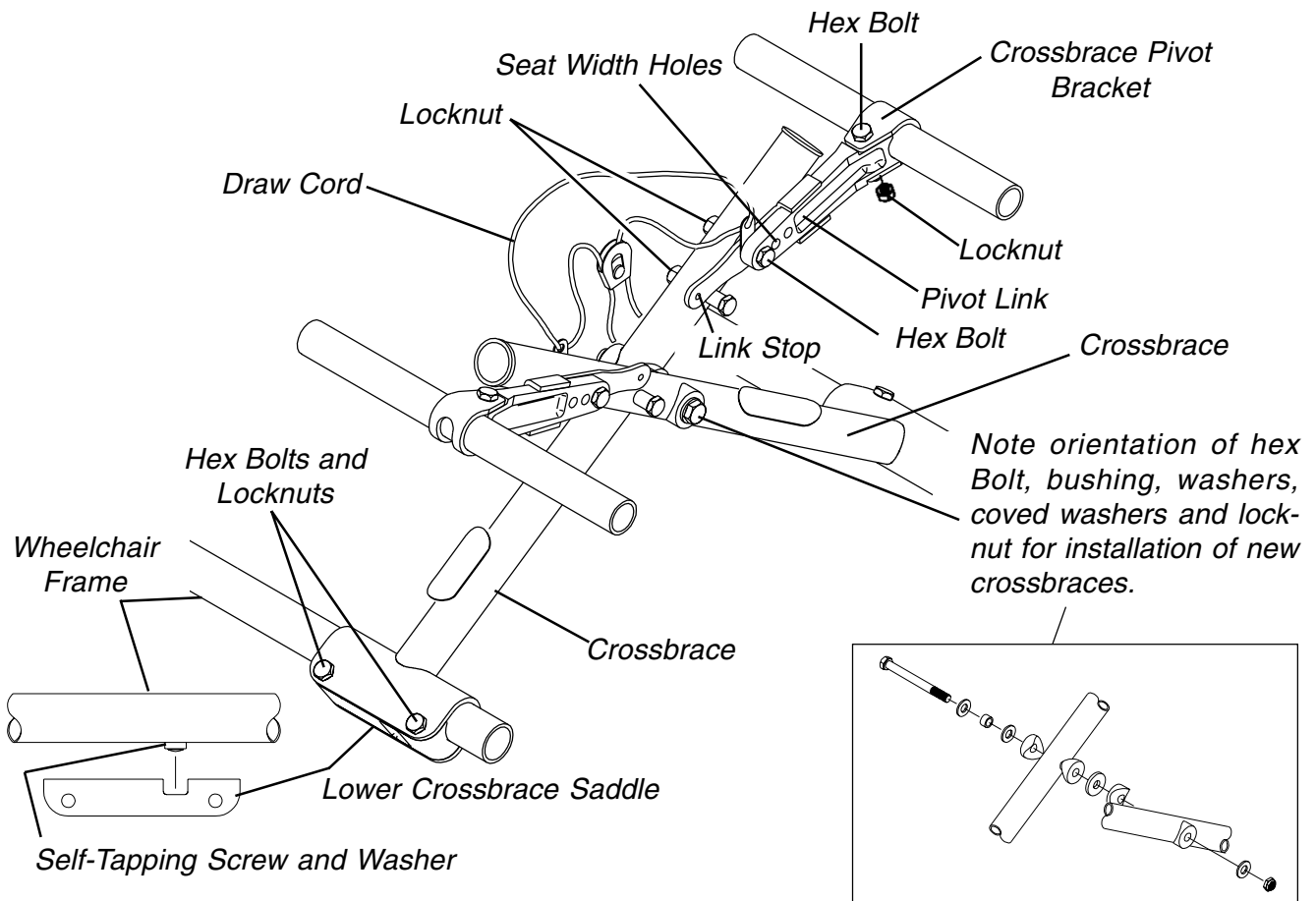
7. Align the three (3) holes in pivot link and link stop and reinstall the hex bolts and locknuts that secure the pivot link and link stop to the wheelchair frame and crossbrace.
8. Reinstall the hex bolts, locknuts and crossbrace saddles that secure the bottom of the two (2) new crossbraces to the wheelchair frame.

**NOTE: Position crossbrace saddle on wheelchair frame using the self tapping screw and washer on the underside of wheelchair frame as reference. Refer to FIGURE 5.**

9. Install the new upholstery or seating system onto the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** of this manual.

**NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal.**

SEAT



**FIGURE 5 - CHANGING SEAT WIDTH - FOLDING FRAMES WITHOUT SEAT RAILS**

**Rigid Frames (FIGURE 6)**

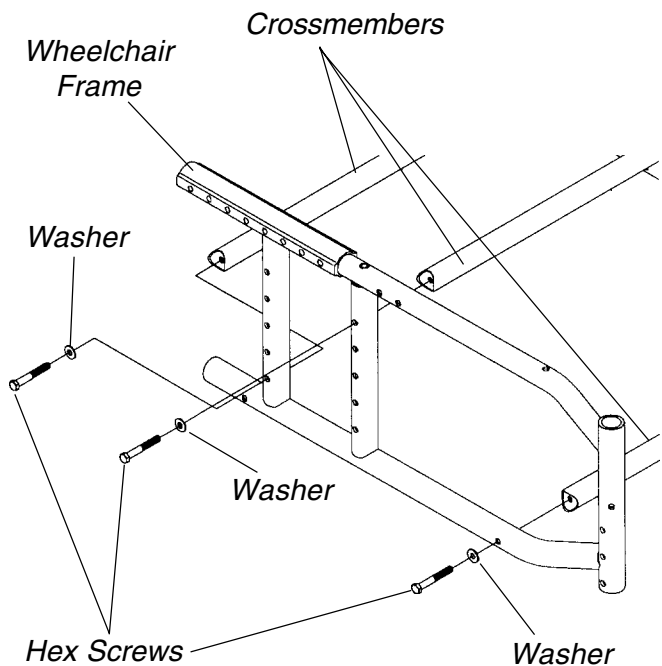
1. Remove the existing back upholstery from the wheelchair if so equipped. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** of this manual.
2. Remove the existing seating system from the wheelchair if so equipped.

**NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal.**

3. Remove the six (6) hex screws and washers that secure the three (3) existing rigid crossmembers to the wheelchair frame.
4. Install the new crossmembers onto the wheelchair by reversing **STEP 3**. Refer to **FIGURE 6** for correct hardware orientation.
5. Install the new seating system onto the wheelchair.

**NOTE: If a seating system is being used on the wheelchair, refer to the seating system Owner's Manual for installation and removal.**

6. Install the new back upholstery, if so equipped, onto the wheelchair. Refer to **REPLACING BACK UPHOLSTERY** in **PROCEDURE 3** of this manual.



**FIGURE 6 - CHANGING SEAT WIDTH - RIGID FRAMES**



**This Procedure Includes the Following:**

*Replacing/Repositioning/Installing Front Caster Assemblies*

*Replacing Front Fork*

*Repairing/Replacing Front Caster Tire/Tube*

*90° Adjustment of the Caster Headtubes*

*Caster Headtube Mounting Adjustments*

*Installing Quick-Release Casters*

**WARNING**

After adjustments and before use, make sure all attaching hardware is securely tightened.

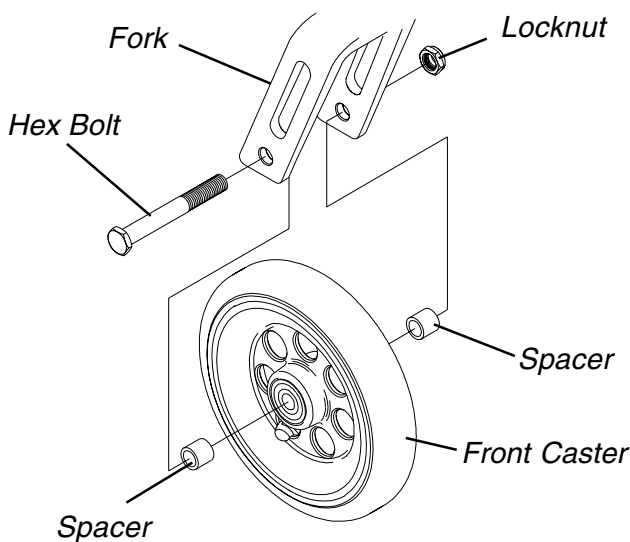
**REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES (FIGURE 1)**

1. Remove the hex bolt, spacers and locknut that secure the front caster to the fork.
2. Remove the front caster from the fork.

**NOTE:** If replacing a front caster on a six or eight inch front fork, note the mounting position of the existing front caster for installation of the new front caster.

**NOTE:** If repositioning front casters on a six or eight inch front fork, refer to **CHANGING SEAT-TO-FLOOR HEIGHT** in **PROCEDURE 9** of this manual to determine the front caster position needed for the required seat-to-floor height.

3. Replace front caster and reverse **STEPS 1- 2**.



**FIGURE 1 - REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES**

**REPLACING FRONT FORK (FIGURE 2)**

1. Remove the front caster assemblies from the wheelchair. Refer to **REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES** in this section of the manual.
2. Remove the head tube cap.
3. Remove the locknut and nylon washer.
4. Drop the fork out of the caster head tube.
5. Slide the new fork into the caster head tube.

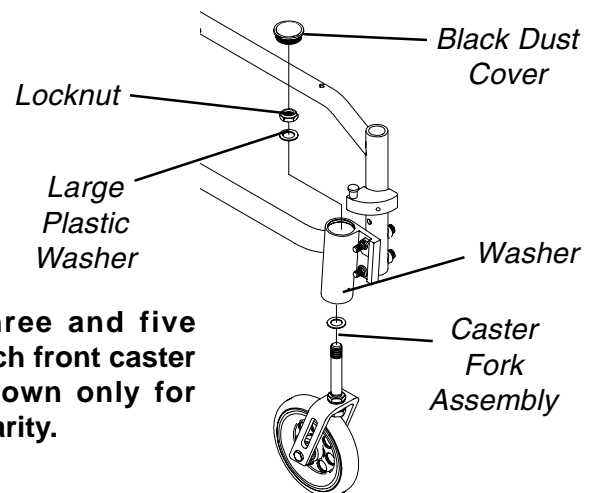
**NOTE:** Check bearing assemblies and replace if necessary.

6. Ensure that fork slides completely into the caster head tube.
7. Install nylon washer and secure with locknut.

**WARNING**

Improper positioning of the washer will prohibit the free movement of the forks.

8. Remove the front caster assemblies from the wheelchair. Refer to **REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES** in this section of the manual.
9. To properly tighten caster journal system and guard against flutter, perform the following check:
  - a. Tip front of wheelchair off floor.
  - b. Pivot 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. Adjust locknuts according to freedom of caster swing.
  - e. Test wheelchair for maneuverability.



Three and five inch front caster shown only for clarity.

**FIGURE 2 - REPLACING FRONT FORK**

**REPLACING/REPAIRING FRONT CASTER TIRE/TUBE**

**WARNING**

Replacement of front caster tire or tube **MUST** be performed by an authorized Invacare dealer or qualified technician.

**CAUTION**

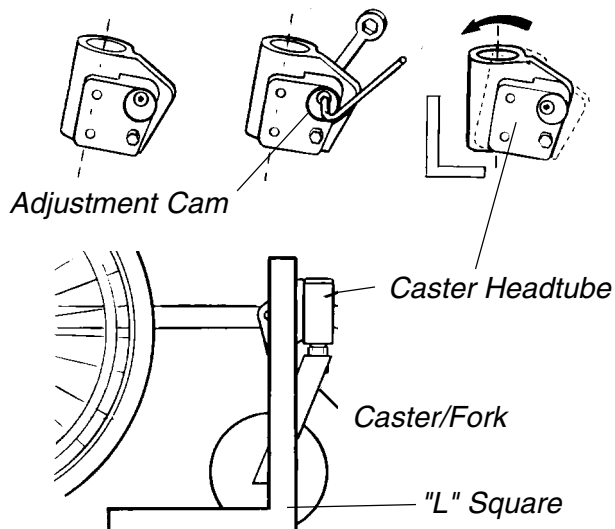
As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.

**90° ADJUSTMENT OF THE CASTER HEADTUBES**

Whenever the seat height is raised or lowered by changing the caster size, fork stem length, rear wheel size or axle mounting plate adjustments, the caster headtube needs to be checked to maintain a 90° angle to the ground/floor. Caster headtubes that are perpendicular to the floor will roll better, track straighter and minimize any "3-wheeling" of the wheelchair.

**Inline Caster Headtubes (FIGURE 3)**

1. Make sure the wheelchair is on a flat surface.
2. Loosen, but do not remove the bottom hex screw, washer and locknut that secure the caster headtube to the wheelchair frame.
3. Loosen, but do not remove the locknut and washer that secure the adjustment cam to the caster headtube.
4. Position a large right triangle or "L" square on the flat surface and against the caster headtube.

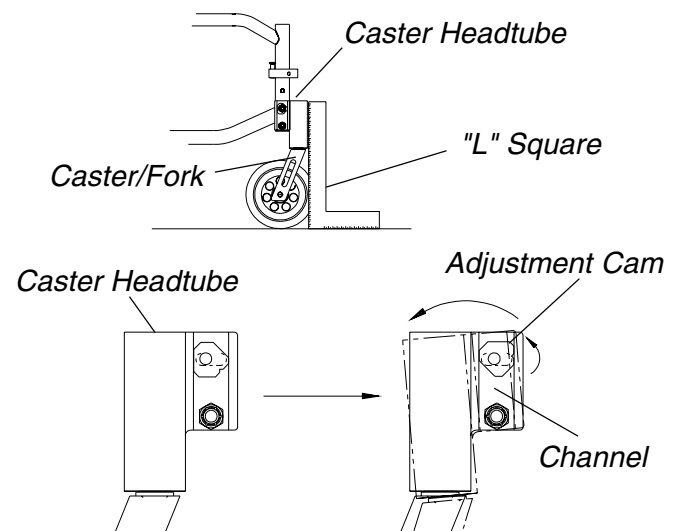


**FIGURE 3 - INLINE CASTER HEADTUBES**

5. Move the caster headtube back and forth until the caster headtube is perpendicular to the ground/floor.
6. While holding the caster headtube perpendicular to the ground/floor, securely tighten the adjustment cam to the caster headtube.
7. Make sure the caster headtube is still perpendicular to the ground/floor by placing the large right triangle or "L" square on the flat surface and against the caster headtube.
8. Securely tighten the hex bolt, washer and locknut that secure the caster headtube to the wheelchair frame.

**Offset Caster Headtubes (FIGURE 4)**

1. Make sure the wheelchair is on a flat surface.
2. Loosen, but do not remove the bottom socket bolt, washer and locknut that secure the caster headtube to the wheelchair frame.
3. Remove the TOP washer and locknut that secure the adjustment cam to the caster headtube.
4. Remove the adjustment cam from the caster headtube.
5. Position a large right triangle or "L" square on the flat surface and against the caster headtube.
6. Move the caster headtube back and forth until the caster headtube is perpendicular to the ground/floor.
7. Reinstall the adjustment cam onto the TOP socket screw that secures the adjustment cam to the caster headtube.



**FIGURE 4 - OFFSET CASTER HEADTUBES**

- Rotate the adjustment cam until it sits flush in the channel of the caster headtube.

**NOTE: An indexing notch has been put on the adjustment cam to help determine the position of the adjustment cam on the opposite caster headtube.**

- Reinstall the washer and locknut that secure the adjustment cam to the caster headtube.
- Repeat **STEPS 2-9** for the opposite side of the wheelchair.

**CASTER HEADTUBE MOUNTING ADJUSTMENTS (FIGURE 5)**

**Leading or Trailing Caster Headtube Positioning  
Offset Caster Headtubes Only**

**LEADING.** Mount the casters on the wheelchair frame with the caster headtube towards the front of the wheelchair to **Lengthen the Wheelbase.**

**TRAILING.** Mount the casters on the wheelchair frame with the caster headtube towards the rear of the wheelchair to **Shorten the Wheelbase.**

**NOTE: The wheelchair is shipped from the factory with the caster headtube in the TRAILING position.**

**Mounting Caster Headtubes on the Inside of the Wheelchair Frame**

**WARNING**  
Mounting casters on the inside of the wheelchair frame **WILL** reduce the stability of the wheelchair. Try various caster positions to find the safest caster position for your needs.

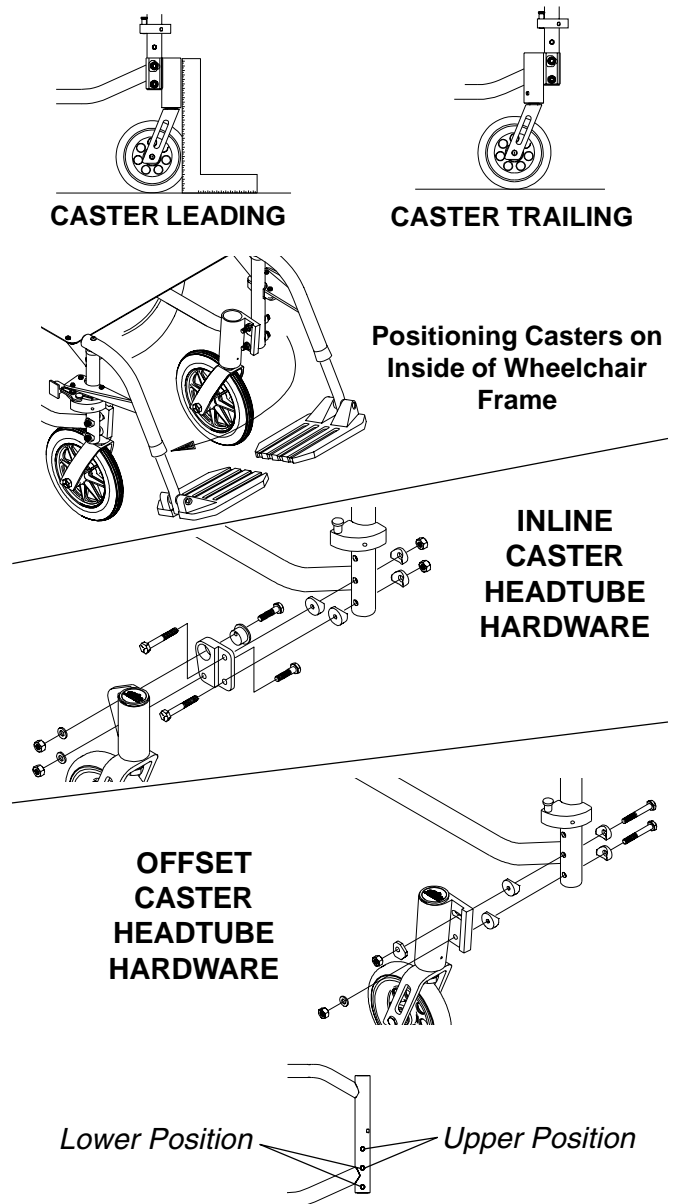
**NOTE: To mount the caster headtubes on the inside of the wheelchair frame, reposition the right caster headtube on the left side of the wheelchair and the left caster headtube on the right side of the wheelchair.**

**Height Adjustment**

Depending on the seat-to-floor height required, it may be necessary to reposition the caster headtube on the wheelchair frame to an upper or lower position.

**Repositioning the Caster Headtubes**

- Determine the front caster position required for the desired seat-to-floor height. Refer to **CHANGING SEAT-TO-FLOOR HEIGHT** in **PROCEDURE 9** of this manual.
- Remove the attaching hardware that secures the caster headtube to the wheelchair.
- Reposition the caster headtube to the position determined in **STEP 1**.
- Re-secure the caster headtube to the wheelchair with the existing hardware. Refer to **FIGURE 5** correct hardware orientation.
- Repeat **STEPS 2-4** for the opposite side of the wheelchair.



**FIGURE 5 - CASTER HEADTUBE MOUNTING ADJUSTMENTS**

**INSTALLING QUICK-RELEASE CASTERS (FIGURE 6)**

**C  
A  
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S**

**WARNING**  
Pull on quick-release casters each time BEFORE using the wheelchair to make sure they are securely locked onto the wheelchair frame. There are several configurations of the quick release caster. If caster fork stem DOES NOT look like the drawing in FIGURE 6 when installed, DO NOT USE. Contact Customer Service, 1-(800)-333-6900.

**A NOTE ABOUT QUICK-RELEASE CASTERS**

Quick-release casters are an option that allow for quick and easy removal of the casters from the wheelchair so the wheelchair can be stored and transported conveniently. When using the quick-release caster option, a spring loaded caster head tube cap will be used instead of a stem nut to secure the front caster to the chair frame. Unlike the stem nut, the caster head tube cap is not adjustable and thus caster flutter will be more evident with the quick-release caster option than it would be with the standard caster attaching hardware.

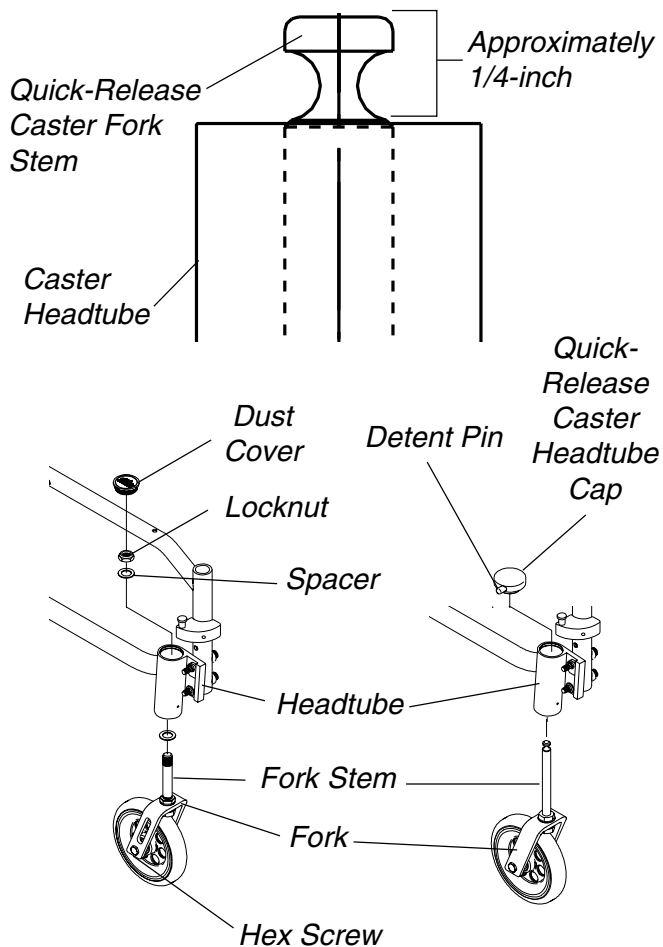
1. Remove the hex screw and locknut that secure the front caster and the two (2) spacers to the fork.
2. Remove the dust cover on the top of the head tube.
3. While holding the fork and using a socket wrench, remove the locknut that secures the fork, and spacer in the headtube of the wheelchair.

**NOTE: The dust cover and locknut are not used with the quick release casters. Keep them for future use.**

4. Remove the existing fork and install the quick release caster fork through the head tube of the wheelchair making sure the fork stem is approximately 1/4-inch above the caster head tube.

**WARNING**  
Make sure the detent pin of the quick-release caster headtube cap is fully released BEFORE operating the wheelchair.

5. Depress the detent pin of the quick-release caster headtube cap and install over the top of the quick-release caster fork stem.
6. Release the detent pin of the quick-release caster headtube cap and pull on the fork to make sure the fork is securely attached to the wheelchair.
7. Reinstall the two (2) spacers and caster onto the quick-release caster fork.
8. Repeat this procedure for the opposite side.



**FIGURE 6 - INSTALLING QUICK-RELEASE CASTERS**

- This Procedure includes the following:*
- Removing/Installing Rear Wheels*
  - Adjusting the Quick-Release Axle*
  - Installing the Quad-Release Axle*
  - Adjusting the Quad-Release Handle*
  - Handrim Replacement*
  - Installing Projection Handrims*
  - Repairing/Replacing Rear Wheel Tire/Tube*
  - Adjusting the Wheelbase Length*
  - Adjusting the Wheelbase Width*
  - Adjusting Rear Wheel Height*

**WARNING**

After adjustments and before use make sure all attaching hardware is securely tightened.

**REMOVING/INSTALLING REAR WHEELS (FIGURE 1)**

**Quick-Release Axles**

1. Push in the tip of the quick-release axle (with wheel) and pull the axle out through the opening in the center of the rear wheel.
2. Push in the tip of the quick-release axle again and pull the axle out of the rear wheel.
3. Repeat **STEPS 1-2** for the opposite rear wheel.
4. To reinstall the rear wheel onto the axle mounting plate, reverse **STEPS 1-3**.

**WARNING**

Make sure the detent pin and locking pins of the quick/quad-release axle are fully released **BEFORE** operating the wheelchair.

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

Keep locking pins clean.

5. If the locking pins 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 THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in this section of the manual.

**NOTE:** During contact activities, Invacare recommends inserting quick-release axles with the head end to the inside of the wheelchair to prevent accidental release.

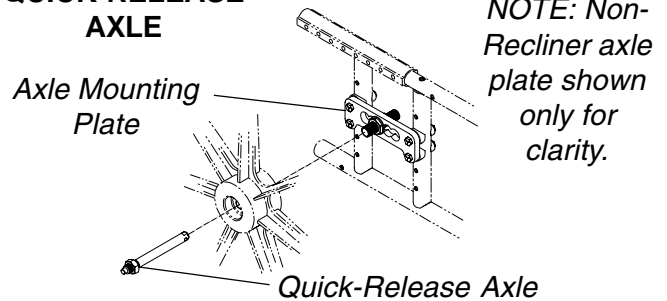
**Permanent Axles**

1. Remove the hex screw, axle spacer and locknut that secure the rear wheel to the axle mounting plate.
2. Loosely install the locknut onto the hex screw.

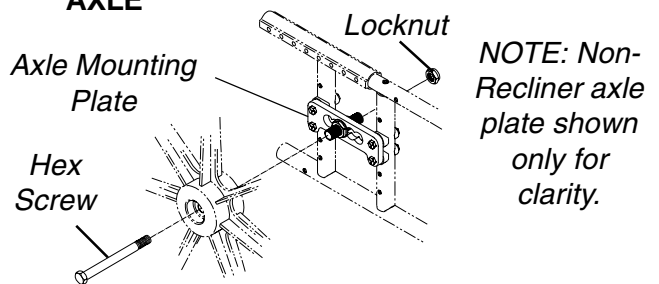
**NOTE:** This will store all necessary parts for future use.

3. Repeat **STEPS 1-2** for the opposite rear wheel.
4. To reinstall the rear wheel onto the axle mounting plate, reverse **STEPS 1-3**.

**QUICK-RELEASE AXLE**



**PERMANENT AXLE**



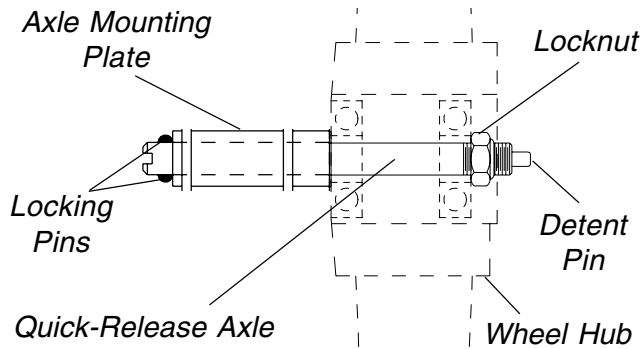
**FIGURE 1 - REMOVING/INSTALLING THE REAR WHEELS**

**ADJUSTING THE QUICK-RELEASE AXLE (FIGURE 2)**

1. Remove rear wheel and quick-release axle from the wheelchair.
2. Depress detent pin in the quick-release axle and slide axle through the wheel hub.
3. Release detent pin ensuring that the locking pins are fully released.
4. Increase or decrease end play by adjusting the locknut on the end of the quick-release axle.

**WARNING**  
 Make sure the detent pin and locking pins of the quick-release axle are fully released **BEFORE** operating the wheelchair.  
 Keep locking pins clean.

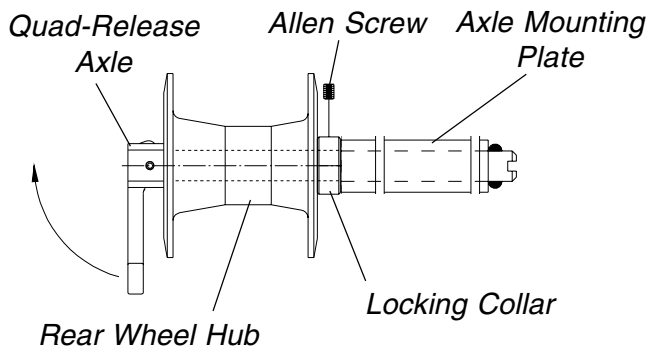
5. Reinstall rear wheel onto the wheelchair.



**FIGURE 2 - ADJUSTING THE QUICK-RELEASE AXLE**

**INSTALLING THE QUAD-RELEASE AXLE (FIGURE 3)**

1. Remove rear wheel and the existing quick-release axle from the wheelchair.
2. Remove the existing quick-release axle from the rear wheel hub.
3. Insert the new quad-release axle through the rear wheel hub.
4. Slide the locking collar onto the quad-release axle until it is snug against the rear wheel and tighten securely with the allen screw.
5. Reinstall rear wheel and the quad-release axle onto the wheelchair.



**FIGURE 3 - INSTALLING THE QUAD-RELEASE AXLE**

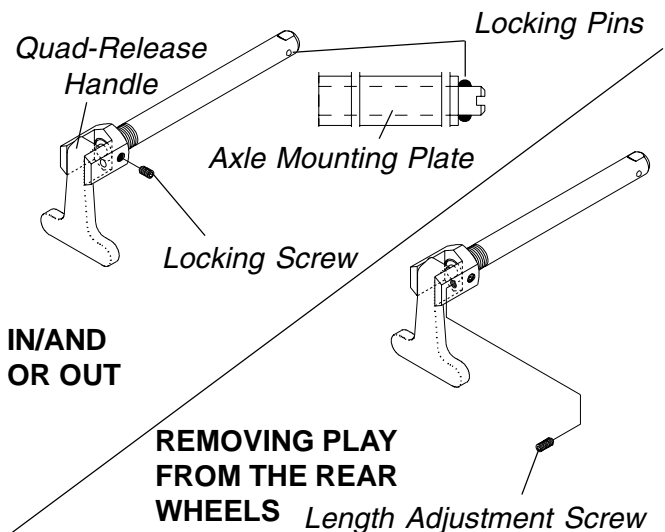
**WARNING**  
 Make sure the detent pin and locking pins of the quad-release axle are fully released **BEFORE** operating the wheelchair.  
 Keep locking pins clean.

6. Flip the handle of the quad-release axle down to release the detent pin ensuring that the locking pins are fully released.
7. If detent pin does not fully release, proceed to **ADJUSTING THE QUAD-RELEASE HANDLE**.
8. Repeat **STEPS 1-7** for the opposite rear wheel.

**ADJUSTING THE QUAD-RELEASE HANDLE (FIGURE 4)**

**In and/or Out**

1. Remove rear wheel and the quad-release axle from the wheelchair.
2. Loosen the locking screw.
3. Make the following adjustments:  
 If the quad-release handle is **not releasing the locking pins completely**, rotate the quad-release handle approximately **one-quarter (1/4) turn CLOCKWISE**.  
 If the quad-release handle **hits the spokes** of the rear wheel when assembled, rotate the quad-release handle approximately **one-quarter (1/4) turn COUNTERCLOCKWISE**.
4. Tighten the locking screw.
5. Reinstall the rear wheel and quad-release axle onto the wheelchair.



**FIGURE 4 - ADJUSTING QUAD-RELEASE AXLE**

**WARNING**  
 Make sure the detent pin and locking pins of the quad-release axle are fully released BEFORE operating the wheelchair.  
 Keep locking pins clean.

- Flip the handle of the quad-release axle down to release the detent pin ensuring that the locking pins are fully released.
- Repeat the above procedures until the quad-release axle locks correctly.

**Removing the Play From the Rear Wheels**

**NOTE:** The adjusting nut on the quick-release axles originally performed this function.

- With the rear wheel and quad-release axle still mounted onto the wheelchair, make the following adjustment:  
 Tighten the length adjusting screw until there is no in and out movement of the quad-release axle and rear wheel.

**HANDRIM REPLACEMENT (FIGURE 5)**

**Spoke Rear Wheels**

- Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.

**WARNING**  
 Tire **MUST** be deflated before any disassembly procedures are performed.

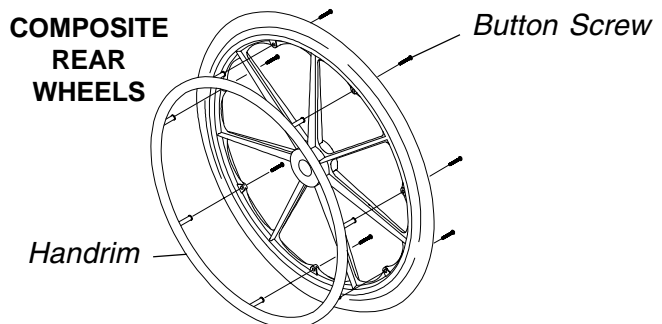
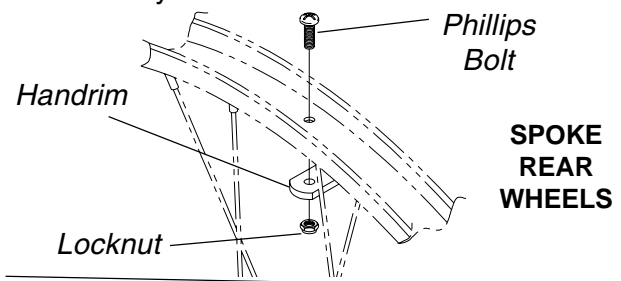
- Remove all air from the bar by pressing down on the pin in the center of the valve stem.
- While carefully holding the tire, bar and rim strip to one side, hold the phillips bolts and remove the locknuts that secure the handrim to the rear wheel.
- Remove the existing handrim.
- Install the new handrim by reversing the above procedures.

**WARNING**  
 DO NOT inflate tire until it is completely assembled.

- Inflate the tire to the correct psi rating on the sidewall of the tire.

**WARNING**  
 Make sure detent pin and locking pins of the quick/quad-release axles are fully released BEFORE operating the wheelchair.

- Reinstall rear wheel to the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.
- If the locking pins of the quick/quad-release axles 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 THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in this section of the manual.
- Repeat the procedure for the opposite rear wheel if necessary.



**FIGURE 5 - HANDRIM REPLACEMENT**

**Composite Rear Wheels**

- Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.
- Remove the button screws and washers that secure the handrim to the rear wheel.
- Remove the existing handrim.
- Install the new handrim by reversing the above procedures.

**WARNING**  
 Make sure detent pin and locking pins of the quick/quad-release axles are fully released BEFORE operating the wheelchair.

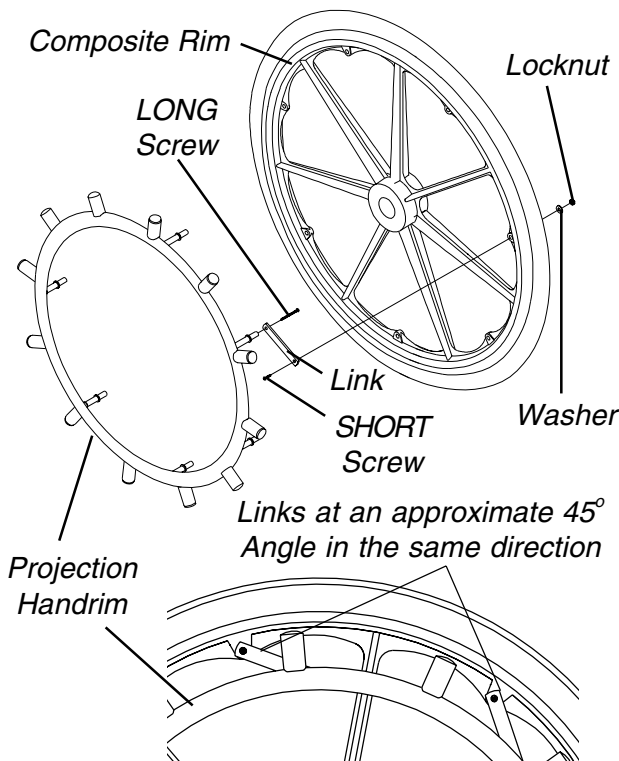
5. Reinstall rear wheel to the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.
6. If the locking pins of the quick/quad-release axles are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to **ADJUSTING THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in this section of the manual.
7. Repeat the procedure for the opposite rear wheel if necessary.

**INSTALLING PROJECTION HANDRIMS**

**NOTE:** The following procedures will work for any type of projection handrim.

**Composite Rear Wheels (FIGURE 6)**

1. Remove the rear wheel from the wheelchair.
2. Remove the existing handrim from the rear wheel. Refer to **HANDRIM REPLACEMENT** in this section of the manual.
3. Using the LONG screws, assemble the links to the projection handrim.
4. Position one (1) link with one (1) of the mounting holes in the rear wheel.



**FIGURE 6 - INSTALLING PROJECTION HANDRIMS - COMPOSITE REAR WHEELS**

5. Install a SHORT screw through the link and the rear wheel and loosely tighten with washer and locknut.
6. Repeat **STEPS 3** and **4** for one (1) link on the opposite side of the rear wheel.

**NOTE:** The links will attach to the rear wheel at an approximate 45° angle in the same direction.

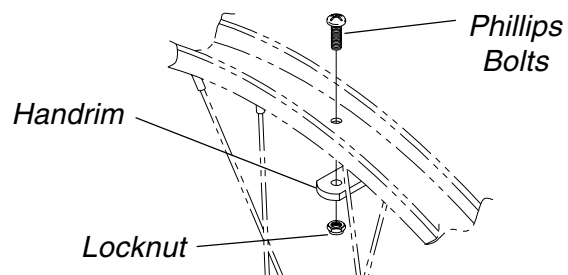
7. Repeat **STEPS 3** and **4** for the remaining links.
8. Securely tighten the washers and locknuts that secure the projection handrim to the rear wheel.
9. Reinstall the rear wheel onto the wheelchair.
10. If the locking pins of the quick/quad-release axles are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to **ADJUSTING THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in this section of the manual.
11. Repeat the procedure for the opposite rear wheel.

**Spoke Rear Wheels (FIGURE 7)**

1. Remove the rear wheel from the wheelchair.

**WARNING**  
Tire **MUST** be deflated before any disassembly procedures are performed.

2. Remove all air from the tire by pressing down on the pin in the center of the valve stem.
3. While carefully holding the tire, bar and rim strip to one side, hold the phillips bolts and remove the locknuts that secure the handrim to the rear wheel.
4. Remove the existing handrim from the rear wheel.
5. Position the projection handrim mounting holes with the mounting holes in the rear wheel.
6. While carefully holding the tire, bar and rim strip to one side, hold the phillips bolts and securely tighten the locknuts that secure the handrim to the rear wheel.



**FIGURE 7 - INSTALLING PROJECTION HANDRIMS - SPOKE REAR WHEELS**



**WARNING**  
**DO NOT** inflate tire until it is completely assembled.

- Inflate the tire to the correct psi rating on the sidewall of the tire.

**WARNING**  
 Make sure detent pin and locking pins of the quick/quad-release axles are fully released **BEFORE** operating the wheelchair.

- Reinstall rear wheel to the wheelchair.
- If the locking pins of the quick/quad-release axles 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 THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE HANDLE** in this section of the manual.
- Repeat the procedure for the opposite rear wheel if necessary.

**REPAIRING/REPLACING REAR WHEEL TIRE/TUBE**

**WARNING**  
 Replacement of a rear wheel tire or tube **MUST** be performed by an authorized Invacare dealer or qualified technician.

**ADJUSTING THE WHEELBASE LENGTH (FIGURE 8)**

**WARNING**  
 The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

**RECLINERS ONLY:** Before using ANY recline position of this wheelchair, make sure the rear wheels are in the **MOST REARWARD** position in the Extended Multi-Position axle plate to maintain the stability of the wheelchair. Do not change the handling/maneuverability of the wheelchair by moving the rear wheels to ANY of the forward positions. Moving the rear wheels to ANY of the forward positions **WILL** change the center of gravity of the wheelchair, making the wheelchair less stable.

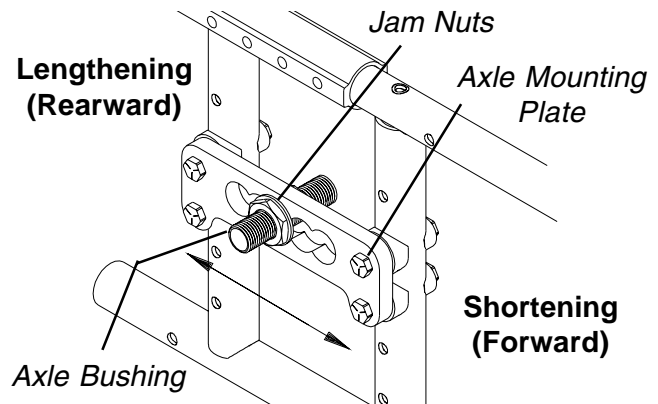
**WARNING**  
 Wheel locks **MUST** be adjusted **BEFORE** using the wheelchair.  
 Anti-tippers, if equipped, **MUST** be repositioned **BEFORE** using the wheelchair.

**Lengthening the Wheelbase** will increase stability and maintain standard maneuverability of the wheelchair.

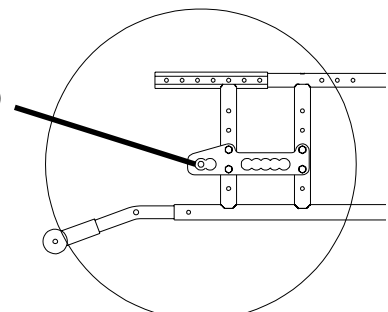
**Shortening the Wheelbase** will increase maneuverability and distribute additional weight onto the rear wheels.

**Centering the Wheelbase** gives you maneuverability and stability.

- Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.
- Loosen the two (2) jam nuts that secure the axle bushing to the axle mounting plate.
- Move the axle bushing forward or rearward to the desired position.
- Securely tighten the jam nuts that secure the axle bushing to the axle mounting plate.
- Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this section of the manual.
- Repeat **STEPS 1-5** for the opposite side of the wheelchair.



Make sure the rear wheels are in the **MOST REARWARD** position to maintain the stability of the wheelchair



**FIGURE 8 - ADJUSTING THE WHEELBASE LENGTH**

**NOTE:** Make sure the number of threads showing beyond the outside jam nut is the SAME for both rear wheels. This will help avoid a "3-wheeling" situation.

7. Adjust the wheel locks. Refer to **ADJUSTING THE WHEEL LOCKS** in **PROCEDURE 7** of this manual.
8. If wheelchair is equipped with anti-tippers, adjust to maintain proper clearance. Refer to **ADJUSTING THE ANTI-TIPPERS** in **PROCEDURE 7** of this manual.

**ADJUSTING THE WHEELBASE WIDTH (FIGURE 9)**

**WARNING**

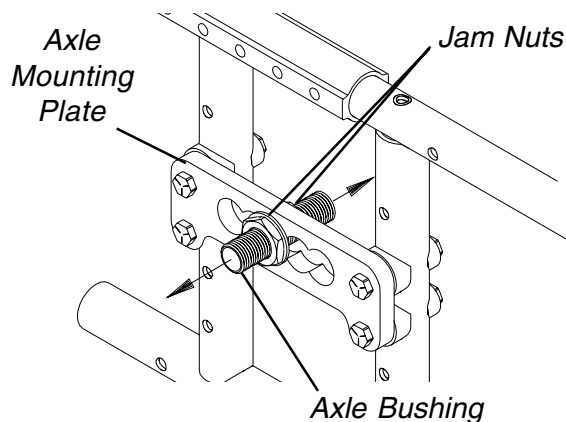
The following procedure must be performed only by an authorized Invacare Dealer or Qualified Technician.

After adjustments and before use make sure all attaching hardware is securely tightened.

**NOTE:** Increasing the wheelbase width may prevent the wheelchair from passing through smaller door jams and other tight places. Consider access to daily activities before increasing wheelbase width.

1. Remove the rear wheel from the wheelchair.
2. Loosen the two (2) jam nuts that secure the axle bushing to the axle mounting plate.
3. Move the axle bushing in or out to the desired position.
4. Securely tighten the jam nuts that secure the axle bushing to the axle mounting plate.
5. Reinstall the rear wheel onto the wheelchair.
6. Repeat **STEPS 1-5** for the opposite side of the wheelchair.

**NOTE:** Make sure the number of threads showing beyond the outside jam nut is the SAME for both rear wheels. This will help avoid a "3-wheeling" situation.



**FIGURE 9 - ADJUSTING THE WHEELBASE WIDTH**

**ADJUSTING REAR WHEEL HEIGHT (FIGURE 10)**

**WARNING**

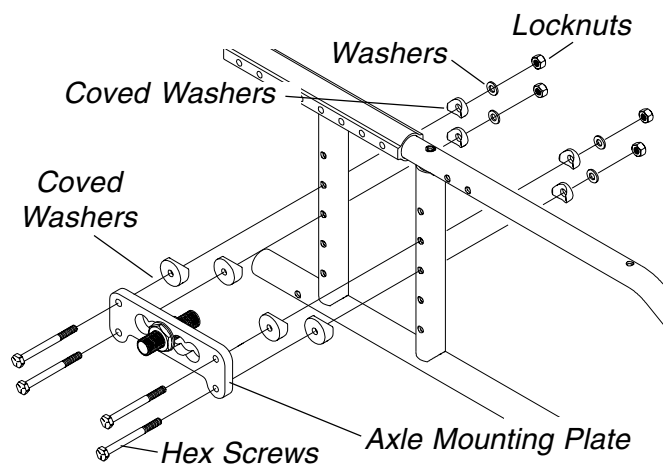
The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

After adjustments and before use make sure all attaching hardware is securely tightened.

1. Determine the rear wheel position for the desired seat-to-floor height. Refer to **CHANGING SEAT-TO-FLOOR HEIGHT** in **PROCEDURE 9** of this manual.
2. Remove the rear wheels from the wheelchair.
3. Remove the four (4) hex screws, locknuts and eight (8) coved washers that secure the axle mounting plate to the wheelchair.
4. Position the axle mounting plate with the mounting holes in the wheelchair frame determined in **STEP 1**.

**NOTE: Allegro Rigid Frame ONLY: To install axle mounting plate into its' highest or lowest position, one crossmember will use an axle plate mounting hole. Install hex screw through the axle plate, coved washer, wheelchair frame and the rigid crossmember.**

5. Resecure the axle mounting plate to the wheelchair frame. Refer to **FIGURE 10** for correct hardware orientation. Torque to 60-inch pounds.
6. Repeat **STEPS 3-5** for the opposite side of the wheelchair.



**FIGURE 10 - ADJUSTING REAR WHEEL HEIGHT**

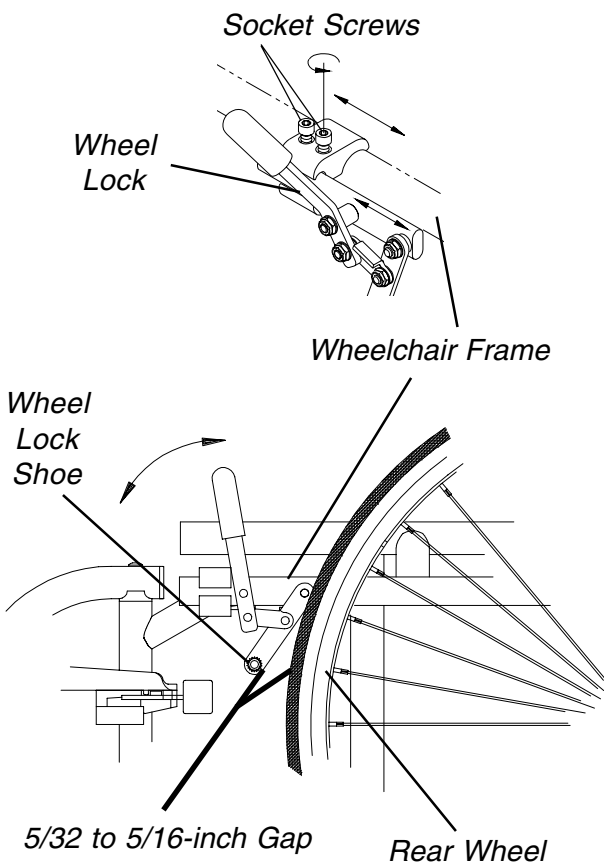
*This Procedure includes the following:*  
**Adjusting the Wheel Locks**  
**Wheel Lock Extension Handle Installation**  
**Installing/Adjusting the Anti-tippers**

**WARNING**  
**DO NOT attempt to stop a moving wheelchair with the wheel locks. WHEEL LOCKS ARE NOT BRAKES.**  
**After adjustments and before use make sure all attaching hardware is securely tightened.**

**ADJUSTING THE WHEEL LOCKS (FIGURE 1)**

**NOTE:** Before adjusting the wheel locks, make sure the tires are inflated to the recommended psi on the sidewall of the tire.

1. Make sure the wheel lock is disengaged from the rear wheels.
2. Loosen the socket screws that secure the wheel locks to the wheelchair frame.



**FIGURE 1 - ADJUSTING THE WHEEL LOCKS**

3. Measure the distance between the **WHEEL LOCK SHOE** and the **REAR WHEEL**.
4. Slide the wheel lock along the wheelchair until the measurement is between 5/32 and 5/16-inches.
5. Tighten the wheel lock to the wheelchair frame.
6. Repeat this procedure for the opposite wheel lock.
7. Engage the wheel locks and push against the wheelchair to determine if the wheel locks engage the rear wheels enough to hold the wheelchair.
8. Repeat **STEPS 1-7** until the wheel locks engage the rear wheels enough to hold the wheelchair.

**WHEEL LOCK EXTENSION HANDLE INSTALLATION (FIGURE 2)**

**NOTE:** Wheel lock extension handles may be installed on all push or pull type wheel locks **NOT** already equipped with swing-up extension handles.

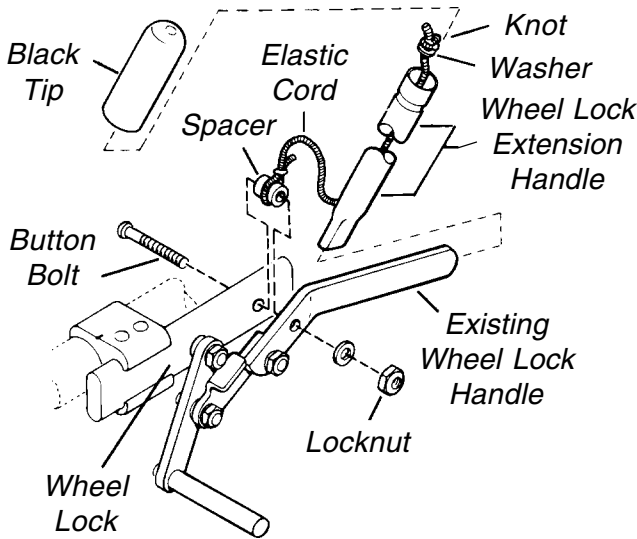
1. Remove the plastic cover on the existing wheel lock handle, if necessary.
2. Remove the button bolt and locknut that secure the existing wheel lock handle and spacer to the wheel lock assembly.
3. Attach the looped end of the elastic cord of the wheel lock extension handle over the spacer of the existing wheel lock handle.
4. Reattach the existing wheel lock handle and spacer onto the wheel lock assembly and secure with the button bolt and locknut.

**NOTE:** The elastic cord is made of stretchable material and may be adjusted to a tight or loose fit to meet the need of the user.

5. Remove the black tip of the wheel lock extension handle.
6. Push the opposite end of the elastic cord up and through the slotted hole in the wheel lock extension handle.
7. Run the elastic cord through the washer and tie a knot in the elastic cord above the washer.

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8. Pull the elastic cord back down into the wheel lock extension handle.
9. Reinstall the black rubber tip onto the wheel lock extension handle.
10. Slide the wheel lock extension handle over the existing wheel lock handle.



**FIGURE 2 - WHEEL LOCK EXTENSION HANDLE INSTALLATION**

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**INSTALLING/ADJUSTING THE ANTI-TIPPERS**

**WARNING**

Anti-tippers **MUST** be fully engaged and spring buttons fully protruding out of adjustment holes **BEFORE** using the wheelchair.

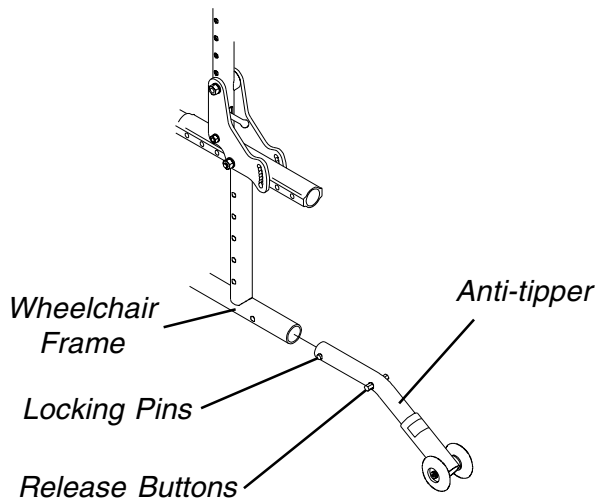
Make sure the anti-tipper wheels are pointing towards the ground/floor **BEFORE** using the wheelchair.

**Installing the Anti-Tippers (FIGURE 3)**

1. Press the release buttons IN and insert the anti-tippers with the anti-tipper wheels pointing toward the ground/floor into the wheelchair frame until the two (2) locking pins are secured in place.

**NOTE: a 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.**

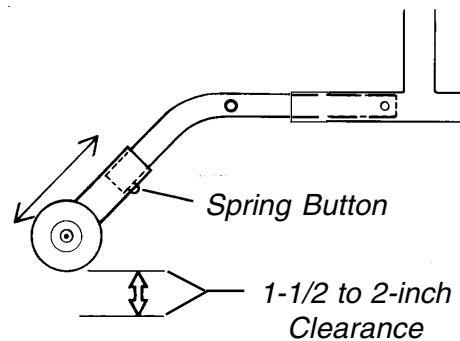
2. Adjust the anti-tippers. Refer to **ADJUSTING THE ANTI-TIPPERS** in this section of the manual.



**FIGURE 3 - INSTALLING THE ANTI-TIPPERS**

**Adjusting the Anti-Tippers (FIGURE 4)**

1. Press the spring button on the wheeled portion of the anti-tipper and slide it up or down to achieve a 1-1/2 to 2-inch clearance.
2. Check to make sure that the spring buttons are fully engaged in adjustment holes.



**FIGURE 4 - ADJUSTING THE ANTI-TIPPERS**

***This Procedure Includes the Following:***

- Recliner Operation*
- Adjusting the Recliner Cables*
- Replacing the Recliner Cables*
- Replacing the Gas Cylinders*
- Adjusting the Gas Cylinders*

**NOTE:** refer to the procedure indicated if any of the following procedures are required:

**WARNING**  
 The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

REPLACEMENT/ADJUSTMENT	PROCEDURE
◆ Folding/Unfolding the Wheelchair	Safety/Handling
◆ Replacing Back/Headrest Upholstery	3
◆ Adjusting the Back Height	3
◆ Repositioning the Back (Changing Seat Depth)	3
◆ Repositioning Back For 2 or 3-inch Seat Cushion	3
◆ Replacing Folding Push Handle	3
◆ Replacing the Seat Upholstery	4
◆ Changing/Repositioning Seat Rails	4
◆ Repositioning the Crossbraces	4
◆ Changing Seat Width	4

**RECLINER OPERATION (FIGURES 1 AND 2)**

**WARNING**  
 Both gas cylinders **MUST** be operational and adjusted properly **BEFORE** using recliner. **DO NOT** operate the recliner option if only one (1) of the gas cylinders is operational or adjusted properly.

**ALWAYS** make sure that the wheelchair is stable in the **FULL RECLINED** (back at 170°) position **AND** the **FULL UPRIGHT** (back at 90°) position **BEFORE** using the recliner option.

**Make sure the patient is properly positioned in the wheelchair before reclining or inclining (reverse recline) to maintain maximum stability and safety. Refer to the SAFETY/HANDLING section of this manual.**

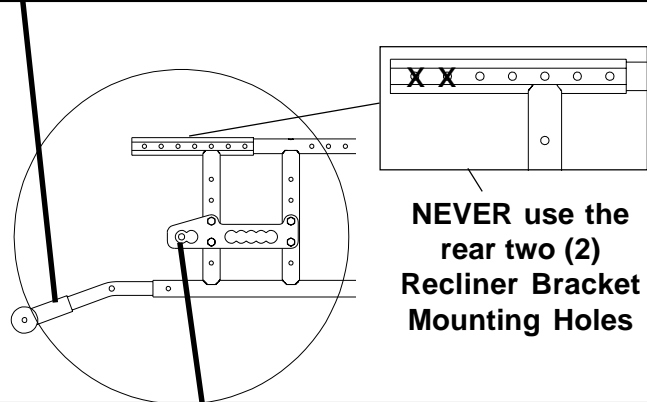
**ALWAYS** use the seat restraint.

**WARNING**  
**ALWAYS** engage both wheel locks while reclining or inclining (reverse recline) the wheelchair.

When returning the occupant of the wheelchair to the full upright position, more body strength will be required for approximately the last twenty (20) degrees of incline (reverse recline). Make sure to use proper body mechanics (use your legs) or seek assistance to avoid injury.

Before using the recliner option, make sure the anti-tipper wheel assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor.)

**NEVER** use the rear two (2) recliner bracket mounting holes when using the recliner option. Using the rear two (2) recliner bracket mounting holes **WILL** make the wheelchair less stable, possibly causing injury.



**WARNING**  
 Before using **ANY** recline position of this wheelchair, make sure the rear wheels are in the **MOST REARWARD** position to maintain the stability of the wheelchair. Do not change the handling/maneuverability of the wheelchair by moving the rear wheels to **ANY** of the forward positions. Moving the rear wheels to **ANY** of the forward positions **WILL** change the center of gravity of the wheelchair, making the wheelchair less stable.

**FIGURE 1 - WARNINGS**

1. Make sure the wheelchair is on a level surface.
2. Engage the wheel locks.
3. Inform the occupant of the wheelchair that the wheelchair is about to be reclined.
4. Stand behind the wheelchair and grasp both back canes firmly.
5. Pull up on the handles of the recliner cable assemblies to release the gas cylinders.

RECLINER

6. SLOWLY, squeeze the handles of the recliner cable assemblies and allow the back to recline to the desired angle.
7. When the back reaches desired angle, slowly release the handles of the recliner cable assemblies.
8. To return the back to the full upright position, reverse the above steps keeping in mind proper body mechanics.

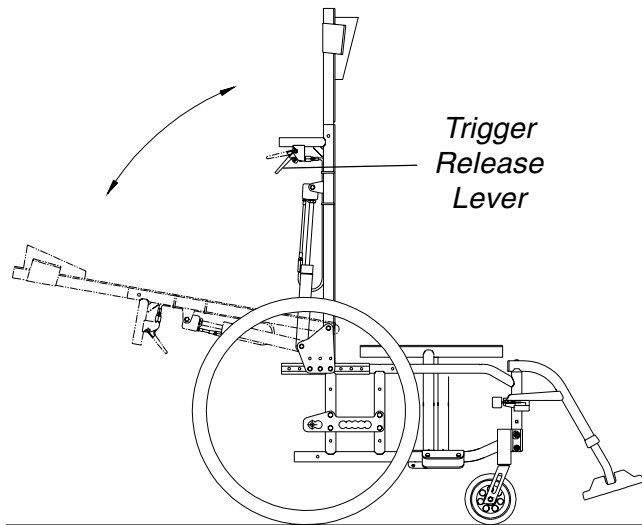


FIGURE 2 - RECLINER OPERATION

**ADJUSTING THE RECLINER CABLES**

**NOTE:** Refer to **ADJUSTING THE GAS CYLINDERS** in this section of the manual.

**REPLACING THE RECLINER CABLES (FIGURE 3)**

**NOTE:** For ease of assembly, replace one (1) recliner cable at a time.

**Removing Existing Recliner Cables**

1. While holding the locknut in the trigger release lever, remove the phillips bolt that secures the handle to the back cane.
2. Remove the trigger release lever from the back cane.
3. Cut the tie wraps that secure the existing recliner cable to the back cane.

**NOTE:** Refer to **DETAIL "A"** for **STEPS 4-7**.

4. Loosen the cable locking nut that secures the existing recliner cable to the trigger release lever.
5. Unscrew the cable locking collar that secures the existing recliner cable to the trigger release lever.
6. Remove the end of the existing recliner cable from the slot in the trigger release lever.

7. Unscrew the fitting end of the existing recliner cable from the trigger release lever.
8. Unscrew the cable locking nut that secures the existing recliner cable to the actuator housing.
9. Remove the end of the existing recliner cable from the actuator.
10. Remove the existing recliner cable from the wheelchair.

**Installing New Recliner Cables**

1. Screw the new recliner cable into the trigger release lever until the fitting end of the cable is flush with the inside of the handle. Refer to **DETAIL "A"**.
2. Reinstall the locknut into the trigger release lever, if necessary.

**NOTE:** Refer to **DETAIL "A"** for **STEPS 3-6**.

3. Install the end of the new recliner cable into the slot in the trigger release lever.
4. Screw the cable locking collar onto the trigger release lever until the collar bottoms out on the trigger release lever.

**DETAIL "A"**

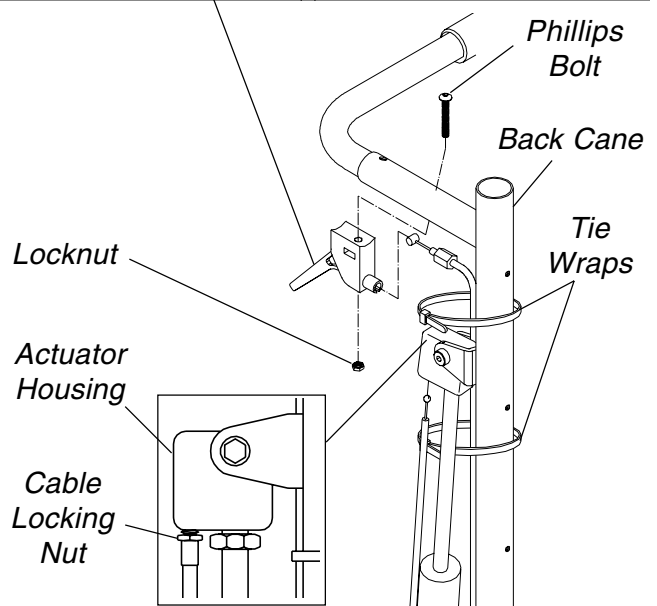
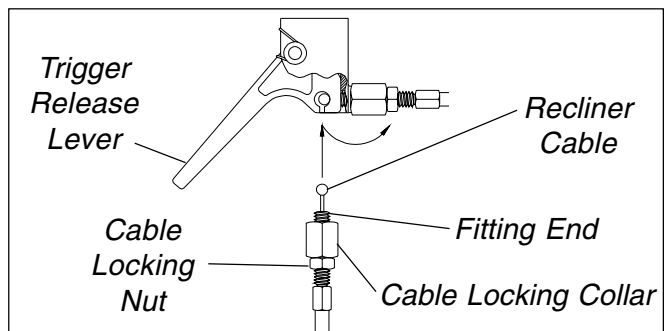


FIGURE 3 - REPLACING THE RECLINER CABLES

5. While holding the cable locking collar and locking nut, tighten the cable locking nut against the cable locking collar.
6. Reposition the trigger release lever on the back cane.
7. Secure the trigger release lever to the back cane with the phillips bolt and locknut.

**CAUTION**  
**DO NOT over tighten the new cable into the actuator housing. Damage to the actuator housing can occur.**

8. Screw the end of the new recliner cable into the actuator housing until new cable is tightened securely.
9. Install the end of the new recliner cable onto the actuator.

**NOTE: Make sure the new recliner cable is positioned in the slot in the actuator.**

10. Resecure the recliner cable to the back cane with tie wraps.
11. Repeat **REMOVING EXISTING RECLINER CABLES** and **INSTALLING NEW RECLINER CABLES** for the opposite recliner cable, if necessary.
12. Test the operation of the gas cylinders. Refer to **ADJUSTING THE GAS CYLINDERS** in this section of the manual.

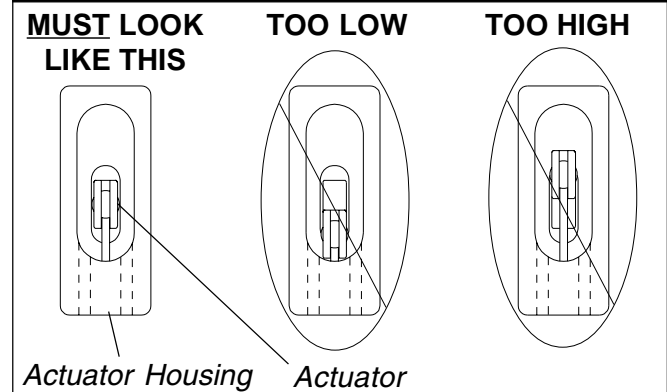
**REPLACING THE GAS CYLINDERS (FIGURE 4)**

**WARNING**  
**Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner if only one (1) of the gas cylinders is operational or adjusted properly.**

1. Loosen the jam nut on the rod of the existing gas cylinder that secures the gas cylinder to the actuator housing.
2. Remove the socket bolt, washer, spacers and locknut that secure the bottom of the existing gas cylinder to the recliner brackets.
3. Perform one (1) of the following:
  - A. Replacing both gas cylinders - Repeat **STEPS 1-2** for the opposite gas cylinder.
  - B. Replacing one (1) gas cylinder - Recline the back to 170° and Repeat **STEP 2** only for the opposite gas cylinder.
4. Unscrew the existing gas cylinder from the actuator housing and remove the existing gas cylinder from the wheelchair.

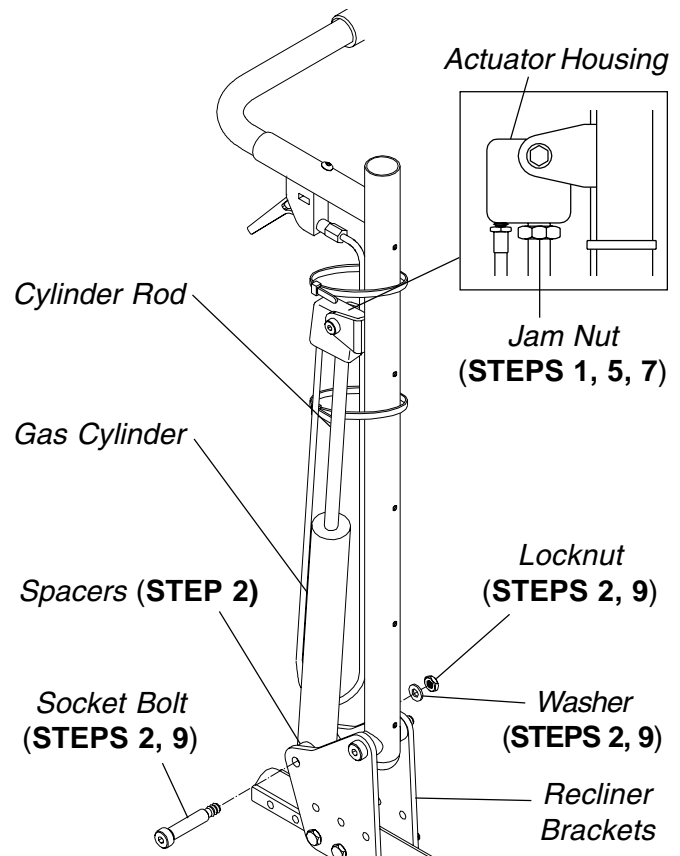
5. Finger tighten jam nut on the new gas cylinder until it bottoms out on the cylinder rod.

**WARNING**  
**Screw the rod of the gas cylinder into the actuator housing ONLY until the actuator is pointing straight out of the actuator housing.**



**Screwing the rod of the gas cylinder too far into the actuator housing will activate the gas cylinders providing NO support for the back, resulting in possible injury to the user and/or assistant.**

6. Screw the cylinder rod of the new gas cylinder into the actuator housing only until the actuator is straight in the actuator housing. Refer to the above **WARNING**.



**FIGURE 4 - REPLACING THE GAS CYLINDERS**

RECLINER

7. Tighten the jam nut on the rod of the new gas cylinder that secures the gas cylinder to the actuator housing.
8. Line up the mounting holes of the gas cylinder and the bracket of the back cane.
9. Reinstall the socket bolt through the recliner brackets, nylon washer, gas cylinder, nylon washer, mounting bracket and washer and tighten securely with the existing locknut.
10. Perform one of the following:
  - A. Replacing both gas cylinders - Repeat **STEPS 4-9** for the opposite gas cylinder.
  - B. Replacing one (1) gas cylinder - Repeat **STEPS 8-9** only for the opposite gas cylinder.
11. Squeeze the handles to extend the new gas cylinder(s).
12. Adjust the new gas cylinders. Refer to **ADJUSTING THE GAS CYLINDERS** in this section of the manual.

**ADJUSTING THE GAS CYLINDERS (FIGURE 5)**

**WARNING**  
 Both gas cylinders **MUST** be operational and adjusted properly **BEFORE** using the recliner. **DO NOT** operate the recliner if only one (1) of the gas cylinders is operational or adjusted properly.

1. To adjust the **LEFT** gas cylinder:  
 Squeeze the trigger release lever of the **RIGHT** recliner cable assembly and try to recline the back. The back should not recline.
2. If the **LEFT** side of the back releases without squeezing the handle of the **LEFT** recliner cable assembly, perform the following steps:
  - A. Loosen the cable locking nut that secures the cable adjusting nut in place.
  - B. Turn the cable adjusting nut one (1) of two (2) ways:

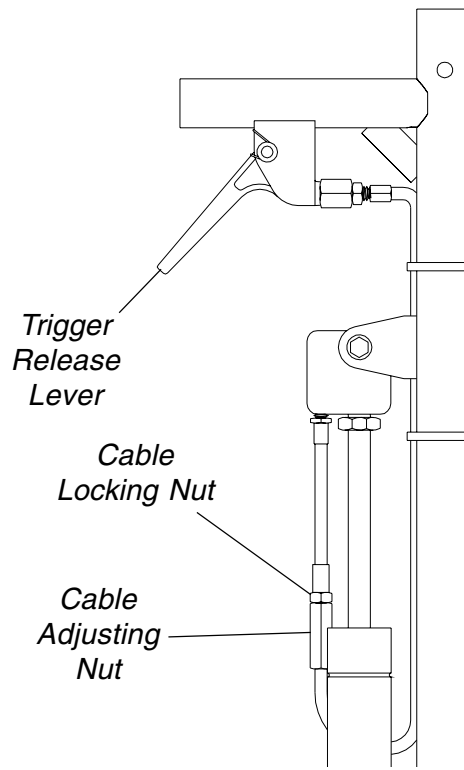
**WARNING**  
**DO NOT** over tighten the adjusting nut on the recliner cable. Over tightening the adjusting nut on the recliner cable **WILL** actuate the gas cylinder, possibly causing injury.

- **CLOCKWISE** - Turning the cable adjusting nut clockwise will **tighten** the recliner cable. **DO NOT** overtighten the cable adjusting nut. Turn the cable adjusting nut clockwise until actuator looks like **DETAIL "B"**.

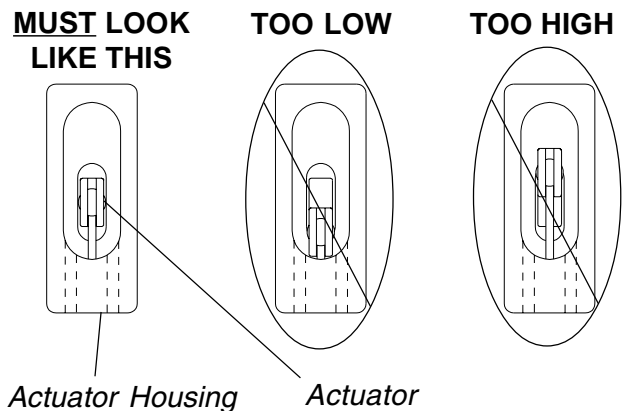
- **COUNTERCLOCKWISE** - Turning the cable adjusting nut counterclockwise will **loosen** the recliner cable.

**NOTE: If the recliner cable is too loose, the gas cylinders will not work.**

- C. While holding the cable adjusting nut in place, tighten the cable locking nut against the cable adjusting nut.
  - D. Repeat **STEP 1**.
  - E. Repeat **STEP 2** until the **LEFT** side of the back **DOES NOT** recline.
3. To adjust the **RIGHT** gas cylinder:  
 Repeat **STEPS 1** and **2** for the **LEFT** handle of the recliner cable.



**DETAIL "B"**



**FIGURE 5 - ADJUSTING THE GAS CYLINDERS**



*This Procedure includes the following:*

**Seat-To-Floor Height Determination**

**Changing Seat-To-Floor Height**

**Axle Mounting Plate Positions for 20, 22 or 24-inch Rear Wheels**

**Inline Caster Headtube Front Seat-to-Floor Heights**

**Offset Caster Headtube Front Seat-to-Floor Heights**

**WARNING**

The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

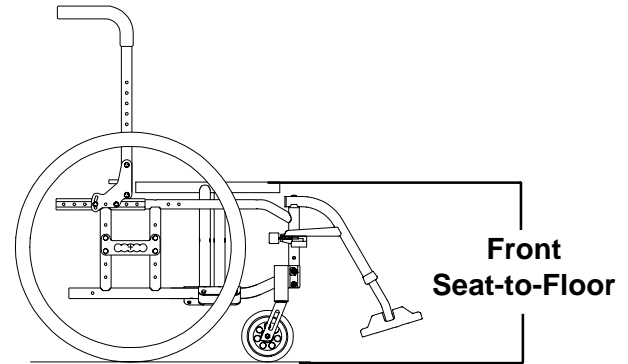
After adjustments and before use make sure all attaching hardware is securely tightened.

**Front Seat-to Floor Height (FIGURE 2)**

**NOTE:** The front seat-to-floor heights are approximate to  $\pm 1/4$ -inch.

Front seat-to-floor height is determined by measuring the distance between the front of the seat upholstery and the ground/floor.

**NOTE:** For Folding and Rigid Frames w/o seat rails, subtract 1-3/4-inches from S-T-F listed below. This will give distance from top of side frame to floor.



**FIGURE 2 - FRONT SEAT-TO-FLOOR HEIGHT DETERMINATION**

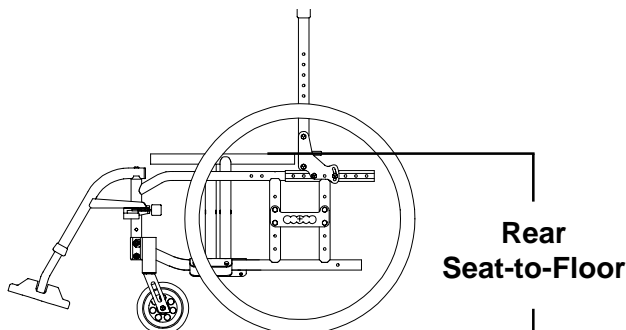
**SEAT-TO-FLOOR HEIGHT DETERMINATION**

**Rear Seat-to-floor Height (FIGURE 1)**

Rear seat-to-floor height is determined by measuring the distance between the rear of the seat upholstery and the ground/floor.

**NOTE:** The rear seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed on the following pages. All heights are approximate to  $\pm 1/4$ -inch due to tire wear and air pressure.

**NOTE:** For Folding and Rigid Frames w/o seat rails, subtract 1-3/4-inches from S-T-F listed below. This will give distance from top of side frame to floor.



**FIGURE 1 - REAR SEAT-TO-FLOOR HEIGHT DETERMINATION**

**Seat Dump**

The rear seat-to-floor height measurement in combination with the front seat-to-floor height measurement determine the amount of seat dump the wheelchair will have.

**For Example:**

An 18-1/4-inch front seat-to-floor height measurement  
**MINUS**  
 a 17-inch rear seat-to-floor height measurement  
**EQUALS**  
 1-1/4-inches of seat dump

**NOTE:** Invacare recommends that the rear seat-to-floor height be **AT LEAST 3/8-inch** shorter than the front seat-to-floor height. Otherwise a forward seat dump can occur.

**CHANGING SEAT-TO-FLOOR HEIGHT**

**Rear Seat-to-Floor Height**

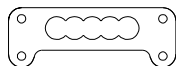
**WARNING**

**NEVER use the Standard Multi-Position or Offset Multi-Position axle plates with the recliner option. Using the Standard Multi-Position or Offset Multi-Position axle plates WILL reduce the stability of the wheelchair, causing injury to the user and/or assistant(s).**

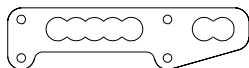
The following axle mounting positions for rear seat-to-floor height apply to ANY of the axle mounting plates.

After determining axle mounting plate placement for necessary rear seat-to-floor height, refer to **ADJUSTING REAR WHEEL HEIGHT** in **PROCEDURE 6** of this manual to reposition the axle mounting plates.

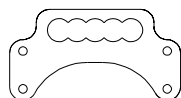
**NOTE: The following rear seat-to-floor heights shown are the most common rear seat-to-floor heights available.**



**STANDARD MULTI-POSITION AXLE PLATE**



**EXTENDED MULTI-POSITION AXLE PLATE**



**OFFSET MULTI-POSITION AXLE PLATE - (WILL ADD OR SUBTRACT 1-INCH TO THE REAR SEAT-TO-FLOOR HEIGHT)**

**Front Seat-to-Floor Height**

**POSITIONING CASTER HEADTUBES ON THE WHEELCHAIR FRAME.** The following caster headtube positions apply to any size caster. Caster headtube position on the wheelchair frame apply to caster headtubes mounted in ANY of the following positions: Inside/outside of the wheelchair frame or leading/trailing.

Refer to **CASTER HEADTUBE MOUNTING ADJUSTMENTS** in **PROCEDURE 5** of this manual for more information on mounting the front casters on the inside/outside of the wheelchair frame and leading/trailing positions.

After determining front caster headtube position and seat-to-floor height desired, refer to **CASTER HEADTUBE MOUNTING ADJUSTMENTS** in **PROCEDURE 5** of this manual to reposition the caster headtube on the wheelchair frame.

**POSITIONING FRONT CASTER ON THE FORK.** The following caster positions apply to any of the caster sizes.

After determining caster size and positioning, refer to **REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES** in **PROCEDURE 5** of this manual to reposition the caster on the fork.

After determining fork size, refer to **REPLACING FRONT FORK** in **PROCEDURE 5** of this manual to replace front forks if necessary.

**NOTE: The following front seat-to-floor heights shown are the most common front seat-to-floor heights available.**

Below is a quick reference chart to determine obtainable front seat-to-floor heights with front caster and fork combinations. Refer to the following pages for exact positioning for desired front seat-to-floor height.

**NOTE: For Folding and Rigid Frames w/o seat rails, subtract 1-3/4-inches from S-T-F listed below. This will give distance from top of side frame to floor.**

**FRONT SEAT-TO-FLOOR HEIGHTS (in inches)**

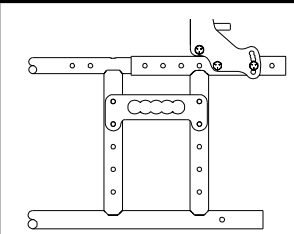
FORK STYLE	FRONT CASTER SIZE (in inches)			
	3	5	6	8
3-INCH FORK	15, 16-1/4	16, 17-1/4	N/A	N/A
3-INCH FORK (1-INCH SPACER)	16, 17-1/4	17, 18-1/4	N/A	N/A
3-INCH FORK (2-INCH SPACER)	17, 18-1/4	18, 19-1/4	N/A	N/A
5-INCH FORK	16-1/2 17-3/4	17-1/2 18-3/4	18 19-1/4	N/A
5-INCH FORK (1-INCH SPACER)	17-1/2 18-3/4	18-1/2 19-3/4	19 20-1/4	N/A
6-INCH FORK	16-1/4 17 17-1/2 18-1/4	16-1/2 17-1/4 17-3/4 18 18-1/2 19-1/4	17 17-1/4 18 18-1/4 19 19-3/4	N/A
8-INCH FORK	N/A	N/A	N/A	18-3/4 20 21-1/4

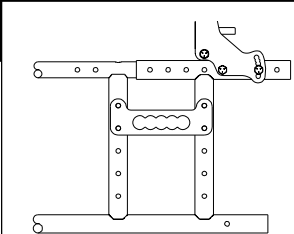
**AXLE MOUNTING PLATE POSITIONS FOR 20, 22 or 24-INCH REAR WHEELS**

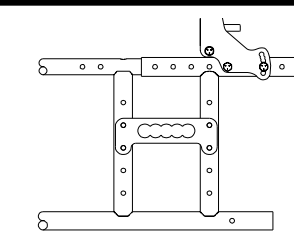
Refer to the following figures to determine the obtainable rear seat-to-floor height for 20, 22 or 24-inch rear wheels:

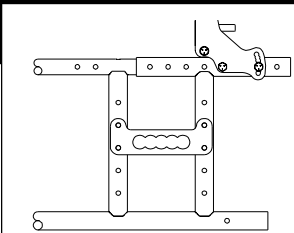
**NOTE:** The rear seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are approximate to  $\pm 1/4$ -inch due to tire wear and air pressure.

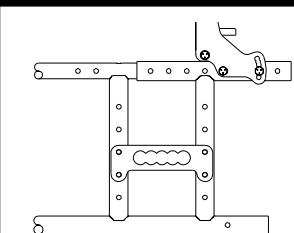
**NOTE:** The following charts are shown with non-recliner back hardware only for clarity. The axle mounting positions are the same for recliner wheelchairs.

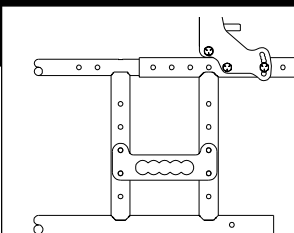
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	14-3/4-INCHES	
22	15-3/4-INCHES	
24	16-1/2-INCHES	

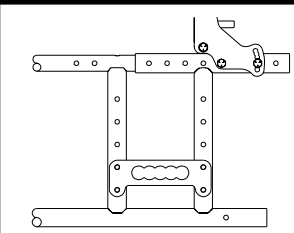
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	15-1/2-INCHES	
22	16-1/2-INCHES	
24	17-1/4-INCHES	

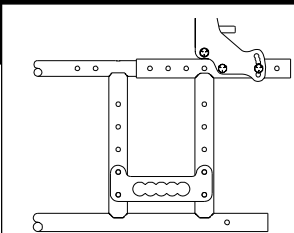
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	16-INCHES	
22	17-INCHES	
24	17-3/4-INCHES	

REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	16-3/4-INCHES	
22	17-3/4-INCHES	
24	18-1/2-INCHES	

REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	17-1/4-INCHES	
22	18-1/4-INCHES	
24	19-INCHES	

REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	18-INCHES	
22	19-INCHES	
24	19-3/4-INCHES	

REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	18-1/2-INCHES	
22	19-1/2-INCHES	
24	20-1/4-INCHES	

REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	19-1/4-INCHES	
22	20-1/4-INCHES	
24	21-INCHES	

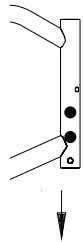
## INLINE CASTER HEADTUBE FRONT SEAT-TO-FLOOR HEIGHTS

Refer to the following figures to determine the obtainable front seat-to-floor (S-T-F) height for Inline Caster Headtubes with 3, 5, 6 or 8-inch casters:

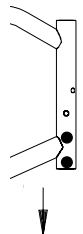
**NOTE:** All measurements are in inches. The front seat-to-floor heights are approximate to  $\pm 1/4$ -inch.

SEAT TO FLOOR

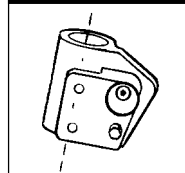
UPPER  
FRAME  
MOUNTING  
HOLES



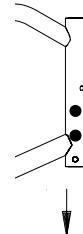
LOWER  
FRAME  
MOUNTING  
HOLES



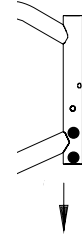
INLINE  
CASTER  
HEADTUBE

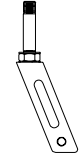
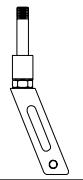
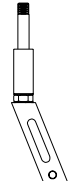

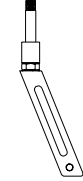


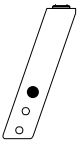
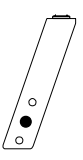
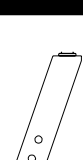
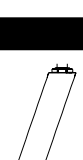
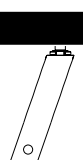
UPPER  
FRAME  
MOUNTING  
HOLES



LOWER  
FRAME  
MOUNTING  
HOLES



3-INCH FORK			
FRONT S-T-F	CASTER SIZE	FRONT S-T-F	
15	3	16-1/4	
16	5	17-1/4	
N/A	6 OR 8	N/A	
◆ 3-INCH FORK w/1-INCH SPACER			
FRONT S-T-F	CASTER SIZE	FRONT S-T-F	
16	3	17-1/4	
17	5	18-1/4	
N/A	6 OR 8	N/A	
◆ 3-INCH FORK w/2-INCH SPACER			
FRONT S-T-F	CASTER SIZE	FRONT S-T-F	
17	3	18-1/4	
18	5	19-1/4	
N/A	6 OR 8	N/A	
5-INCH FORK			
FRONT S-T-F	CASTER SIZE	FRONT S-T-F	
16-1/2	3	17-3/4	
17-1/2	5	18-3/4	
18	6	19-1/4	
N/A	8	N/A	
◆ 5-INCH FORK w/1-INCH SPACER			
FRONT S-T-F	CASTER SIZE	FRONT S-T-F	
17-1/2	3	18-3/4	
18-1/2	5	19-3/4	
19	6	20-1/4	
N/A	8	N/A	

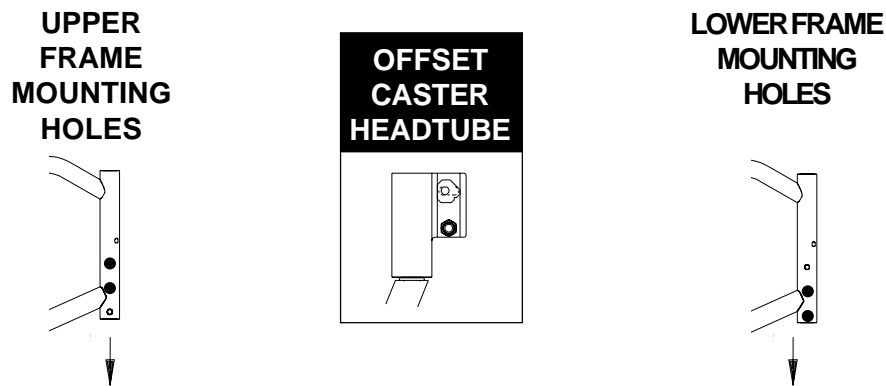
6-INCH FORK-POSITION 1			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	16-1/2	5	17-3/4
	17	6	18-1/4
	N/A	3 OR 8	N/A
6-INCH FORK-POSITION 2			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	16-1/4	3	17-1/2
	17-1/4	5	18-1/2
	17-3/4	6	19
N/A	8	N/A	
6-INCH FORK-POSITION 3			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	17	3	18-1/4
	18	5	19-1/4
	18-1/2	6	19-3/4
N/A	8	N/A	
8-INCH FORK-POSITION 1			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	N/A	3, 5 OR 6	N/A
	18-3/4	8	20
8-INCH FORK-POSITION 2			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	N/A	3, 5 OR 6	N/A
	20	8	21-1/4

◆ Using a spacer with a fork to achieve higher seat-to-floor heights will maintain a tighter turning radius than a larger fork.

## OFFSET CASTER HEADTUBE FRONT SEAT-TO-FLOOR HEIGHTS

Refer to the following figures to determine the obtainable front seat-to-floor (S-T-F) height for Offset Caster Headtubes with 3, 5, 6 or 8-inch casters:

**NOTE:** All measurements are in inches. The front seat-to-floor heights are approximate to  $\pm 1/4$ -inch.



6-INCH FORK-POSITION 1			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	16-1/2	5	17-3/4
	17	6	18-1/4
	N/A	3 OR 8	N/A
6-INCH FORK-POSITION 2			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	16-1/4	3	17-1/2
	17-1/4	5	18-1/2
	17-3/4	6	19
	N/A	8	N/A
6-INCH FORK-POSITION 3			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	17	3	18-1/4
	18	5	19-1/4
	18-1/2	6	19-3/4
	N/A	8	N/A
8-INCH FORK-POSITION 1			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	N/A	3, 5 OR 6	N/A
	★ 18-3/4	8	20
8-INCH FORK-POSITION 2			
	FRONT S-T-F	CASTER SIZE	FRONT S-T-F
	N/A	3, 5 OR 6	N/A
	20	8	21-1/4

★ Mount headtube in leading position only when using 8-inch pneumatics or 8-inch pneumatics with flat free inserts.

*This Procedure includes the following:*

- Seat Depth Determination**
- Changing Seat Depth**
- Seat Depth Checklist**
- Back, Seat Rail and Crossbrace Positions for 12-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 13-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 14-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 15-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 16-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 17-inch Seat Depth**
- Back, Seat Rail and Crossbrace Positions for 18-inch Seat Depth**

**WARNING**

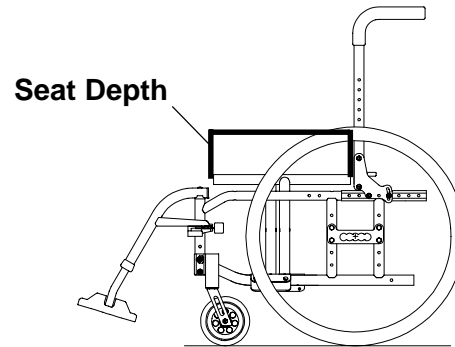
The seat height, seat depth, back angle, seating system, size and position of the rear wheels, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the seven (7) may cause the wheelchair to decrease in stability. These adjustments **MUST** be performed by an authorized dealer or qualified technician.

**RECLINERS ONLY: NEVER** use the rear two (2) recliner bracket mounting holes when using the recliner option. Using the rear two (2) recliner bracket mounting holes **WILL** make the wheelchair less stable, possibly causing injury.

After adjustments and before use make sure all attaching hardware is securely tightened.

**SEAT DEPTH DETERMINATION (FIGURE 1)**

Seat depth is determined by measuring the distance between the front of the back cane and the front of the seat rail.



**FIGURE 1 - SEAT DEPTH DETERMINATION**

**CHANGING SEAT DEPTH**

Below are some terms to help better understand changing seat depth:

**SEAT RAIL** - Removable portion of crossbrace. One (1) of three (3) components that determine seat depth.

**CROSSBRACE SADDLE** - The part of the crossbrace that the seat rail mounts onto.

**GAP** - Approximate distance between the end of the seat rail and the footrest mounting tube.

**REAR/FRONT MOUNTING HOLE** - Position of the screw and washer on the underside of the wheelchair frame. One (1) of three (3) components that determine seat depth.

**NOTE:** Use the checklist on the following page as a guide to changing the seat depth.

## SEAT DEPTH CHECKLIST

1. Review the charts on the following pages to determine the proper back, seat rail and crossbrace position for the desired seat depth.

**NOTE: The following seat depths shown are the most common seat depths available.**

2. After determining the back position for the necessary seat depth, refer to **REPOSITIONING THE BACK (CHANGING SEAT DEPTH)** in **PROCEDURE 3** of this manual.

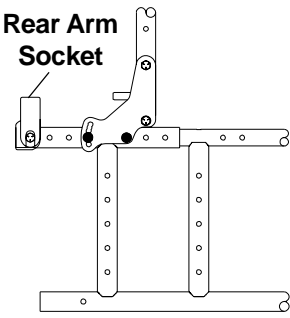
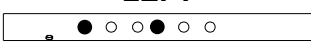

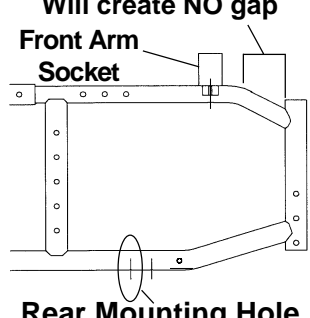
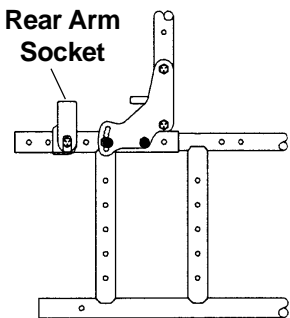

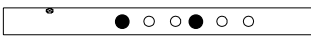
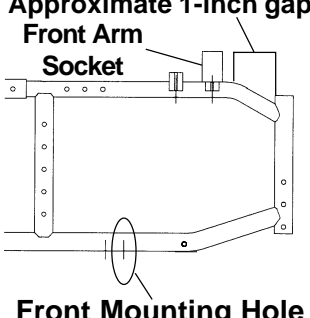
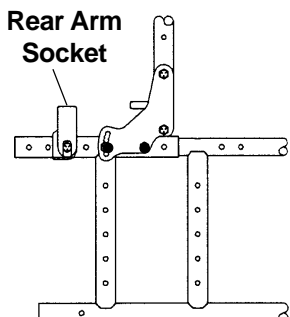
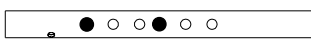
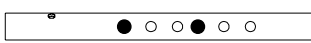
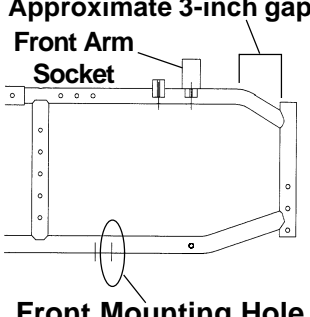
**NOTE: Front and rear arm sockets for the conventional arm option (two [2] point attaching arms) may need repositioning depending on the new back position. Refer to REPOSITIONING THE CONVENTIONAL ARMS in PROCEDURE 2 of this manual.**

3. After determining the seat rail position for the necessary seat depth, refer to **CHANGING/REPOSITIONING THE SEAT RAILS** in **PROCEDURE 4** of this manual.

4. After determining the crossbrace position for the necessary seat depth, refer to **CHANGING SEAT WIDTH/REPOSITIONING CROSSBRACES** in **PROCEDURE 4** of this manual.

**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 12-INCH SEAT DEPTH**

NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

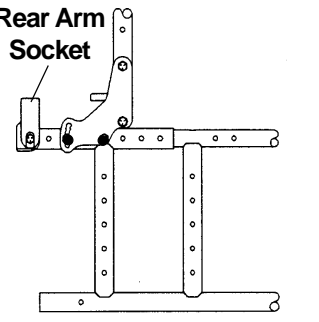
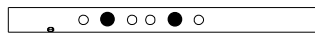

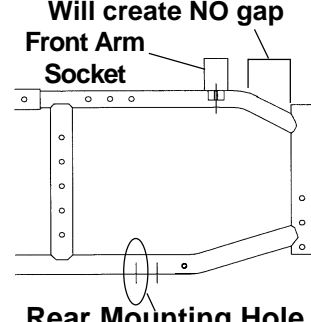
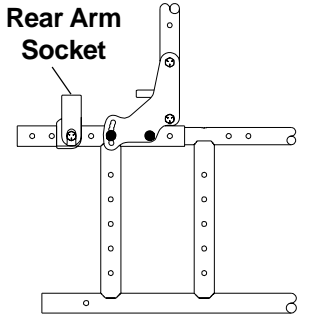

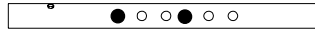
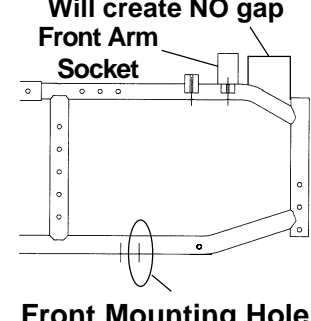
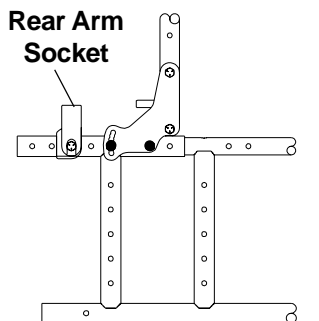

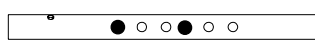
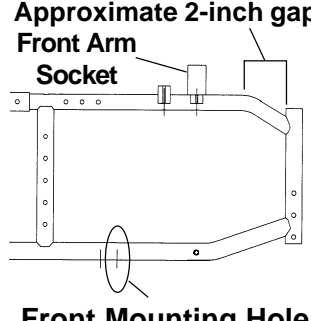
WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)	CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
<p><b>SHORT SEAT FRAME (14-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Will create NO gap</p>  <p>Front Arm Socket</p> <p>Rear Mounting Hole</p>
<p><b>MEDIUM SEAT FRAME (16-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Approximate 1-inch gap</p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>
<p><b>LONG SEAT FRAME (18-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Approximate 3-inch gap</p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>



**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 13-INCH SEAT DEPTH**

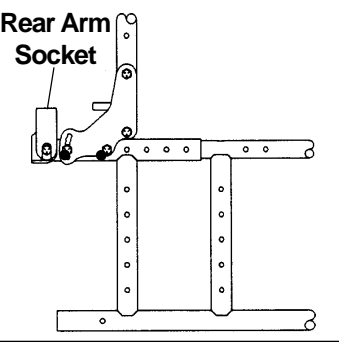
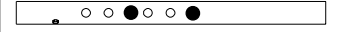

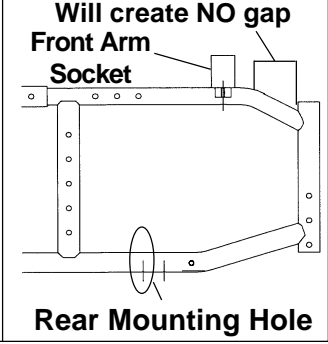
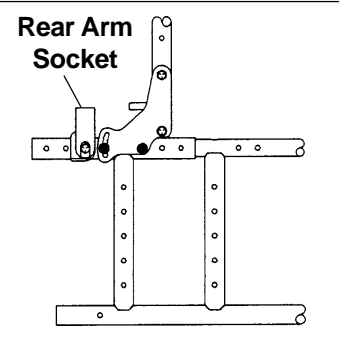

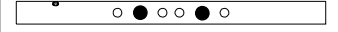
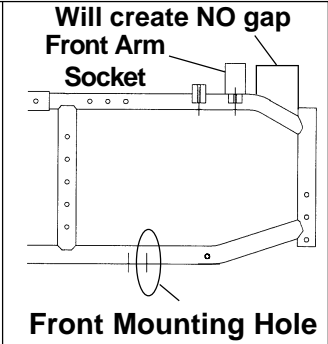
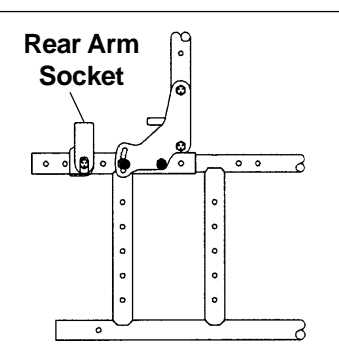
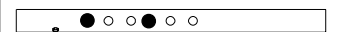
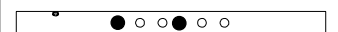
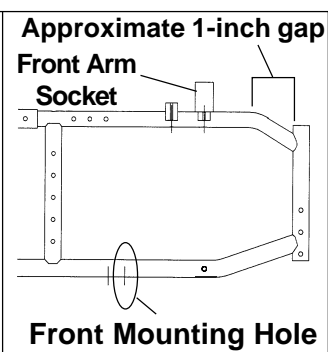
NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

**SEAT DEPTH**

WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)	CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
<p><b>SHORT SEAT FRAME (14-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Will create NO gap</p>  <p>Front Arm Socket</p> <p>Rear Mounting Hole</p>
<p><b>MEDIUM SEAT FRAME (16-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Will create NO gap</p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>
<p><b>LONG SEAT FRAME (18-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Approximate 2-inch gap</p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>

**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 14-INCH SEAT DEPTH**

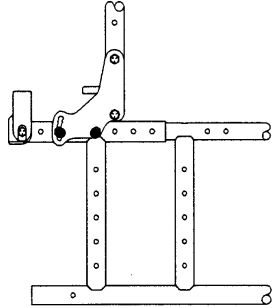

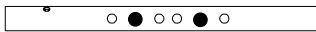
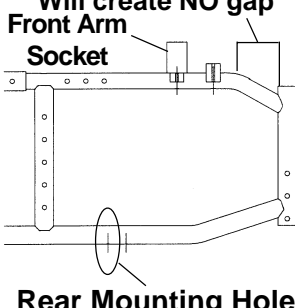
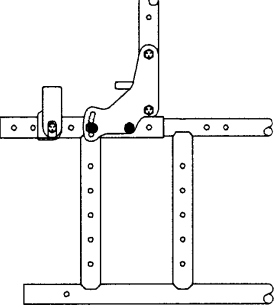
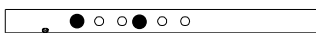
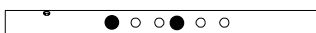
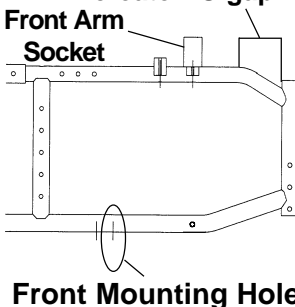
NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)	CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
<p><b>SHORT SEAT FRAME (14-INCH)</b></p>		<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p><b>STANDARD FOLDING FRAMES ONLY</b></p> <p>Will create <b>NO gap</b></p>  <p>Front Arm Socket</p> <p>Rear Mounting Hole</p>
<p><b>MEDIUM SEAT FRAME (16-INCH)</b></p>		<p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p>Will create <b>NO gap</b></p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>
<p><b>LONG SEAT FRAME (18-INCH)</b></p>		<p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p>Approximate 1-inch gap</p>  <p>Front Arm Socket</p> <p>Front Mounting Hole</p>

**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 15-INCH SEAT DEPTH**

NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

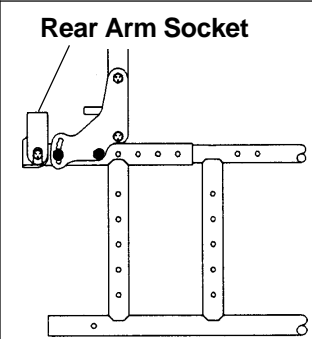


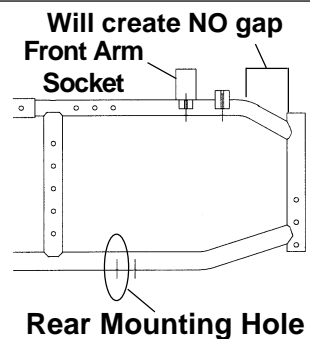
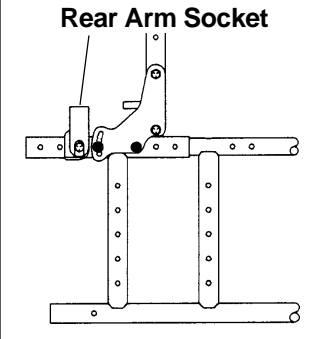
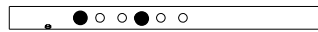
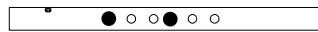
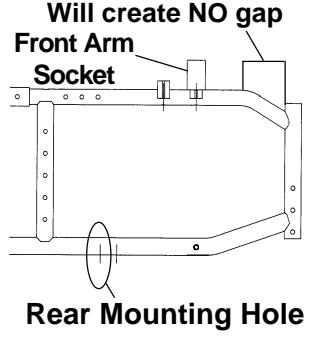
SEAT DEPTH

WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)	CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
		STANDARD FOLDING FRAMES ONLY	STANDARD FOLDING FRAMES ONLY
<p><b>MEDIUM SEAT FRAME (16-INCH)</b></p>		<p style="text-align: center;"><b>LEFT</b></p>  <p style="text-align: center;">Crossbrace saddles mount in darkened holes</p>  <p style="text-align: center;"><b>RIGHT</b></p> <p style="text-align: center;">← Rear of Wheelchair</p>	<p style="text-align: center;">Will create NO gap</p>  <p style="text-align: center;">Front Arm Socket</p> <p style="text-align: center;">Rear Mounting Hole</p>
<p><b>LONG SEAT FRAME (18-INCH)</b></p>		<p style="text-align: center;"><b>LEFT</b></p>  <p style="text-align: center;">Crossbrace saddles mount in darkened holes</p>  <p style="text-align: center;"><b>RIGHT</b></p> <p style="text-align: center;">← Rear of Wheelchair</p>	<p style="text-align: center;">Will create NO gap</p>  <p style="text-align: center;">Front Arm Socket</p> <p style="text-align: center;">Front Mounting Hole</p>

SEAT DEPTH

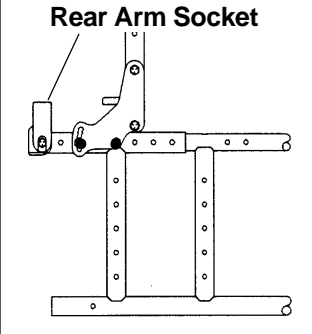

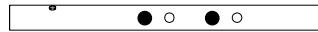
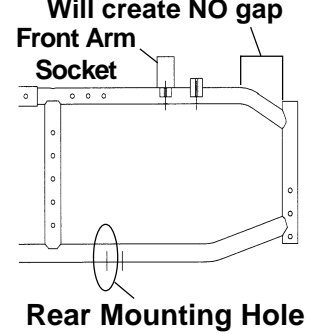
**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 16-INCH SEAT DEPTH**

NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)		CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
		STANDARD FOLDING FRAMES ONLY		STANDARD FOLDING FRAMES ONLY
<b>MEDIUM SEAT FRAME (16-INCH)</b>		<b>LEFT</b> 	<b>RIGHT</b> 	 Will create NO gap Front Arm Socket Rear Mounting Hole
		Crossbrace saddles mount in darkened holes		
<b>LONG SEAT FRAME (18-INCH)</b>		<b>LEFT</b> 	<b>RIGHT</b> 	 Will create NO gap Front Arm Socket Rear Mounting Hole
		Crossbrace saddles mount in darkened holes		

**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 17-INCH SEAT DEPTH**

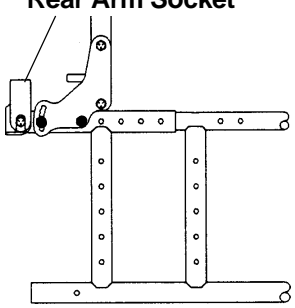

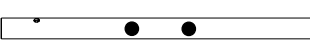
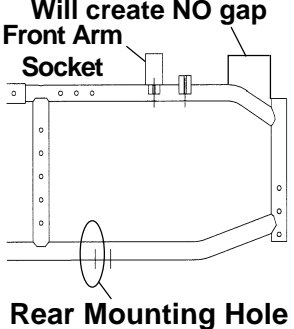
NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)		CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
		STANDARD FOLDING FRAMES ONLY		STANDARD FOLDING FRAMES ONLY
<b>LONG SEAT FRAME (18-INCH)</b>		<b>LEFT</b> 	<b>RIGHT</b> 	 Will create NO gap Front Arm Socket Rear Mounting Hole
		Crossbrace saddles mount in darkened holes		

**BACK, SEAT RAIL AND CROSSBRACE POSITIONS FOR 18-INCH SEAT DEPTH**

NOTE: The following charts are shown with non-recliner back hardware only for clarity. The back, seat rail and crossbrace positions are the same for recliner wheelchairs.

**S  
E  
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WHEELCHAIR DEPTH	BACK POSITION/ OPTIONAL REAR ARM SOCKET POSITION	SEAT RAIL POSITION (UNDERSIDE VIEW OF SEAT RAILS)	CROSSBRACE POSITION/ OPTIONAL FRONT ARM SOCKET POSITION
<p><b>LONG SEAT FRAME (18-INCH)</b></p>	<p>Rear Arm Socket</p> 	<p>STANDARD FOLDING FRAMES ONLY</p> <p><b>LEFT</b></p>  <p>Crossbrace saddles mount in darkened holes</p>  <p><b>RIGHT</b></p> <p>← Rear of Wheelchair</p>	<p>STANDARD FOLDING FRAMES ONLY</p>  <p>Will create NO gap Front Arm Socket</p> <p>Rear Mounting Hole</p>



## 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/user of our products.**

**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 crossmembers to be free from defects in materials and workmanship for the lifetime of the original purchaser/user. All remaining components are warranted for a period of one (1) year from the date of purchase except upholstered materials, padded materials and tires/wheels. 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. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. 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 on the back cover, provide dealer's name, address, and the 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.**

**Limitations and Exclusions: The foregoing warranty shall not apply to serial numbered products if the serial number has been removed or defaced, products subjected to negligence, accident, improper operation, maintenance or storage, products modified without Invacare's express written consent including, but not limited to, modification through the use of unauthorized parts or attachments; products damaged by reason of repairs made to any component without the specific consent of Invacare, or to a product damaged by circumstances beyond Invacare's control, and such evaluation will be solely determined by Invacare. The warranty shall not apply to problems arising from normal wear or failure to adhere to the following instructions.**

**THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, IF ANY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESSED WARRANTY PROVIDED HEREIN AND THE REMEDY FOR VIOLATIONS OF ANY IMPLIED WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.**

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



**Invacare Corporation** [www.invacare.com](http://www.invacare.com)

One Invacare Way  
Elyria, Ohio USA  
44036-2125  
800-333-6900

Technical Support  
800-832-4707

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