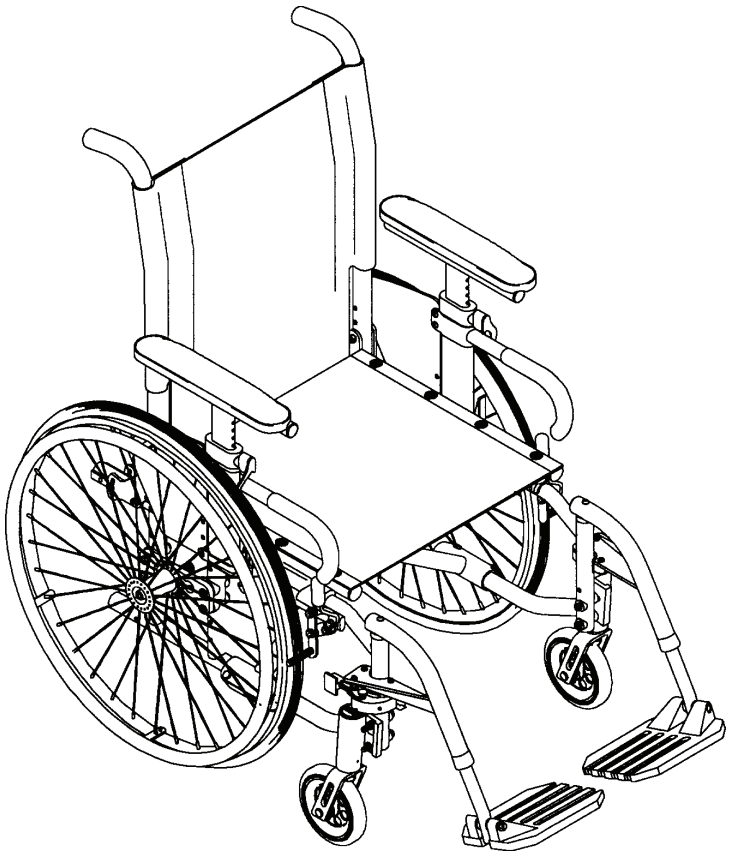
Owner's Operator and Maintenance Manual

Compass™ XE and Allegro®
(after 08/01/04)



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

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

For more information regarding Invacare products, parts, and services, please visit www.invacare.com

INVACARE

Yes, you can.

⚠ WARNING

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

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

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

NOTE: Updated versions of this manual are available on www.invacare.com.

NOTE: Information in this manual applies to chairs manufactured after 08/01/04.

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REGISTER YOUR PRODUCT

The benefits of registering:

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

Register ONLINE at www.invacare.com
- or -
Complete and mail the form on the next page

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

SPECIAL NOTES

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

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

NOTICE

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

WHEELCHAIR USER

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

WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT RESTRAINTS (TRRO OR TRBKTS)

TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. TRRO has been crash-tested in accordance with ANSI/RESNA WC Vol 1 Section 19 Frontal Impact Test requirements for wheelchairs with a 168 lb crash dummy, which corresponds to a person with a weight of 114 to 209 lbs.

TRBKTS includes four factory-installed wheelchair transport brackets. TRBKTS has not been crash-tested in accordance with WC 19. Use these transport brackets only to secure an unoccupied wheelchair during transport.

Only use the transport brackets included with TRRO and TRBKTS for the purposes described in this manual.

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.

TRANSPORT READY PACKAGES ARE NOT RETROFITTABLE TO EXISTING MODELS AND ARE NOT FIELD SERVICEABLE.

Refer to Transport Ready Option on page 133 for more information about transporting the wheelchair.

⚠ WARNING

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

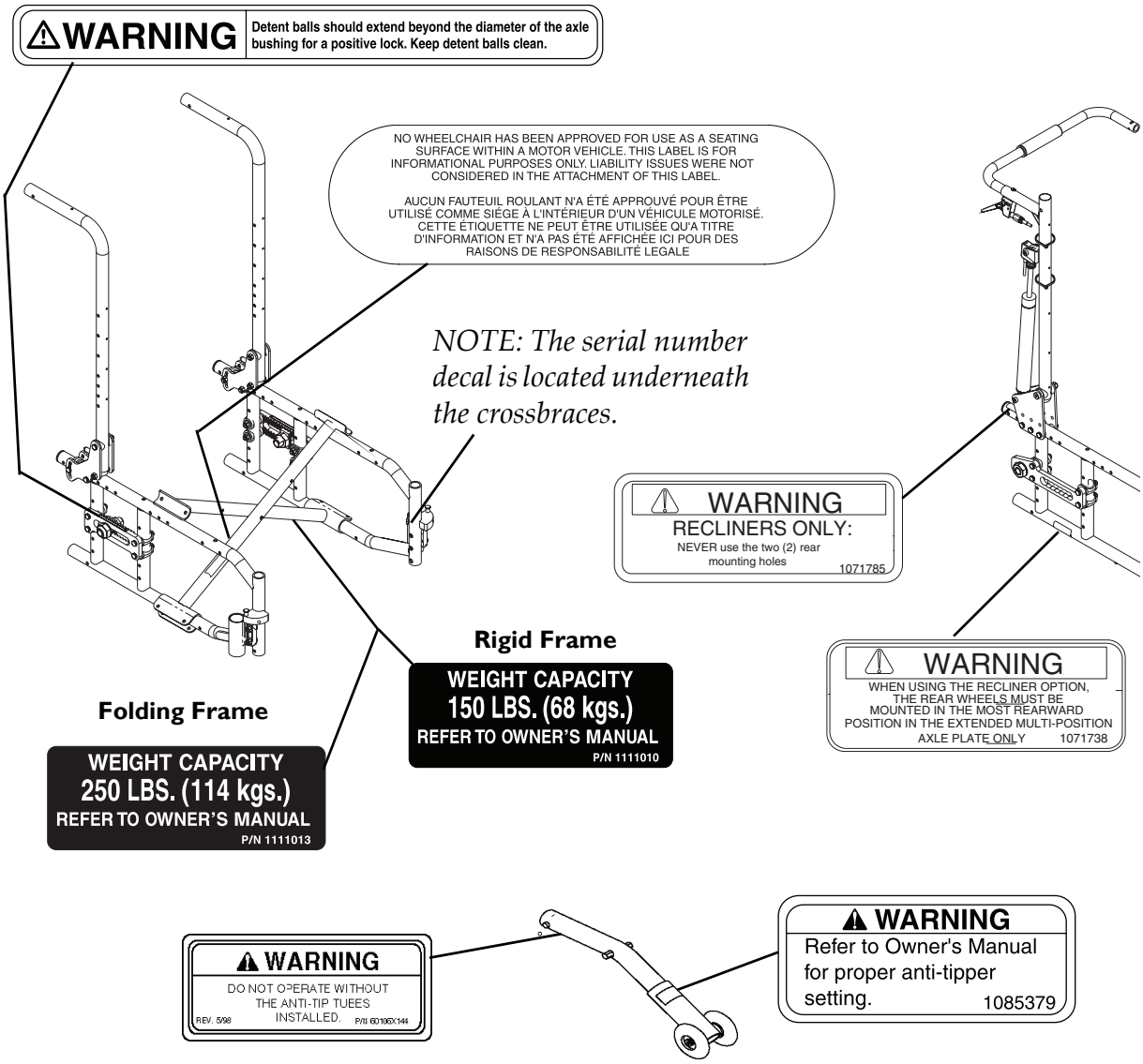
SEAT POSITIONING STRAP

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

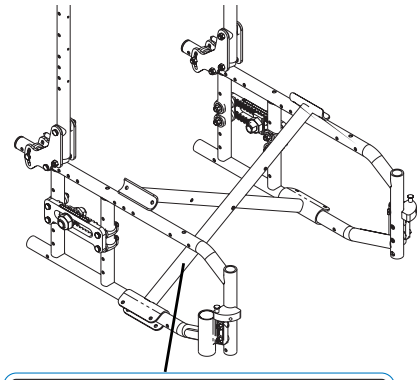
As regards restraints - seat/chest positioning straps - it is the obligation of the DME dealer, therapists and other healthcare professionals to determine if a seat/chest positioning strap is required to ensure the safe operation of this equipment by the user. SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM A WHEELCHAIR.

LABEL LOCATIONS

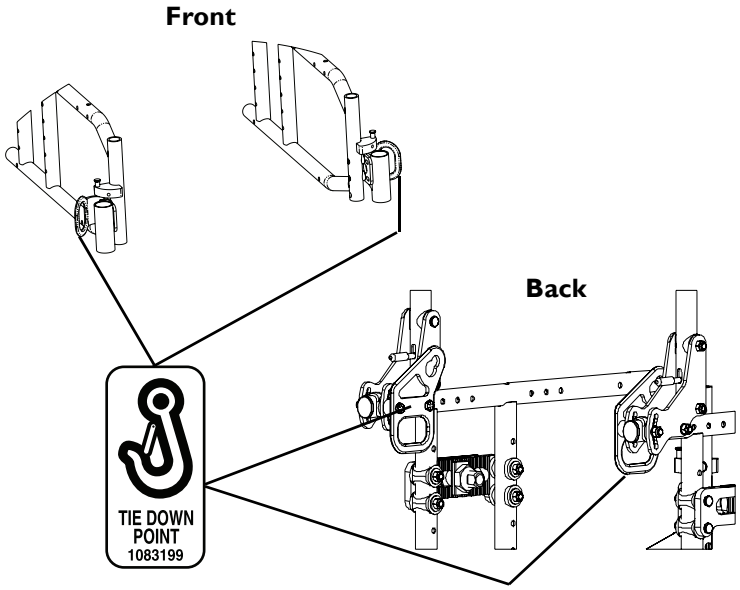
Standard Labels

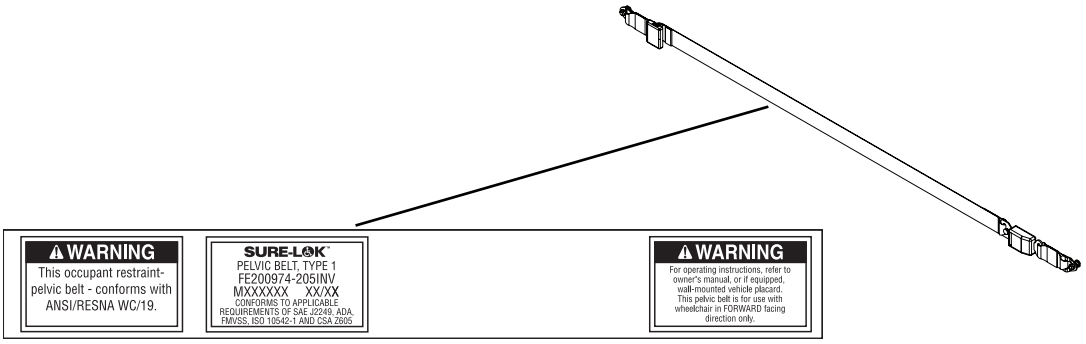


Wheelchairs with TRRO



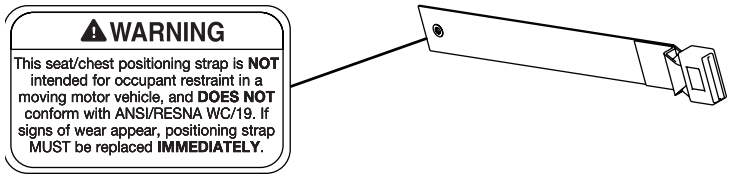
Transport Ready Option Only





Wheelchairs without TRRO

NOTE: Auto style seat positioning strap shown. This label is also on the airline style seat positioning strap.



TYPICAL PRODUCT PARAMETERS

	ALLEGRO AND COMPASS XE
OVERALL WIDTH	
OPEN:	Seat Width plus approximately 9 inches
CLOSED:	14 inches (with back upholstery)
OVERALL DEPTH (WITHOUT FRONT RIGGINGS):	27 inches (20 inch rear wheels and casters in trailing position) 37 inches (24 inch rear wheels and casters in leading position)
FRAME DEPTH	
MEDIUM:	12-16 inches
LONG:	14-18 inches
X-LONG:	16-20 inches
SEAT WIDTH	
STANDARD FOLDING FRAMES:	12-20 inches
RIGID FRAME (IN ONE [1] INCH INCREMENTS):	14-16 inches
SEAT DEPTH:	12-20 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 or Rigid Frame without Seat Rails
SEAT-TO-FLOOR*	
FRONT SEAT-TO-FLOOR RANGE (IN INCHES)	
3 inch front casters:	15¼ to 18½ inches
5 inch front casters:	16¼ to 19½ inches
6 inch front casters:	17¼ to 20¾ inches
8 inch front casters:	19 to 21¼ inches
REAR SEAT-TO-FLOOR RANGE (IN INCHES)	
20 inch rear wheels:	13½ to 19 inches
22 inch rear wheels:	14½ to 20 inches
24 inch rear wheels:	15¼ to 19¾ inches
BACK STYLE AND HEIGHT	
ADJUSTABLE ANGLE (80° TO 110°), FOLD DOWN	
Adjustable height 10° cane with push handles:	14-18-inch Height Range
Adjustable height straight cane with push handles:	12-18-inch Height Range
Adjustable height sportster cane (no push handles):	10-14-inch Height Range
Fixed height anodized cane with push handles:	18 or 20-inch
RECLINER:	18, 20, or 24-inch
BACK ANGLE RANGE (RECLINER ONLY):	90° to 170°
ARM STYLES	
T-ARM:	Standard
CANTILEVER:	Fixed Height Anodized Cane with Push Handles Only
CONVENTIONAL:	Dual Point Fixed or Adjustable Height
FRONT RIGGINGS:	Swingaway Footrests Elevating Legrests
REAR AXLE:	Quick-Release Quad-Release Permanent

	ALLEGRO AND COMPASS XE
REAR AXLE MOUNTING PLATES NON-RECLINER WHEELCHAIRS: Multi-Position: RECLINER WHEELCHAIRS:	 Standard Extended Multi-Position Offset Multi-Position Extended Multi-Position
REAR WHEELS:	20, 22 and 24-inch Composite Urethane, Pneumatic or Pneumatic with Flat Free Insert
HANDRIMS:	Aluminum Plastic Coated Projection
WHEEL LOCKS:	Push-to-Lock Pull-to-Lock Wheel Lock Extensions Hill Holder
CASTER SIZE 3 OR 5-INCH: 6 OR 8-INCH:	 Aluminum Composite Urethane Composite Urethane Pneumatic Pneumatic with Flat Free Insert
UPHOLSTERY:	U240 Nylon - Black
WEIGHT:	27-29 lbs. without Front Riggings
WEIGHT CAPACITY **FOLDING:** **RIGID:**	 250 lbs 150 lbs
SHIPPING WEIGHT (APPROXIMATE):	37-39 lbs
FRAME COLORS:	Wet Black, Sunny Yellow, Silver Vein, Black with Twilight Sparkle, Midnight Blue, Silver Metallic, Electric: Red, Blue, Purple, Teal

**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 seat-to-floor heights are based on urethane tires. If wheelchair is equipped with pneumatic tires or pneumatic tires with flat free inserts, add ¼-inch to the measurements listed above. All heights are approximate to ± ¼-inch due to tire wear and air pressure.*

SECTION 1—GENERAL GUIDELINES

⚠ WARNING

SECTION 1 - GENERAL GUIDELINES contains important information for the safe operation and use of this product. DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as Owner's Manuals, Service Manuals or Instruction Sheets supplied with this product or optional equipment. If you are unable to understand the Warnings, Cautions or Instructions, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment - otherwise, injury or damage may occur.

Stability

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

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

To maintain maximum stability, position the rear wheel axle mounting brackets in the most rearward position. Moving the rear wheels to any of the other mounting positions causes the wheelchair to decrease in stability.

If moving the rear wheel axle mounting brackets to any forward position, ensure the wheelchair is stable before using.

ALWAYS ensure stability before using maximum amount of tilt-in-space or moving the rear wheel axle mounting brackets forward. Test wheelchair before it is occupied by the end user to ensure safety.

Repair and Service Information

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

Operating Information

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

Anti-Tippers MUST be used at all times. When outdoors on wet, soft ground or on gravel surfaces, anti-tippers may not provide the same level of protection against tip over. Extra caution MUST be observed when traversing such surfaces.

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 stand on the frame of the wheelchair.

DO determine and establish your particular safety limits by practicing bending, reaching and transferring activities in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

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

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

DO NOT lean over the top of the back upholstery to reach objects behind you as this may cause the wheelchair and/or seating system (if any) to tip over.

DO NOT shift your weight or sitting position toward the direction you are reaching as the wheelchair and/or seating system (if any) may tip over.

DO NOT tip the wheelchair without assistance.

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

DO NOT use footplates as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position or swing footrests towards the outside of the chair.

Non-Recliners ONLY - Make sure the back is locked securely before using the wheelchair - otherwise injury can occur.

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.

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

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 overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

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

ALWAYS wear your seat positioning strap.

The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap must be replaced IMMEDIATELY.

ALWAYS engage both wheel locks and reduce the gap distance before transferring to and from the wheelchair. Turn all casters parallel to the object you are transferring onto.

ALWAYS verify that hand grips on the rear cane are secure prior to use when an assistant is used to propel or lift the chair. Check for any signs of looseness or deterioration and if found, contact a qualified technician. DO NOT attempt to move the wheelchair by pulling on the hand grips if they are found to be unsecure or have deteriorated.

ALWAYS use the handrims for self-propulsion. Inasmuch as the handrims are an option on this wheelchair (you may order with or without the handrims), Invacare strongly recommends ordering the handrims as an additional safeguard for the wheelchair user.

Recliner Option 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, will reduce the stability of the wheelchair.

ALWAYS make sure that the wheelchair is stable in the full reclined (back at 180°) 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 assemblies are in the lowest adjustment hole (adjustment hole closest to the ground/floor).

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 of the gas cylinders is operational or adjusted properly.

NEVER use the rear two recliner bracket mounting holes when using the recliner option. Using the rear two recliner bracket mounting holes will reduce the wheelchair's stability, 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 Safety/ Handling of Wheelchairs on page 20.

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

Wheelchairs with TRRO or TRBKTS Only

TRANSPORT READY PACKAGES ARE NOT RETROFITTABLE TO EXISTING MODELS AND ARE NOT FIELD SERVICEABLE.

Only use the transport brackets included with TRRO and TRBKTS for the purposes described in this manual.

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. The recommended tire pressure is listed on the side wall of the tire.

Replacement of a tire or tube MUST be performed by a 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 is void.

Weight Limitation

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

SECTION 2—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, however ALL WARNINGS and CAUTIONS given in this manual MUST be followed. 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/chest positioning strap. Inasmuch as the SEAT/CHEST POSITIONING STRAP is an option on this wheelchair (You may order with or without the Seat/Chest Positioning Strap), Invacare strongly recommends ordering the Seat/Chest Positioning Strap as an additional safeguard for the wheelchair user.

The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap MUST be replaced immediately.

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

Invacare strongly recommends proceeding down ramps or slopes slowly to avoid hard braking or sudden stops.

DO NOT leave elevating legrests in the fully extended position when proceeding down ramps or slopes.

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

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

To assure stability and proper operation of your wheelchair, you MUST at all times 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.

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

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

Coping with Everyday Obstacles

Coping with the irritation of everyday obstacles can be somewhat alleviated 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 wheelchair or traversing curbs or other impediments.

⚠ WARNING

DO NOT attempt to lift the wheelchair by 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.

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

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

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/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a 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 recliner bracket mounting holes when using the recliner option. Using the rear two recliner bracket mounting holes WILL make the wheelchair less stable, possibly causing injury.

NOTE: For this procedure, refer to FIGURE 2.1.

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.

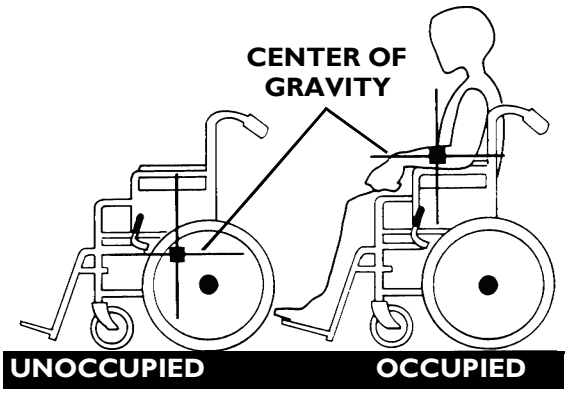


FIGURE 2.1 Percentage of Weight Distribution

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.

Adjusting the Wheelbase for Stability

NOTE: For this procedure, refer to FIGURE 2.2 on page 23.

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.

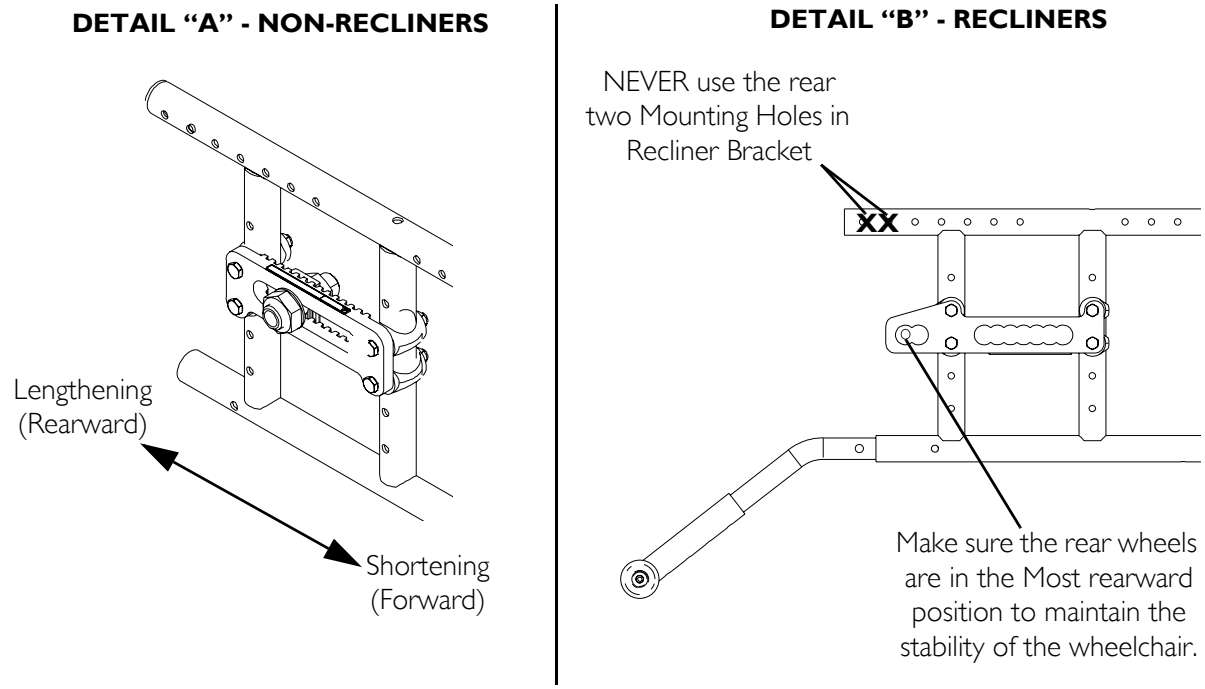


FIGURE 2.2 Adjusting the Wheelbase for Stability

Reaching, Leaning and Bending - Forward

⚠ WARNING

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

NOTE: For this procedure, refer to FIGURE 2.3.

Position the casters so that they are extended away from the drive wheels and engage wheel locks.

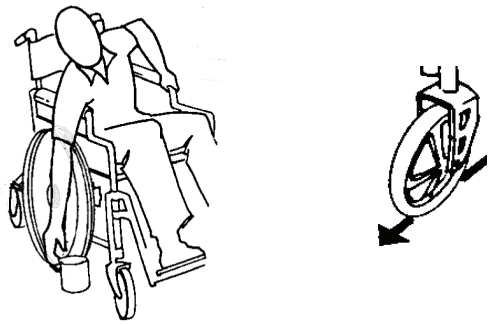


FIGURE 2.3 Reaching, Leaning and Bending - Forward

Reaching, Bending - Backward

NOTE: For this procedure, refer to FIGURE 2.4.

⚠ 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. Position the casters so that they are extended away from the drive wheels to create the longest possible wheelbase. Reach back only as far as your arm will extend without changing your sitting position.

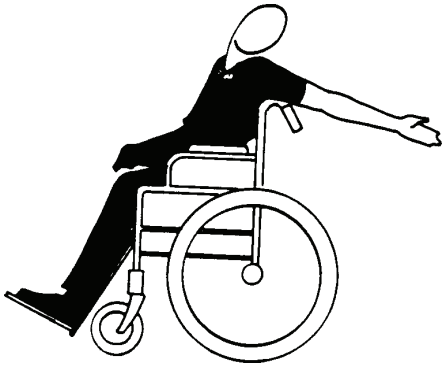


FIGURE 2.4 Reaching, Bending - Backward

Tipping

⚠ WARNING

DO NOT tip the wheelchair without assistance.

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

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

Tipping - Curbs: Method 1 - Wheelchair with Step Tubes

NOTE: For this procedure, refer to FIGURE 2.5.

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

⚠ WARNING

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

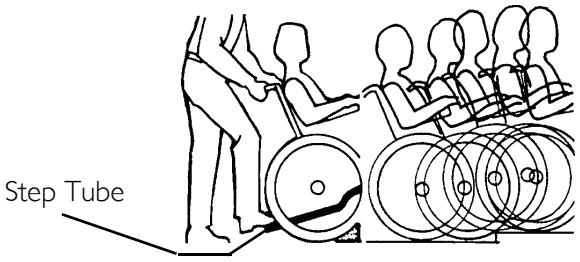


FIGURE 2.5 Tipping - Curbs: Method 1 - Wheelchair with Step Tubes

Roll the wheelchair forward and slowly lower the front of 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.

Tipping - Curbs: Method 2 - Wheelchair without Step Tube

NOTE: For this procedure, refer to FIGURE 2.6.

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

Rotate the anti-tippers so the anti-tip wheels are pointing up. 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 upward movement, the rear wheels should be pulled up and over the curb. DO NOT return the front casters to the ground until the wheelchair has been pulled backward far enough for the front casters to clear the edge of the curb.

⚠ WARNING

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

Roll the wheelchair backward and slowly lower the wheelchair in one continuous movement. DO NOT let the wheelchair drop the last few inches to the ground. This could result in injury to the occupant.

Rotate the anti-tippers so the anti-tip wheels are pointing down.

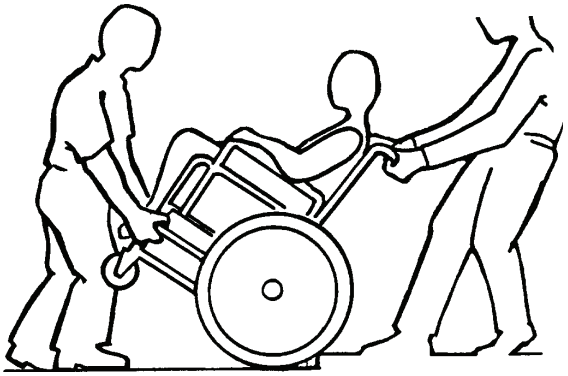


FIGURE 2.6 Tipping - Curbs: Method 2 - Wheelchair without Step Tube

Stairways

⚠ WARNING

ALWAYS wear your seat/chest positioning strap. Inasmuch as the SEAT/CHEST POSITIONING STRAP is an option on this wheelchair (You may order with or without the Seat/Chest Positioning Strap), Invacare strongly recommends ordering the Seat/Chest Positioning Strap as an additional safeguard for the wheelchair user.

The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. if signs of wear appear, seat positioning strap MUST be replaced immediately.

DO NOT attempt to lift the wheelchair by 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 that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two assistants and making thorough preparations. Make sure to use ONLY secure, non-detachable parts for hand-hold supports.

Follow these instructions for moving the wheelchair between floors when an elevator is NOT available:

1. If necessary, rotate the anti-tippers so the wheels are facing up.
2. After the wheelchair has been tilted back to the balance point, one assistant (in the rear) backs the wheelchair up against the first step, while securely grasping a non-removable (non-detachable) part of the wheelchair for leverage.
3. The second assistant, with a firm hold on a non-detachable part of the framework, lifts the wheelchair up and over the stair and steadies the wheelchair as the first assistant places one foot on the next stair and repeat STEP 1.
4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. If necessary, rotate the anti-tippers so the wheels are facing down.

⚠ WARNING: ESCALATORS

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. Align both casters parallel with 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: For this procedure, refer to FIGURE 2.7.

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

1. Position the wheelchair as close as possible along side the seat to which you are transferring, with the front casters parallel to it.
2. Engage wheel locks.
3. Remove or flip back armrests.
4. Shift body weight into seat with transfer.

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

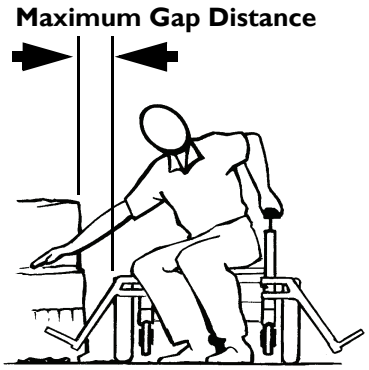


FIGURE 2.7 Percentage of Weight Distribution

Unfolding/Folding Sling Seat Model Wheelchairs

Unfolding Sling Seat

NOTE: For this procedure, refer to FIGURE 2.8 on page 28.

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. On 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 to four revolutions.

5. Engage both wheel locks, open the footrest/legrest for clearance and transfer into the wheelchair. Refer to Percentage of Weight Distribution on page 22.

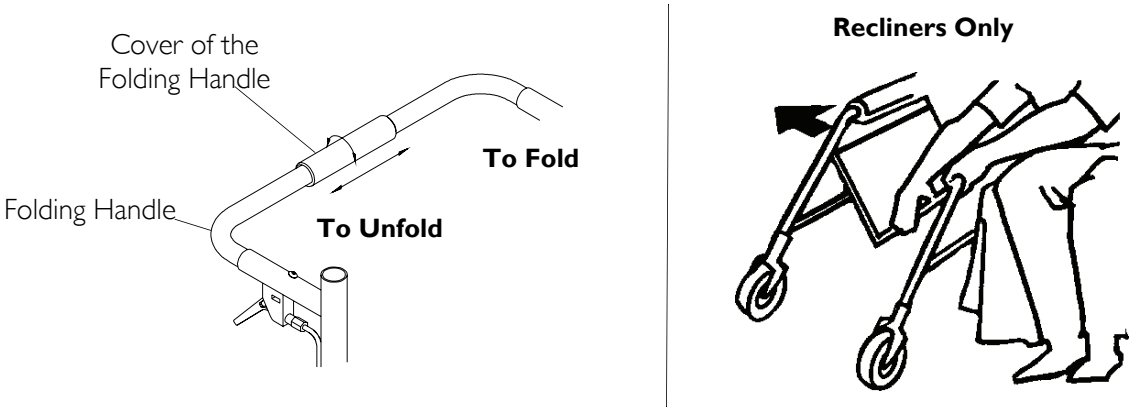


FIGURE 2.8 Unfolding Sling Seat

Folding Sling Seat

NOTE: For this procedure, refer to FIGURE 2.9 on page 29.

1. Swing footrest/legrest in locked position to the front of the wheelchair.
2. Pivot footplates upward to vertical position.
3. On recliners ONLY -
   A. Turn the folding handle cover towards the rear of the wheelchair approximately two to four revolutions.
   B. Slide the cover of the folding over until the links of the spreader bar are visible.
4. 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.

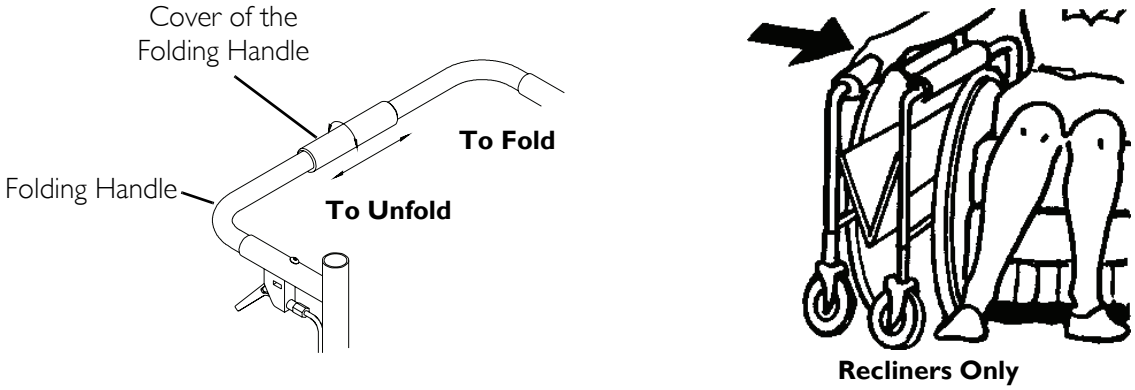


FIGURE 2.9 Folding Sling Seat

Unfolding/Folding Solid Seat Model Wheelchairs

NOTE: For this procedure, refer to FIGURE 2.10.

1. From behind the wheelchair, grasp the right hand edge of the solid seat.
2. Raise the seat to the hinged side.
3. Swing footrest/legrest in locked position to the front of the wheelchair.
4. Pivot footplates upward to vertical position.
5. 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.

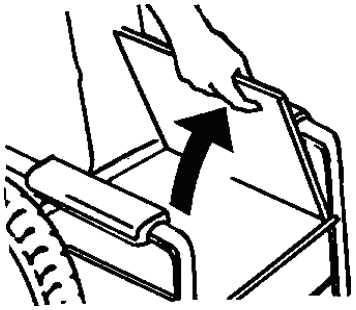


FIGURE 2.10 Unfolding/Folding Solid Seat Model Wheelchairs

SECTION 3—SAFETY INSPECTION/ TROUBLESHOOTING

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. Initially and at least every six months, follow these maintenance procedures:

Safety Inspection Checklists

Initial adjustments should be made to suit the personal body structure needs and preferences of the user. Thereafter follow these maintenance procedures:

Inspect/Adjust Initially

- ❑ Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure all hardware is tight.
- ❑ Inspect clothing guards for bent or protruding metal.
- ❑ Ensure all fasteners on clothing guards are secure.
- ❑ Inspect fastening flaps to ensure they securely latch.
- ❑ Ensure arms are secure but easy to release and adjustment levers engage properly.
- ❑ Ensure adjustable height arms operate and lock securely.
- ❑ Ensure armrest pad sits flush against arm tube.
- ❑ Ensure seat, arm and/or back upholstery have no rips.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect 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.
- ❑ Ensure hand grips are not loose.
- ❑ Ensure trigger release cables completely release and handles return when released.
- ❑ Ensure eealed bearings and axle nut tension are correct.
- ❑ Ensure there is no excessive side movement or binding when drive wheels are lifted and spun.
- ❑ Ensure quick/quad-release axles lock properly.
- ❑ Inspect handrims for signs of rough edges or peeling finish.

- ❑ Inspect for broken spokes.
- ❑ Ensure wheel/fork assembly has proper tension when caster is spun. Caster should come to a gradual stop.

CAUTION

As with any vehicle, the wheels/casters and tires should be checked periodically for cracks, flat spots and wear, and should be replaced.

- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Ensure all caster/wheel/fork/headtube fasteners are secure.
- ❑ Ensure wheel locks do not interfere with tires when rolling.
- ❑ Ensure wheel lock pivot point are free of wear and looseness.
- ❑ Ensure wheel locks are easy to engage.
- ❑ Inspect tires/casters for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation (recommended tire pressure is listed on the side wall of the tire).

⚠ WARNING

DO NOT use WD-40®, 3-in-1 Oil®, or other penetrating lubricants on quick-release axles. Otherwise, binding and/or damage to the wheelchair may occur.

- ❑ Clean quick-release axles with a Teflon® lubricant.
- ❑ Ensure axles are free from dirt, lint, etc.
- ❑ Ensure roller bearings are free from dirt, lint, etc.
- ❑ Inspect gas cylinders for leaking oil.
- ❑ Adjust wheel locks as tires wear.
- ❑ Clean and wax all parts.
- ❑ Clean upholstery and armrests.
- ❑ Check that all labels are present and legible. Replace if necessary.

Inspect/Adjust Weekly

- ❑ Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure quick/quad-release axles lock properly.
- ❑ Inspect for broken spokes.
- ❑ Ensure wheel/fork assembly has proper tension when caster is spun. Caster should come to a gradual stop.
- ❑ Inspect tires/casters for flat spots and wear.

- ❑ Check pneumatic tires for proper inflation (recommended tire pressure is listed on the side wall of the tire).

Inspect/Adjust Monthly

- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Inspect fastening flaps to ensure they securely latch.
- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Ensure wheel locks do not interfere with tires when rolling.
- ❑ Ensure wheel lock pivot point are free of wear and looseness.
- ❑ Ensure all caster/wheel/fork/headtube fasteners are secure.
- ❑ Ensure all hardware is tight.
- ❑ Ensure hand grips are not loose.

Inspect/Adjust Periodically

- ❑ Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure arms are secure but easy to release and adjustment levers engage properly.
- ❑ Ensure adjustable height arms operate and lock securely.
- ❑ Ensure armrest pad sits flush against arm tube.
- ❑ Inspect clothing guards for bent or protruding metal.
- ❑ Ensure all fasteners on clothing guards are secure.
- ❑ Ensure seat, arm and/or back upholstery have no rips.
- ❑ 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.
- ❑ Ensure there is no excessive side movement or binding when drive wheels are lifted and spun.
- ❑ Inspect handrims for signs of rough edges or peeling finish.
- ❑ Inspect tires/casters for flat spots and wear.
- ❑ Check pneumatic tires for proper inflation (recommended tire pressure is listed on the side wall of the tire).
- ❑ Ensure wheel lock pivot point are free of wear and looseness.
- ❑ Ensure trigger release cables completely release and handles return when released.
- ❑ Inspect gas cylinders for leaking oil.

- ❑ Clean upholstery and armrests.
- ❑ Ensure sealed bearings and axle nut tension are correct.
- ❑ Ensure wheel/fork assembly has proper tension when caster is spun. Caster should come to a gradual stop.
- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure wheel bearings are clean and free of moisture.
- ❑ Ensure wheel locks are easy to engage.
- ❑ Ensure clean quick-release axles with a Teflon® lubricant.
- ❑ Ensure axles are free from dirt, lint, etc.
- ❑ Ensure roller bearings are free from dirt, lint, etc.
- ❑ Adjust wheel locks as tires wear.
- ❑ Clean and wax all parts.
- ❑ Check that all labels are present and legible. Replace if necessary.

Troubleshooting

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

SECTION 4—MAINTENANCE

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Maintenance Safety Precautions

Suggested Maintenance Procedures

1. Before using your Compass XE/Allegro, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
2. Keep quick/quad-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to Adjusting the Quick-Release Axle on page 103 or Adjusting the Quad-Release Axle on page 104.
3. Oil quick/quad-release axles at least once a month with a Teflon lubricant.
4. 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 on page 71.

⚠ WARNING

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. The recommended tire pressure is listed on the side wall of the tire.

Replacement of a pneumatic tire or tube MUST be performed by a qualified techncian.

5. If tires are pneumatic, recommended tire pressure is listed on the side wall of the tire.
6. The wheels and tires should be checked periodically for cracks and wear, and should be replaced.
7. Periodically check handrims to ensure they are secured to the rear wheels. Refer to Replacing Handrim on page 105.
8. Periodically adjust wheel locks as tires wear. Refer to Adjusting the Wheel Locks on page 121.
9. Periodically check front caster wheel bearings to make sure they are clean and free from moisture. Use a Teflon lubricant if necessary.
10. Check upholstery for sagging, rips or tears.
11. 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 on page 118.

SECTION 5—FRONT RIGGINGS

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Installing/Removing Swingaway Footrest

NOTE: For this procedure, refer to FIGURE 5.1.

Installing

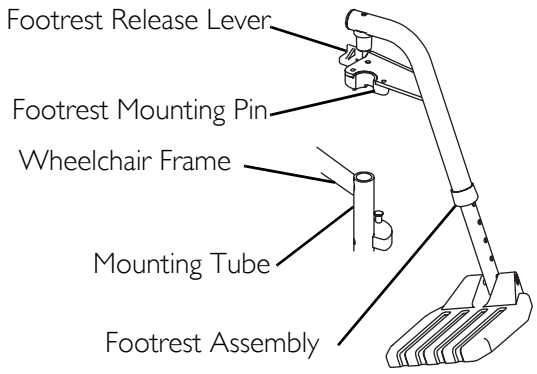
1. Turn the footrest to the side (open footplate is perpendicular to the wheelchair).
2. Insert the front rigging assembly mounting pin into the mounting tube of the wheelchair frame.
3. Rotate the footrest towards the inside of the wheelchair until it locks into place.

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

4. Repeat STEPS 1-3 for the other footrest assembly.
5. If necessary, adjust the footrest height. Refer to Adjusting Footrest Height on page 37.

Removing

1. Push the footrest release lever inward while rotating the front rigging outward.
2. Lift the footrest assembly out of the mounting pin of the wheelchair frame.
3. Repeat STEPS 1-2 for opposite side, if necessary.



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

FIGURE 5.1 Installing/Removing Swingaway Footrest

Installing/Removing Lift-Off footrest

NOTE: For this procedure, refer to FIGURE 5.2.

Installing

1. Insert the footrest assembly mounting pin into the mounting tube of the wheelchair frame.
2. Repeat STEP 1 for the other footrest assembly.
3. If necessary, adjust the footrest height. Refer to Adjusting Footrest Height on page 37.

Removing

1. Push the footrest release lever inward and lift footrest upward.
2. Repeat STEP 1 for opposite side, if necessary.

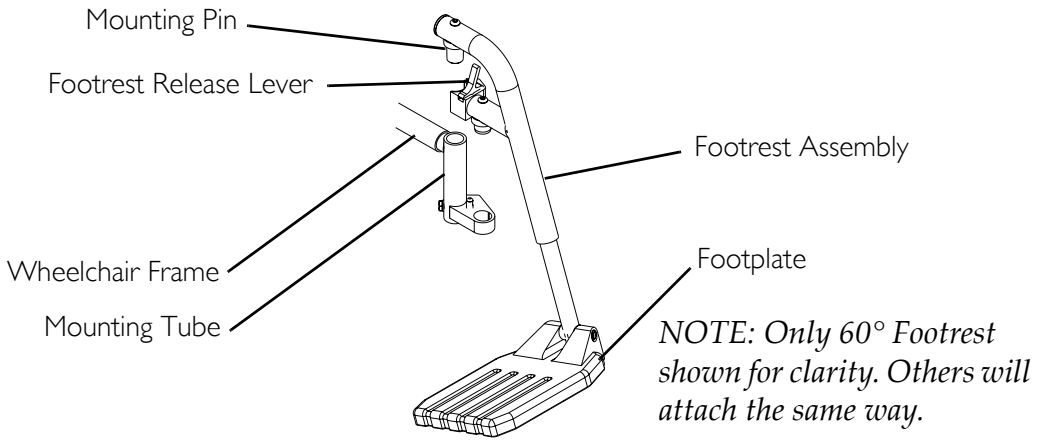


FIGURE 5.2 Installing/Removing Lift-Off footrest

Adjusting Footrest Height

Height Adjustment Ranges

FOOTREST TYPE	ADJUSTMENT RANGE
60°	13-17-inches
70°	13-17-inches
90°	5-8-inches
90°	5-11-inches (with 3-inch extension)

NOTE: If using ANY type of extension with the adjustable flip-up footplate. Refer to Adjusting Adjustable Angle Flip-Up Footplates on page 39.

60°, 70° and 90° Taper

NOTE: For this procedure, refer to FIGURE 5.3.

1. Remove the footrest from the wheelchair.Refer to Installing/Removing Swingaway Footrest on page 35.
2. Remove the hex screw and coved spacer and slide the footrest up or down on its mounting tube until the desired footrest height is achieved.
3. Reassemble the hex screw and coved spacer through the footrest upper support and mounting tube (FIGURE 5.3).

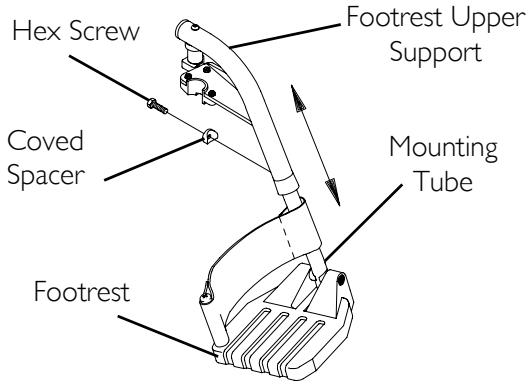


FIGURE 5.3 Adjusting Footrest Height - 60°, 70° and 90° Taper

4. Securely tighten the hex screw and coved spacer.
5. Install the footrest assembly onto the wheelchair. Refer to Installing/Removing Swingaway Footrest on page 35.
6. Repeat STEPS 1-5 for the opposite side of the wheelchair, if necessary.

70° MFX, 90°, 70° LIFT and 90° LIFT Footrests

NOTE: For this procedure, refer to FIGURE 5.4 on page 38.

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. Reposition the footplate to the desired height.

4. Reinstall the socket bolt through the mounting holes of the footplate and footrest support.

⚠ WARNING

DO NOT overtighten socket bolt and locknut. Footrest MUST be able to rotate upward from the horizontal to the vertical position.

5. Secure the footplate to the footrest support with the coved washer and locknut.

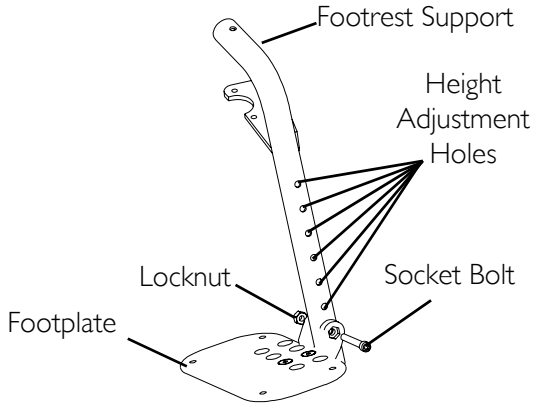


FIGURE 5.4 Installing/Removing Swingaway Footrest - 70° MFX, 90°, 70° LIFT and 90° LIFT Footrests

Installing Adjustable Angle Flip-Up Footplate Hinge

NOTE: For this procedure, refer to FIGURE 5.5.

1. Position the adjustable angle flip-up footplate hinge on the footrest support tube at the desired height.
2. Position the hardware on the footrest support as shown in FIGURE 5.4.
3. Flip the footplate hinge to the up position.

NOTE: The footplate hinge will fall to the down position.

4. Tighten the socket screw and locknut that secure the footplate hinge to the footrest support until the footplate hinge remains in the up position.
5. Check the up and down motion of the footplate hinge to make sure the user of the wheelchair can operate the footplates easily.

NOTE: If the footplate's motion is too tight, loosen the socket screw and locknut approximately 1/4-turn.

NOTE: If the footplate's motion is too loose, tighten the socket screw and locknut approximately 1/4-turn.

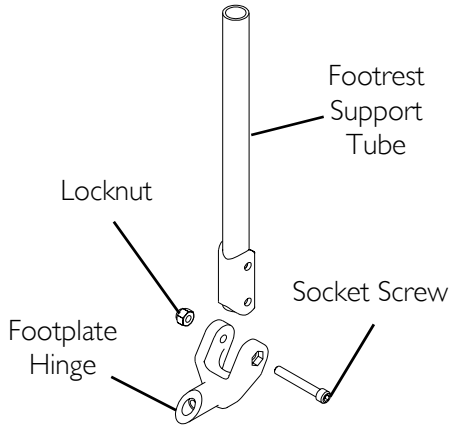


FIGURE 5.5 Installing Adjustable Angle Flip-Up Footplate Hinge

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. Otherwise, injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 5.6.

Depth Adjustment

1. Remove the two flat screws and locknuts that secure footplate to the half clamp.

NOTE: Observe the angle of the footplate for reinstallation.

2. Move the footplate to one of four mounting positions.

NOTE: If desired depth is still not obtained, rotate the half clamp on the footplate hinge 180°.

3. Retighten the two flat screws and locknuts.

NOTE: The setting for positioning the footplate on the half clamp may vary for each footplate.

4. Repeat STEPS 1-3 for opposite footplate, if desired.

Angle Adjustment

1. Loosen, but DO NOT remove the adjustment screw in the half clamp.
2. Position the footplate to the necessary angle to accommodate the user (Detail "A").
3. Retighten the adjustment screw. Torque to over 90 in/lbs, but no more than 300 in/lbs.
4. Repeat STEPS 1-3 for opposite footplate, if desired.
5. Screw in or out until the adjustable angle flip-up footplate is perpendicular to the footrest assembly or the desired inversion/eversion is obtained.

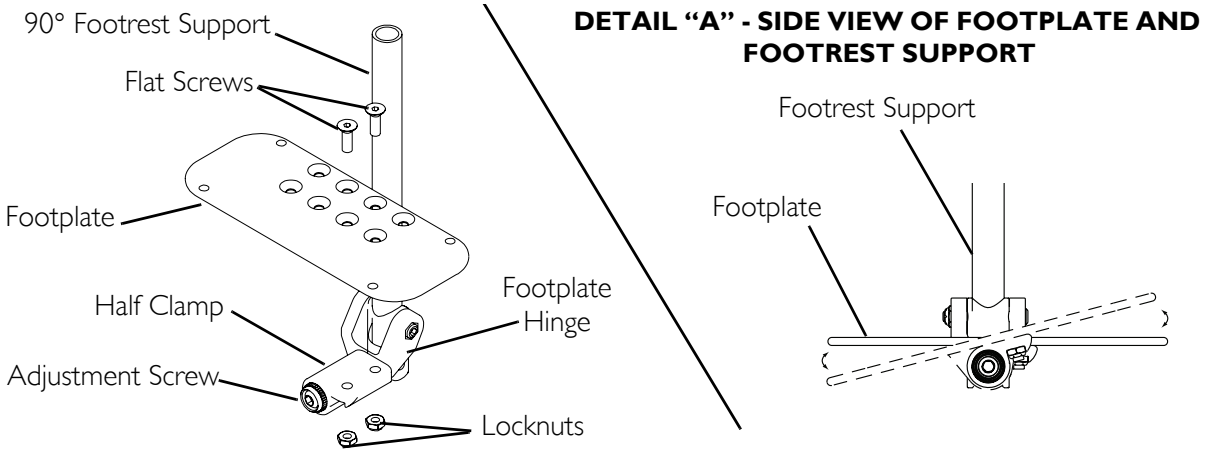


FIGURE 5.6 Adjusting Adjustable Angle Flip-Up Footplates

Installing 3-Inch Extension

NOTE: For this procedure, refer to FIGURE 5.7.

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 Adjustable Angle Flip-Up Footplate Hinge on page 38 or Adjusting Adjustable Angle Flip-Up Footplates on page 39.

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.

NOTE: 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.

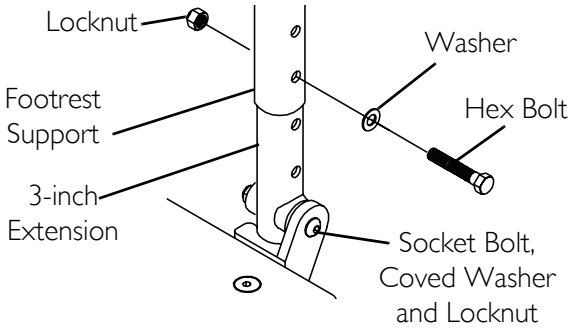


FIGURE 5.7 Installing 3-Inch Extension

Installing/Removing Elevating Legrests

NOTE: For this procedure, refer to FIGURE 5.8 and FIGURE 5.1 on page 35.

Installing

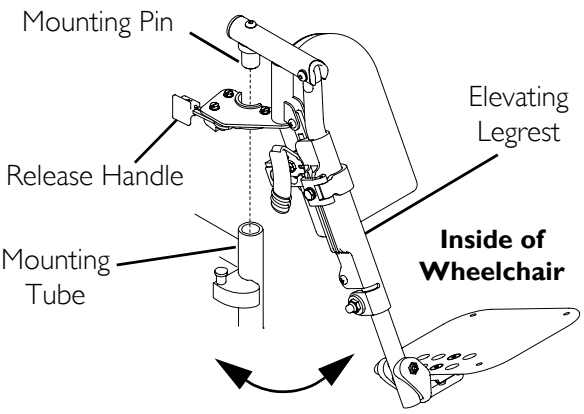
1. Place elevating legrest on the outside of the wheelchair and insert mounting pin into the mounting tube.
2. Rotate elevating legrest toward the inside of the wheelchair until it locks in place.

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

3. Repeat STEPS 1-3 for the other elevating legrest assembly.

Removing

1. Push the legrest release handle inward while rotating the elevating legrest outward.
2. Lift the legrest assembly out of the mounting tube of the wheelchair frame.
3. Repeat STEPS 1-2 for opposite side, if necessary.



NOTE: The mounting tube will be part of the seat frame or wheelchair front frame depending on wheelchair model.

FIGURE 5.8 Replacing Sector Block

Raising/Lowering the Elevating Legrest

NOTE: For this procedure, refer to FIGURE 5.9.

1. Perform one of the following:
   - Raising: Lift legrest assembly up to desired height.
   - Lowering: Lift elevating legrest assembly up with one hand. While supporting the eleveting legrest assembly (and user's leg), pull release lever up with other hand and lower legrest assembly to desired height.

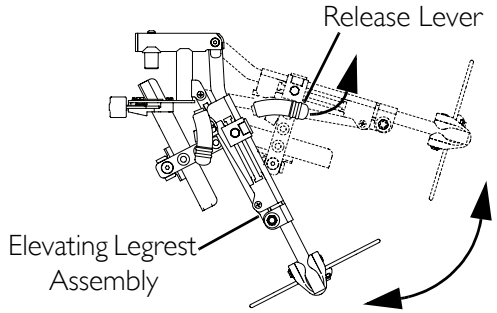


FIGURE 5.9 Raising/Lowering the Elevating Legrest

Adjusting Footplate Height and Calfpad Height/Depth

NOTE: For this procedure, refer to FIGURE 5.10.

Adjusting the Footplate Height

1. Loosen locknut and washer securing the slide tube to the elevating legrest.
2. Reposition footplate to desired height securely tighten locknut and washer.
3. If necessary, repeat STEPS 1-2 to adjust remaining footplate height.

Adjusting Calfpad Height

1. Loosen the mounting bolt and washer that secure the calfpad bracket to the elevating legrest assembly.
2. Slide the calfpad bracket up or down until the desired calfpad height is obtained.
3. Tighten the mounting bolt and washer securing the calfpad bracket to the elevating legrest assembly.
4. If necessary, repeat STEPS 1-3 to adjust remaining calfpad bracket.

Adjusting Calfpad Depth

1. Remove the mounting screw, spacer and locknut that secure the calfpad to the calfpad bracket.
2. Insert mounting screw through one of four calfpad bracket mounting holes.
3. Using the mounting screw spacer and locknut, secure the calfpad to the calfpad bracket.
4. If necessary, repeat STEPS 1-3 to adjust remaining calfpad assembly.

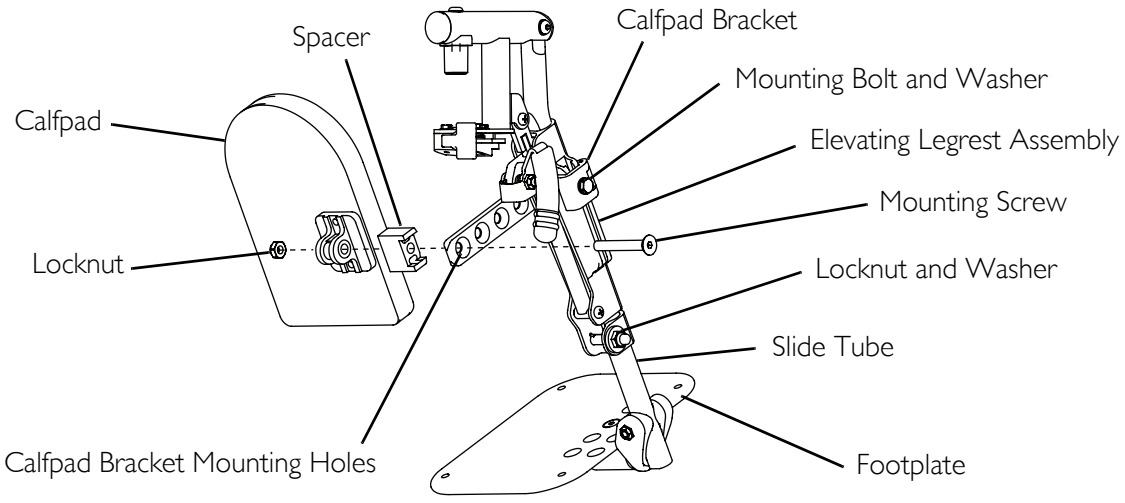


FIGURE 5.10 Adjusting Footplate Height and Calfpad Height/Depth

Replacing Aluminum, Composite/Articulating Footplate Heel Loop

NOTE: For this procedure, refer to FIGURE 5.11.

1. Remove the mounting screw and coved spacer that secure the lower footrest assembly to the upper footrest assembly.
2. Remove the lower footrest assembly.
3. Perform one of the following:
   - Aluminum/Composite Footplate - Remove the mounting screw, spacer and locknut that secure the existing heel loop to the footrest.
   - Articulating Footplate - Remove the two mounting screws, spacers and locknuts that secure the existing heel loop to the footrest.
4. Slide existing heel loop off of the footrest.
5. Using a new heel loop, reverse STEPS 1-4 to install the new heel loop.

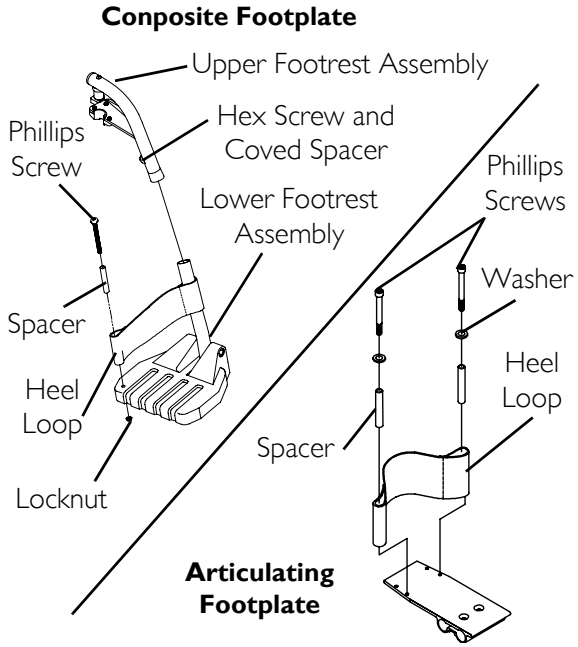


FIGURE 5.11 Replacing Aluminum, Composite/Articulating Footplate Heel Loop

NOTE: When securing the heel loop to the footrest assembly, tighten mounting screw until the spacer(s) is secure.

Flip-up Footplates

NOTE: For this procedure, refer to FIGURE 5.12 on page 44.

1. Remove the four mounting screws and washers that secure the heel loop to the foot plate.
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 existing mounting screws and washers.

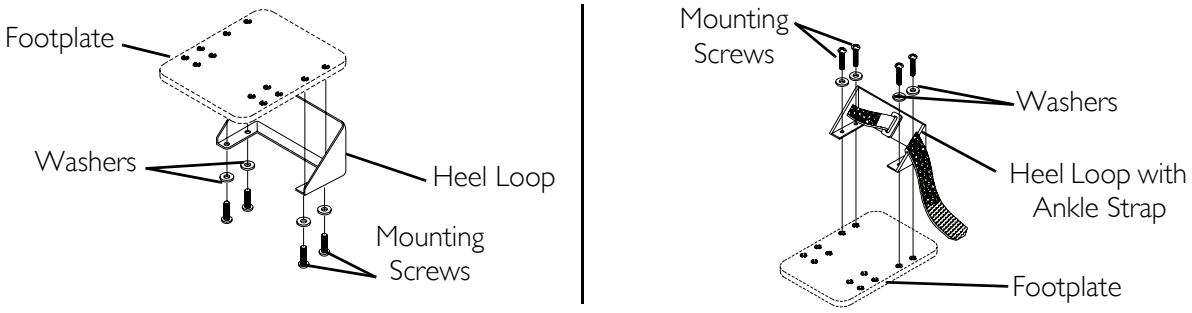


FIGURE 5.12 Replacing Aluminum, Composite/Articulating Footplate Heel Loop - Flip-up Footplates

Replacing Sector Block

NOTE: For this procedure, refer to FIGURE 5.13.

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.

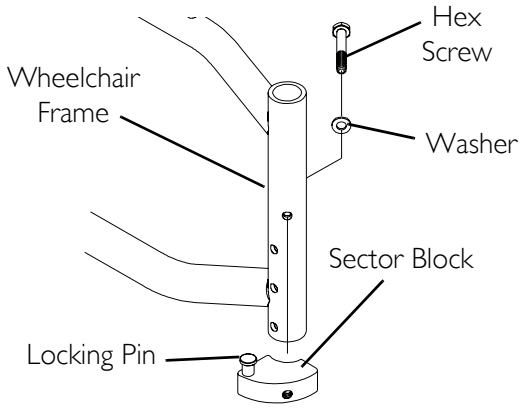


FIGURE 5.13 Replacing Sector Block

Installing Impact Guards/Calf Strap/H-Calf Strap

NOTE: For this procedure, refer to FIGURE 5.14.

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).

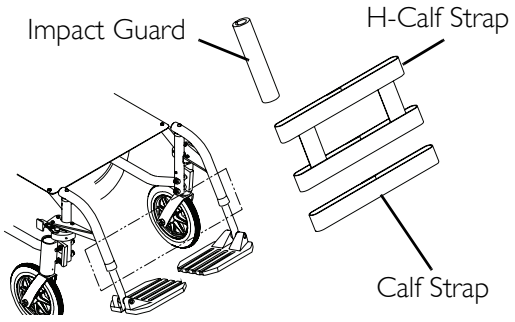


FIGURE 5.14 Installing Impact Guards/Calf Strap/H-Calf Strap

SECTION 6—ARMS

⚠ WARNING

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

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

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

Adjusting/Removing/Replacing Conventional Arms

⚠ WARNING

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

NOTE: For this procedure, refer to FIGURE 6.1 on page 46.

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

Installing 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.

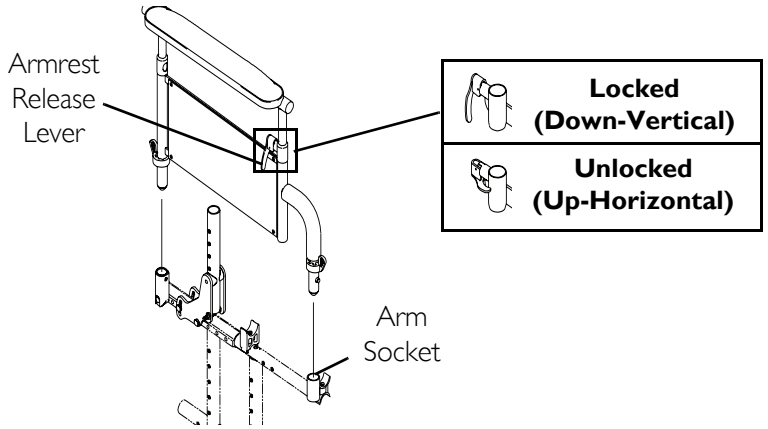


FIGURE 6.1 Adjusting/Removing/Replacing Conventional Arms

Replacing Conventional Armrest Pads

NOTE: For this procedure, refer to FIGURE 6.2.

1. Remove the mounting screws that secure the existing armrest pad to the armrest assembly.
2. Install new armrest pad and securely tighten with the existing mounting screws.

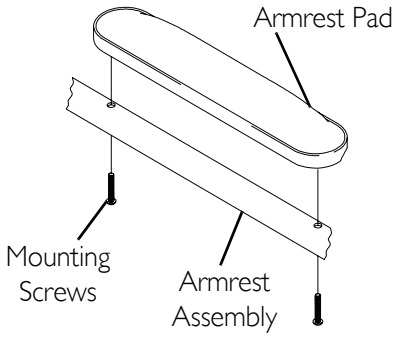


FIGURE 6.2 Replacing Conventional Armrest Pads

Repositioning Conventional Arms

Repositioning Rear Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.3 on page 47.

1. Determine rear arm socket position necessary for the seat depth. Refer to Changing Seat Depth on page 86.
2. Remove the hex bolt, and locknut that secure the rear arm socket, nylon shim, coved spacer and rear arm socket mount to the wheelchair frame.
3. Move the rear arm socket, nylon shim, coved spacer and rear arm socket mount to the position determined in STEP 1.
4. Reinstall the rear arm socket, nylon shim, coved spacer and rear arm socket mount onto the wheelchair with the hex bolt and locknut.
5. Repeat STEPS 1-4 for the opposite side of the wheelchair.

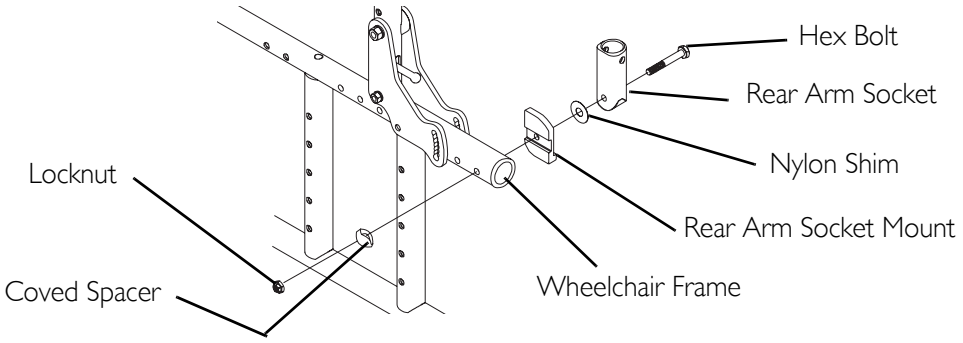


FIGURE 6.3 Repositioning Conventional Arms - Repositioning Rear Arm Sockets

Repositioning Front Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.4.

1. Determine the necessary front arm socket position for the necessary seat depth. Refer to Changing Seat Depth on page 86.
2. Remove locknut and screw that secure the front arm socket to the wheelchair.
3. Move the front arm socket to the position determined in STEP 1.
4. Resecure the front arm socket to the wheelchair with the screw and locknut.
5. Repeat STEPS 1-4 for the opposite side of the wheelchair.

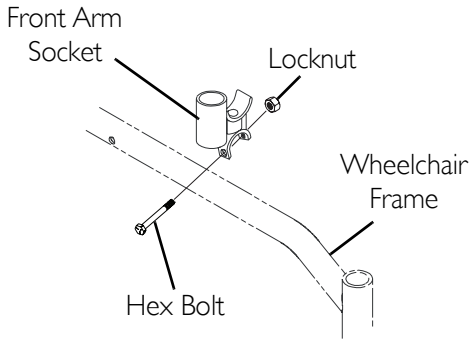


FIGURE 6.4 Repositioning Conventional Arms - Repositioning Front Arm Sockets

Using/Installing/Adjusting Cantilever Arms

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

Using Locking Cantilever Arms

NOTE: For this procedure, refer to FIGURE 6.5 on page 48.

1. Push the locking mechanism actuator towards the front of the wheelchair.
2. While holding the locking mechanism actuator, pull up on the cantilever arm towards the rear of the wheelchair.
3. If necessary, the locking mechanism in the cantilever arm can be repositioned so the cantilever arm will open down instead of up. Refer to Adjusting Cantilever Arm Pad Depth/Replacing Cantilever Arm Pad on page 54.
4. To lock the cantilever arm, push down until there is an audible click.
5. Pull up on the cantilever arm to make sure it is locked in place.

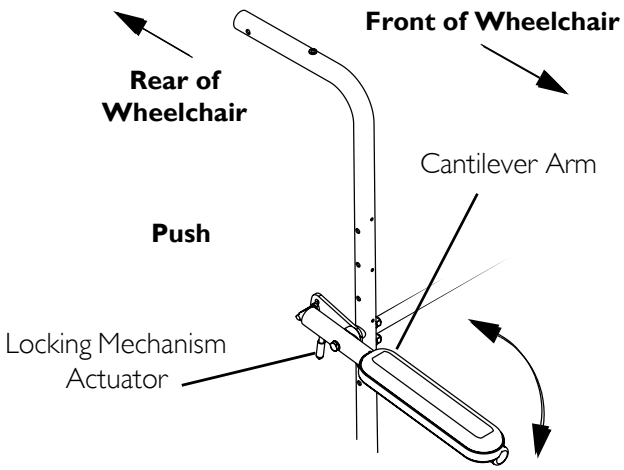


FIGURE 6.5 Using Locking Cantilever Arms

Installing Locking Cantilever Arms

NOTE: For this procedure, refer to FIGURE 6.6 on page 49.

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 with 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).

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 locknuts and washers.
4. Adjust the angle of the cantilever arm, if necessary. Refer to Adjusting Arm Angle to Corresponding Back Angle on page 49.

Adjusting Locking Cantilever Arm Height

NOTE: For this procedure, refer to FIGURE 6.6 on page 49.

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. Remove the two locknuts and washers securing the cantilever arm assembly to the back cane.
2. Remove the cantilever arm assembly with hardware from the back cane.
3. Perform STEPS 1-4 in Installing Locking Cantilever Arms on page 48 to reposition the arm at the desired height.

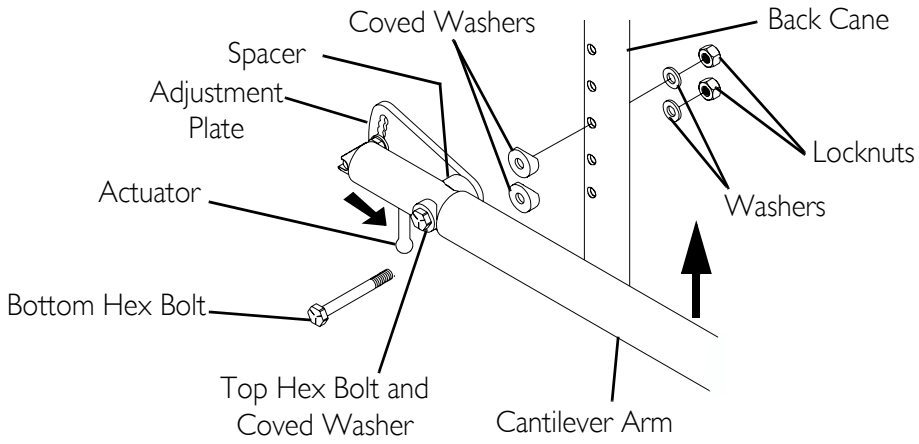


FIGURE 6.6 Using/Installing/Adjusting Cantilever Arms

Adjusting Arm Angle to Corresponding Back Angle

NOTE: For this procedure, refer to FIGURE 6.7 on page 50.

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 (Detail "A").
3. Determine the mounting hole in the arm adjustment plate that will be used to correspond to the back angle (FIGURE 6.7).

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

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

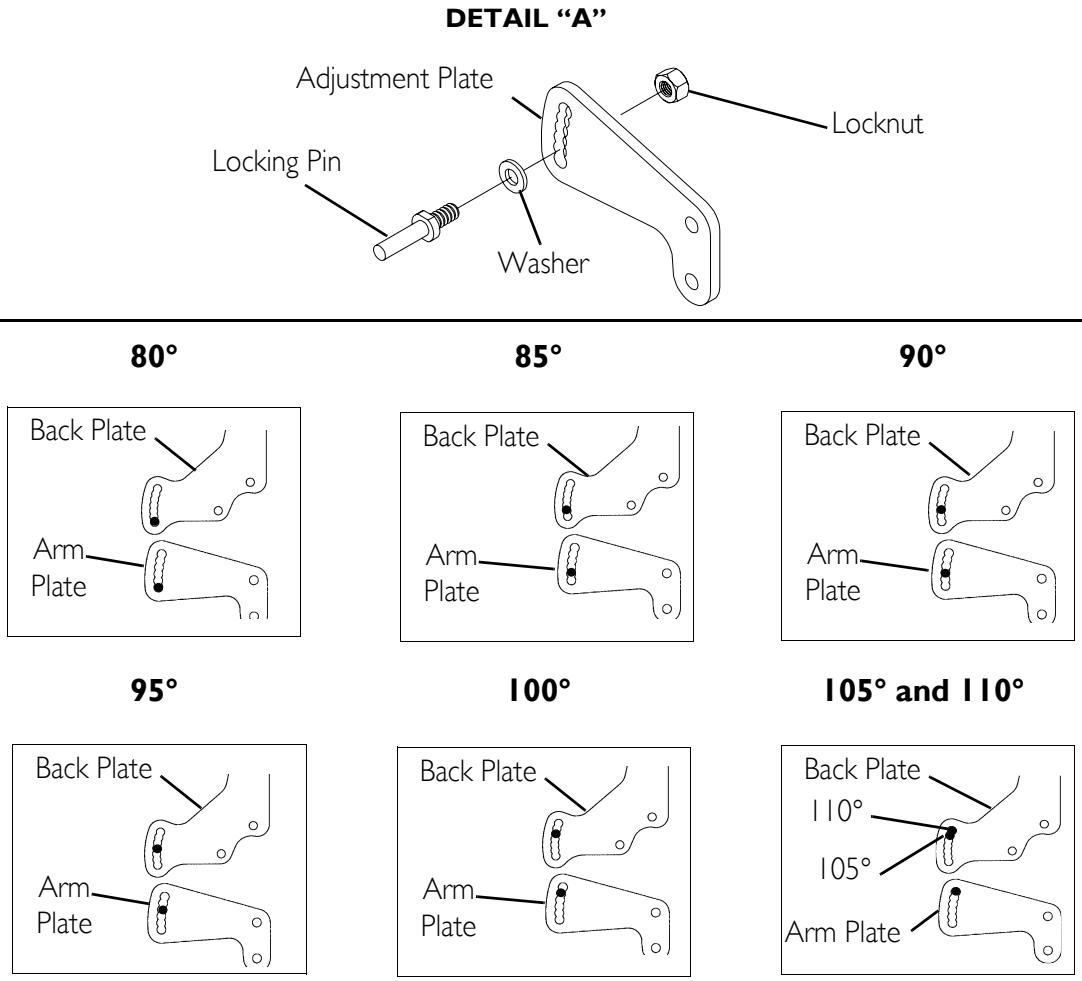


FIGURE 6.7 Adjusting Arm Angle to Corresponding Back Angle

Replacing/Repositioning the Locking Mechanism in the Cantilever Arm

NOTE: For this procedure, refer to FIGURE 6.8.

1. Move the cantilever arm up and out of the way.
2. 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.

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

NOTE: Inspect the spring and replace if necessary.

4. Slide the new locking mechanism and spring into the cantilever arm.
5. Position the angled portion of the locking mechanism in one of two ways:
   A. Angled Portion Facing up - Arm will flip up.
   B. Angled Portion Facing down - Arm will flip down.
6. Use Loctite 242™ and securely tighten the actuator into the locking mechanism.
7. To lock the cantilever arm, push down until there is an audible click.
8. Pull up on the cantilever arm to make sure it is locked in place.

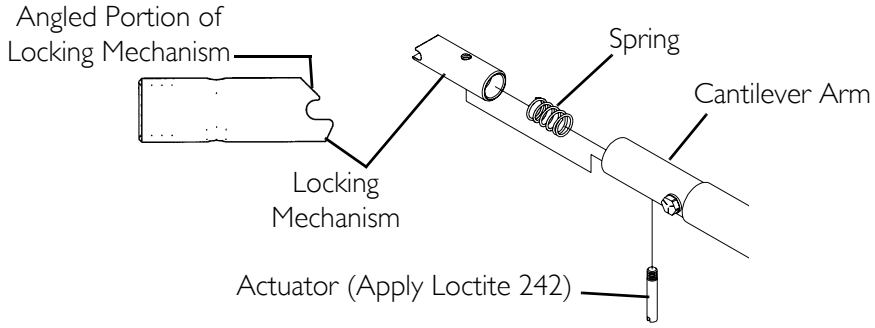


FIGURE 6.8 Adjusting Cantilever Arm Pad Depth/Replacing Cantilever Arm Pad

Using/Installing/Adjusting Non-Locking Cantilever Arms

Using Non-Locking Cantilever Arms

⚠ WARNING

DO NOT use lap trays with non-locking cantilever arms.

NOTE: For this procedure, refer to FIGURE 6.9.

1. Pull the end of the cantilever arm down to lower the cantilever arm.
2. Pull the end of the cantilever arm up to move it out of the way.

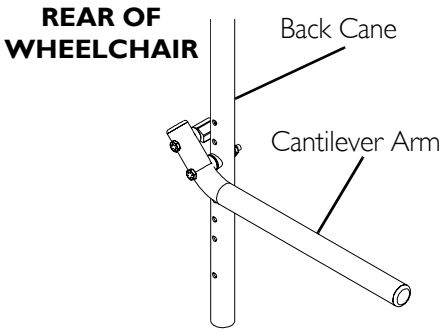


FIGURE 6.9 Using Non-Locking Cantilever Arms

Installing Non-Locking Cantilever Arms

NOTE: For this procedure, refer to FIGURE 6.10.

1. Remove the locknut and washer from the lower hex bolt installed on the non-locking cantilever arm.
2. Slide the hex bolt of the cantilever arm assembly into the desired mounting hole on the back cane.
3. Secure the cantilever arm to the wheelchair with a washer and locknut.
4. Adjust the angle of the cantilever arm, if necessary. Refer to Adjusting Non-Locking Cantilever Arm Angle on page 53.

Adjusting Non-Locking Cantilever Arm Height

NOTE: For this procedure, refer to FIGURE 6.10.

1. Remove the locknut and washer from the lower hex bolt securing the cantilever arm to the back cane.
2. Slide the cantilever arm assembly out of the back cane.
3. Reposition the cantilever arm assembly to the desired mounting hole.
4. Secure the cantilever arm to the wheelchair with a washer and locknut.

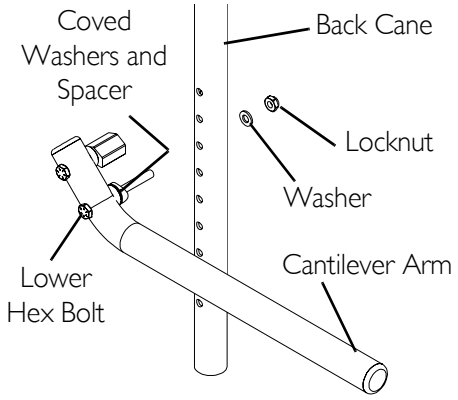
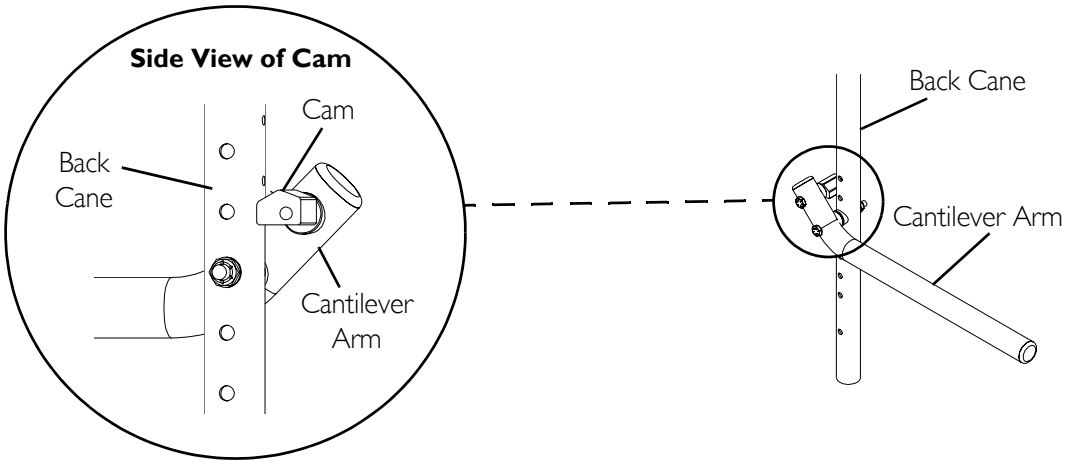


FIGURE 6.10 Adjusting Non-Locking Cantilever Arm Height

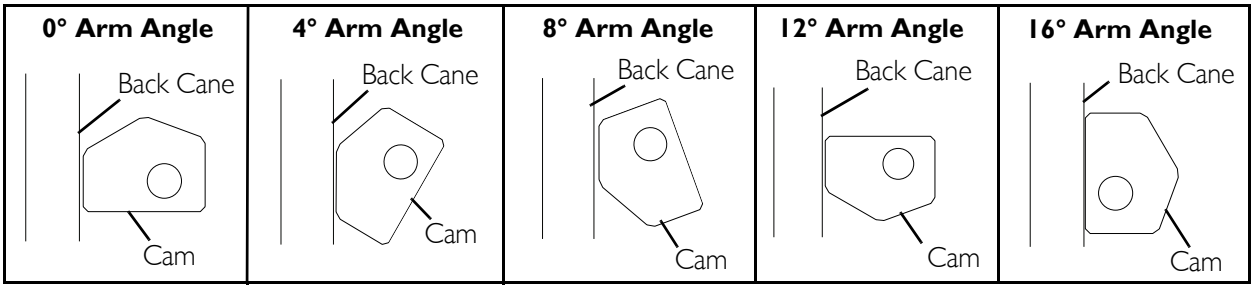
Adjusting Non-Locking Cantilever Arm Angle

NOTE: For this procedure, refer to FIGURE 6.11.

1. Loosen the mounting screw securing the cam to the cantilever arm.
2. Rotate the cam until the desired angle is achieved (Detail "A" of FIGURE 6.11).
3. Tighten the mounting screw securing the cam to the cantilever arm.



DETAIL "A" - CAM POSITIONS



NOTE: All arm angles are relative to the back cane.

FIGURE 6.11 Adjusting Non-Locking Cantilever Arm Angle

Adjusting Cantilever Arm Pad Depth/Replacing Cantilever Arm Pad

NOTE: For this procedure, refer to FIGURE 6.12.

Adjusting Depth

1. Remove the mounting screw from the rear of the arm-rest pad and self-taping screw if full length arm pads.
2. Depending on the desired arm pad depth, reposition the cantilever slide tube as follows:
   A. For Desk Length Arm Pads - Secure to one of five positions.
   B. For Full Length Arm Pads - Secure into the first adjustment hole.
3. Reattach the arm pad/cantilever slide tube to the arm tube with existing hardware.
4. Repeat for the opposite side, if necessary.

Replacing

1. Remove the two mounting screws from the armrest pad.
2. Replace with new armrest pad.
3. Secure with existing two mounting screws.

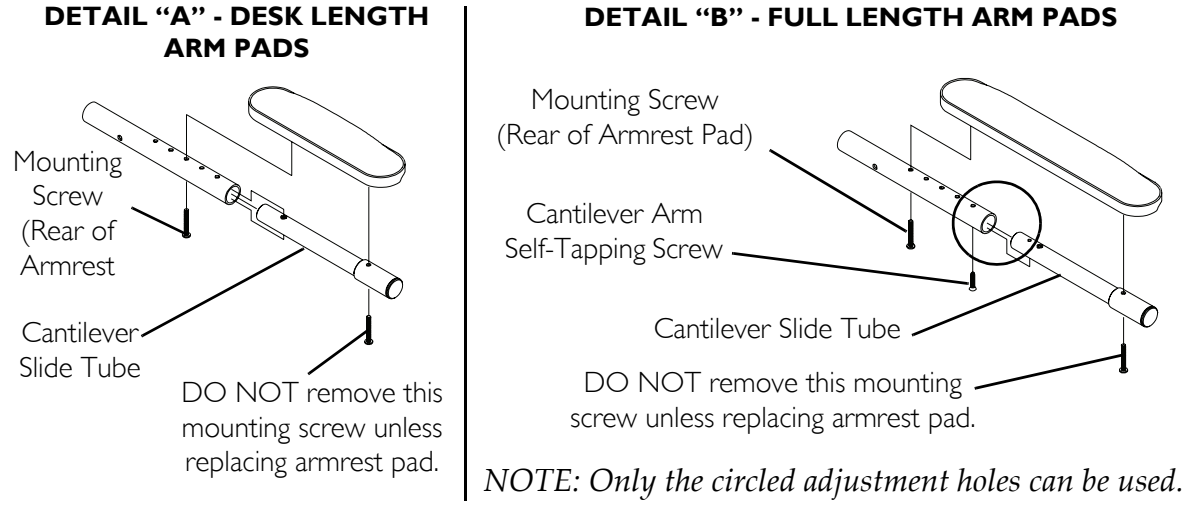


FIGURE 6.12 Adjusting Cantilever Arm Pad Depth/Replacing Cantilever Arm Pad

Installing/Removing T-Arms

NOTE: For this procedure, refer to FIGURE 6.13.

Installing T-Arms

NOTE: If necessary, install the T-Arm sockets.Refer to Installing the T-Arm Sockets on page 57.

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 T-Arm into 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 T-Arm to make sure 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 T-Arm Sockets on page 58.

4. Adjust the T-Arm for desired height, width and depth, if necessary. Refer to Adjusting the T-Arms on page 56.
5. Repeat STEPS 1-4 for opposite side of wheelchair.

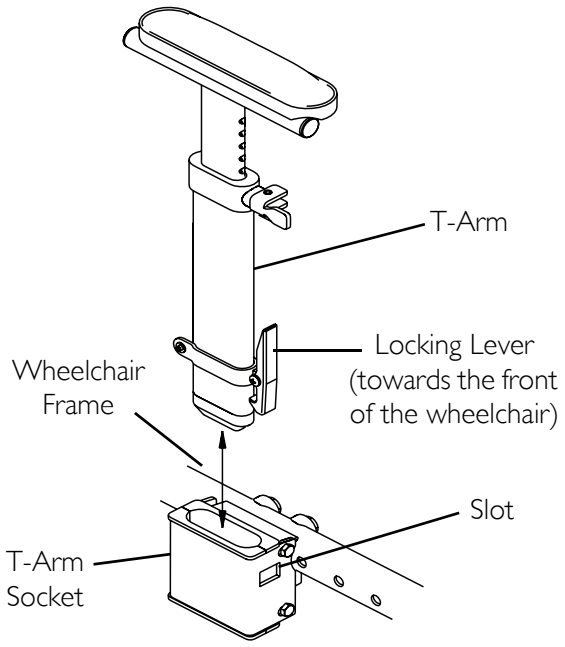


FIGURE 6.13 Installing/Removing T-Arms

Removing T-Arms

1. Press the locking lever in 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 T-Arm Sockets on page 58.

2. Repeat STEP 1 for opposite side of the wheelchair.

Adjusting the T-Arms

Height

NOTE: For this procedure, refer to FIGURE 6.14.

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 desired height:
    - Low Height T-arms - Nine positions.
    - High Height T-arms - Seven positions.

NOTE: If the inside T-arm post does not slide up and down in the outside T-arm post as desired, perform one of the following:

- *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.*
- *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.

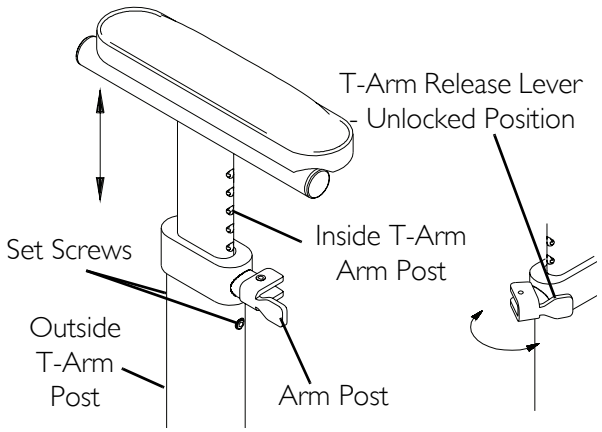


FIGURE 6.14 Adjusting the T-Arms - Height

Width

NOTE: For this procedure, refer to FIGURE 6.15.

1. Remove the two mounting 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. Secure the arm pad to the arm tube with the two mounting screws.
4. Repeat STEPS 1-3 for the opposite side, if necessary.

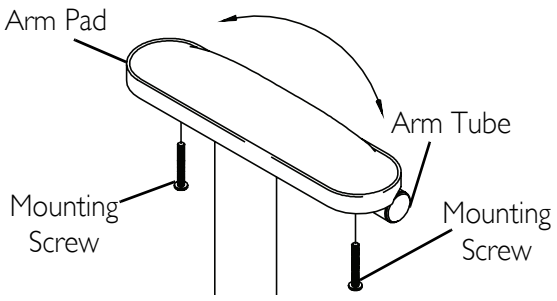


FIGURE 6.15 Adjusting the T-Arms - Width

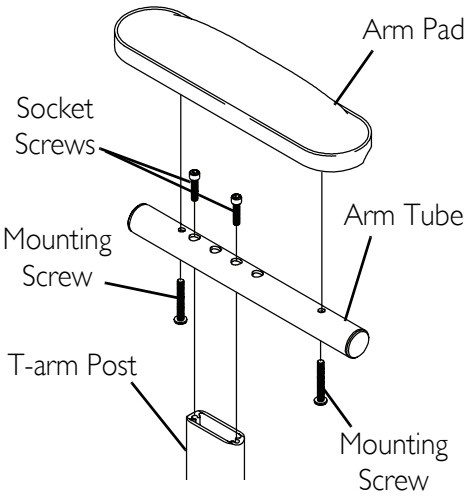
Depth

NOTE: For this procedure, refer to FIGURE 6.16.

1. Remove the two mounting screws that secure the arm pad to the arm tube.
2. Remove the two 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 of three positions depending on the desired arm pad depth.
   B. Full Length Arms - to one of five positions depending on the desired arm pad depth.

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

4. Secure the arm tube to the T-arm post with the two socket screws.
5. Reattach the arm pad to the T-arm tube with the two mounting screws.
6. Repeat for the opposite side, if necessary.



NOTE: If necessary, turn arm tube 180° to obtain two positions.

FIGURE 6.16 Adjusting the T-Arms - Depth

Installing the T-Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.17 on page 58.

1. Remove the rear wheels from the wheelchair. If necessary. Refer to Removing/ Installing Rear Wheels on page 101.
2. Position the T-arm socket and T-arm clamp on the wheelchair frame.

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. Outside two hex screws and washers.
5. Continue to repeat STEP 4 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 6.17.

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 T-Arms on page 55.
8. Reinstall the rear wheels from the wheelchair. If necessary. Refer to Removing/Installing Rear Wheels on page 101.

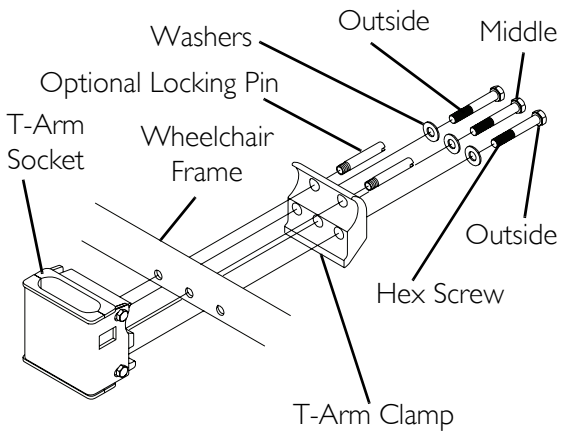


FIGURE 6.17 Installing the T-Arm Sockets

Adjusting T-Arm Sockets

NOTE: For this procedure, refer to FIGURE 6.18 on page 59.

1. Remove the rear wheels from the wheelchair.
2. Remove the three 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 hex screws and washers that secure the T-arm socket together.

NOTE: The T-arm socket will disassemble if the four 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.
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 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 on page 57.

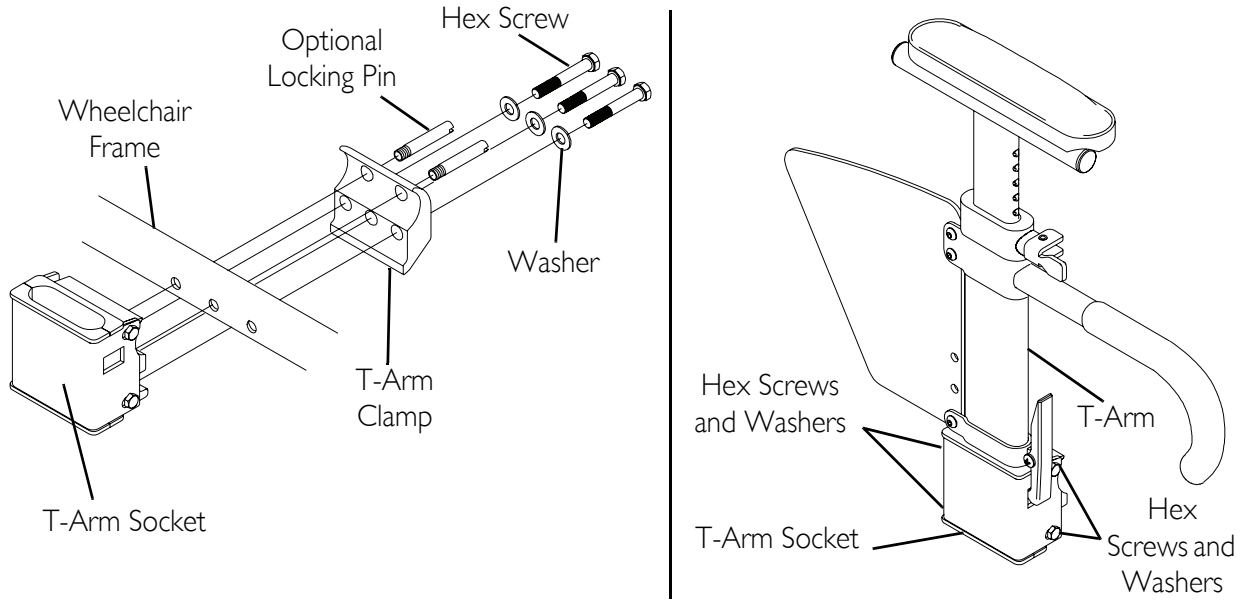


FIGURE 6.18 Adjusting T-Arm Sockets

Adjusting T-Arm Transfer Assists and/or Side Guards

NOTE: For this procedure, refer to FIGURE 6.19.

1. Remove the T-arm for the wheelchair. Refer to Installing/Removing T-Arms on page 55.
2. Remove the bottom socket screw that secures the side guard to the bottom clamp.
3. Move the bottom clamp to one of three mounting holes in the side guard.

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

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

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

4. Secure the side guard to the bottom clamp with the socket screw.
5. Install the T-arm onto the wheelchair. Refer to Installing/Removing T-Arms on page 55.

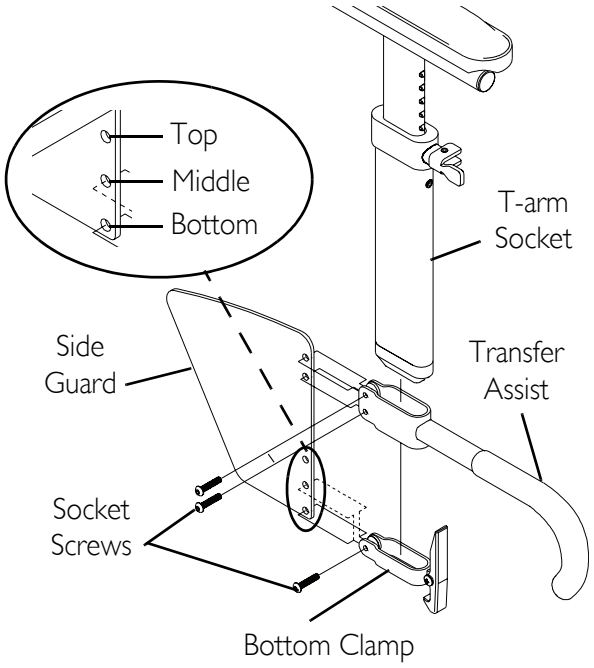


FIGURE 6.19 Adjusting T-Arm Transfer Assists and/or Side Guards

Replacing the T-Arm Locking Lever

NOTE: For this procedure, refer to FIGURE 6.20.

1. Remove the T-arm from the wheelchair. Refer to Installing/Removing T-Arms on page 55.
2. Remove the mounting screw 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 (FIGURE 6.20).
5. Position the new locking lever onto the spring and the bottom bracket.

NOTE: Make sure the two 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 overtighten 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 mounting screw and tighten securely with the locknut.
8. Install the T-arm onto the wheelchair. Refer to Installing/Removing T-Arms on page 55.

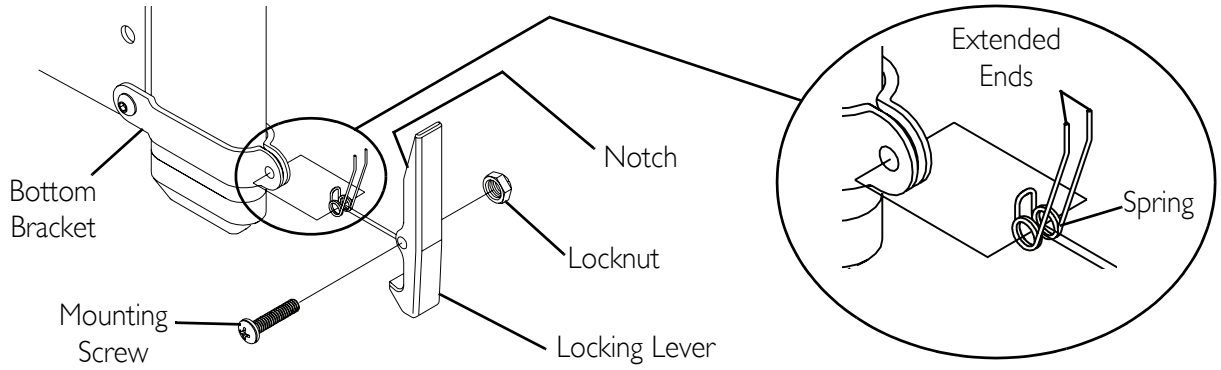


FIGURE 6.20 Replacing the T-Arm Locking Lever

Installing Fabric Clothing Guards

NOTE: For this procedure, refer to FIGURE 6.21.

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 mounting 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 mounting screws and securely tighten.
7. Run the nylon cord evenly through the two 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.

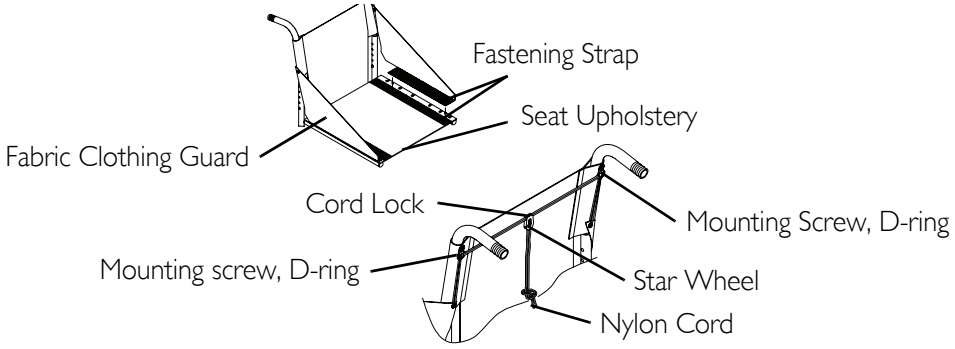


FIGURE 6.21 Installing Fabric Clothing Guards

Installing Rigid Side Guards

NOTE: For this procedure, refer to FIGURE 6.22.

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 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 half clamps together with the socket screw.

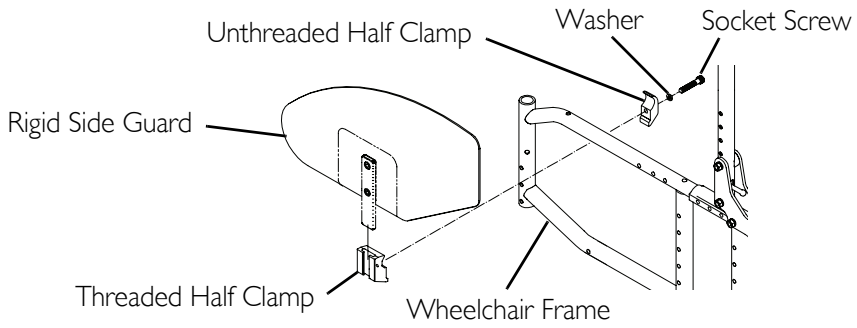


FIGURE 6.22 Installing Rigid Side Guards

SECTION 7—BACK

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Unfolding/Folding the Back Assembly

⚠ WARNING

The back MUST be locked securely in place BEFORE using the wheelchair.

NOTE: For this procedure, refer to FIGURE 7.1.

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.

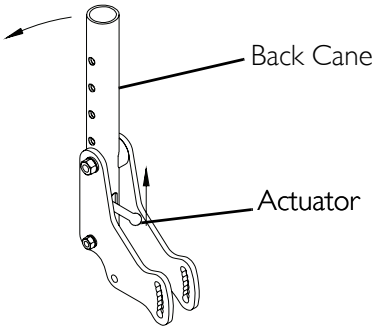


FIGURE 7.1 Unfolding/Folding the Back Assembly

Replacing Standard Back Upholstery

NOTE: For this procedure, refer to FIGURE 7.2 on page 64.

NOTE: If the back upholstery height is being changed, the back canes may also have to be changed. Refer to Adjusting Back Height on page 67.

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

NOTE: It is necessary to remove only one 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 mounting screws and washers.

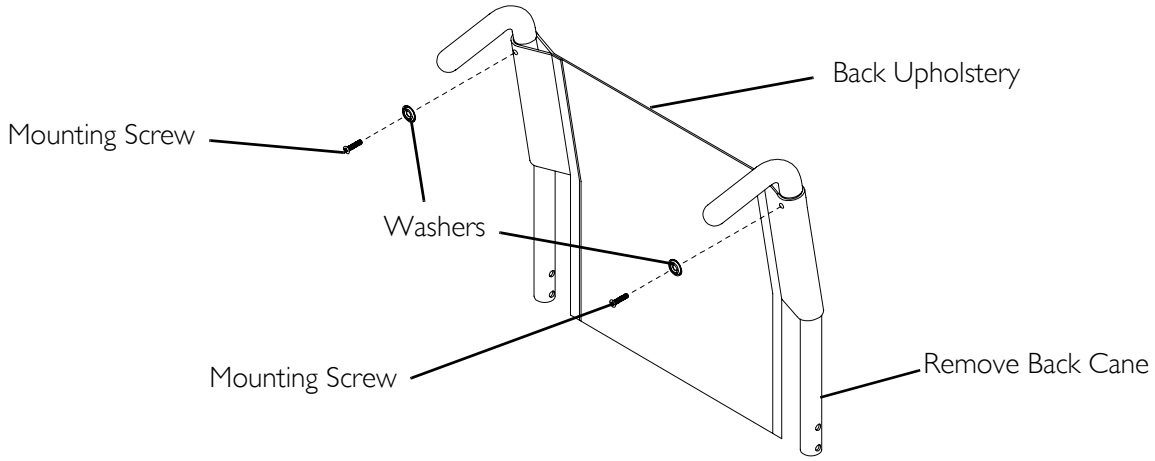


FIGURE 7.2 Replacing Standard Back Upholstery

Adjustable Back Upholstery

Adjustable Tension Straps

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

Back Upholstery Cover

The back upholstery cover is designed for three reasons:

1. The first is as a modesty cover.
2. The second is to keeps the cushion from sliding out of the back of the wheelchair.
3. The third is a sacral support depending upon how far or tight the seat portion of the back upholstery is pulled under the seat cushion.

Installing/Replacing Adjustable Back Upholstery

NOTE: For this procedure, refer to FIGURE 7.3.

Installing

1. Remove the existing back upholstery from the wheelchair. Refer to Replacing Standard Back Upholstery on page 63.
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.

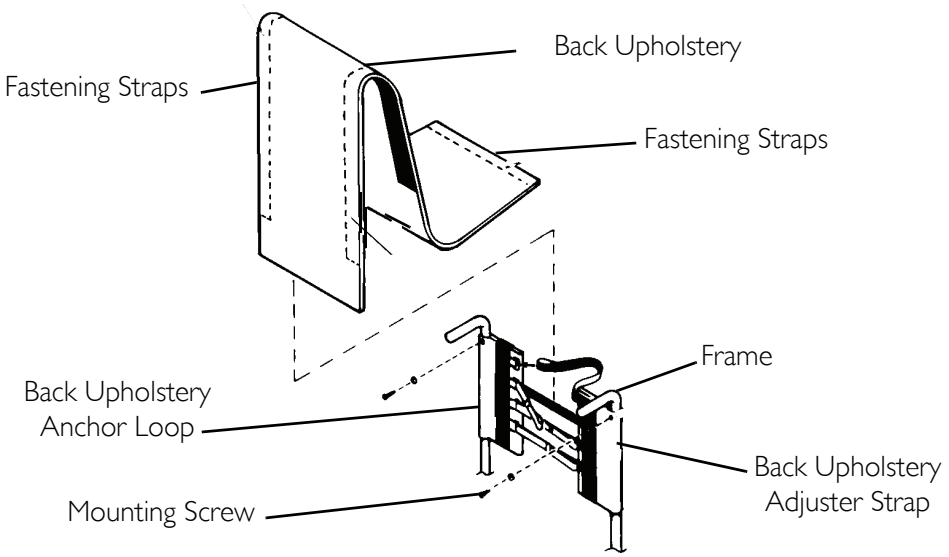


FIGURE 7.3 Installing/Replacing Adjustable Back Upholstery

Replacing

1. Lift up on the existing back upholstery cover and remove the cover from the wheelchair.
2. Remove the two mounting 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 mounting 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.

Replacing Recliner Back/Headrest Upholstery

NOTE: For this procedure, refer to FIGURE 7.4 on page 67.

Recliner Back Upholstery

1. Remove the ten or twelve mounting 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 or twelve mounting screws and washers (depending on back height) that secure the back upholstery to the recliner back canes. Securely tighten.

Recliner Headrest Upholstery

1. Remove the six mounting 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 mounting screws and washers that secure the headrest upholstery to the headrest extensions. Securely tighten.

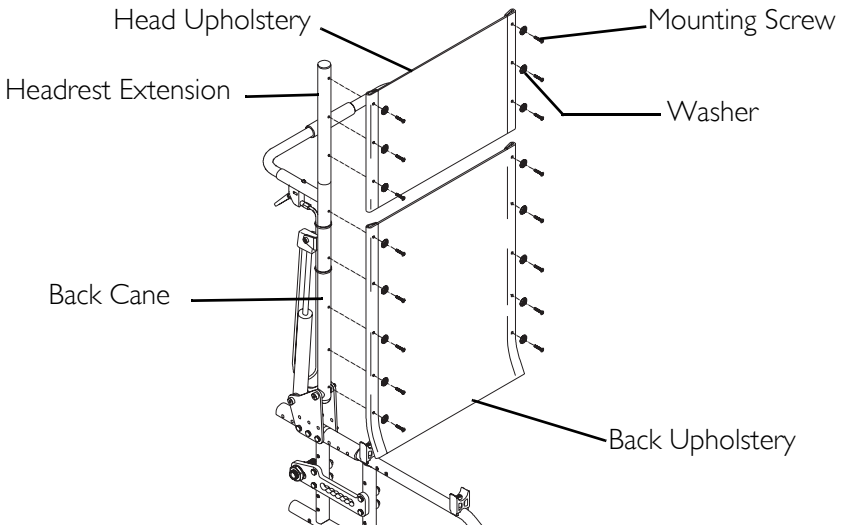


FIGURE 7.4 Replacing Recliner Back/Headrest Upholstery

Adjusting Back Height

Adjustable Height Backs

NOTE: For this procedure, refer to FIGURE 7.5 on page 68.

1. Remove the two hex bolts and locknuts that secure the two back canes to the wheelchair frame.
2. Reposition the back canes to one of five height adjustment positions. Refer to Typical Product Parameters on page 14 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.

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

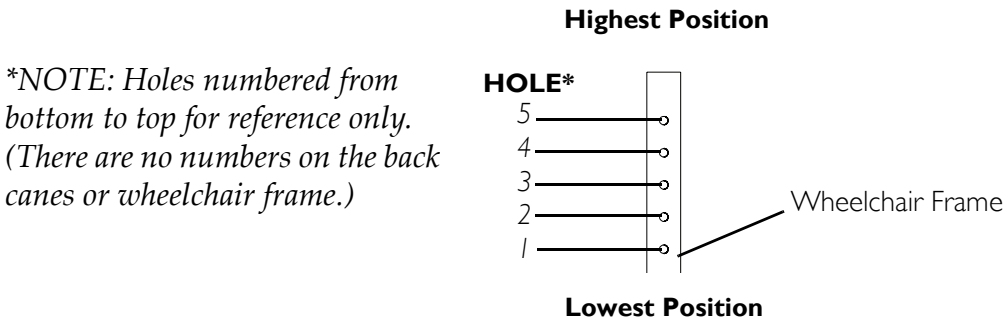


FIGURE 7.5 Adjusting Back Height - Adjustable Height Backs

Fixed Height Backs

NOTE: For this procedure, refer to FIGURE 7.6 on page 69.

1. If the wheelchair is equipped with cantilever arms, remove them from the wheelchair. Refer to Using/Installing/Adjusting Cantilever Arms on page 47.

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

2. Remove the two hex bolts, locknuts and washers 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.

3. Slowly remove the two backs canes from the wheelchair.
4. 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.

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

5. Secure the new back canes to the back angle plates with hex bolts, locknuts and washers. Torque to 35-inch pounds. Refer to FIGURE 7.6 for correct hardware orientation.
6. If necessary, reinstall the cantilever arms onto the wheelchair. Refer to Using/Installing/Adjusting Cantilever Arms on page 47.

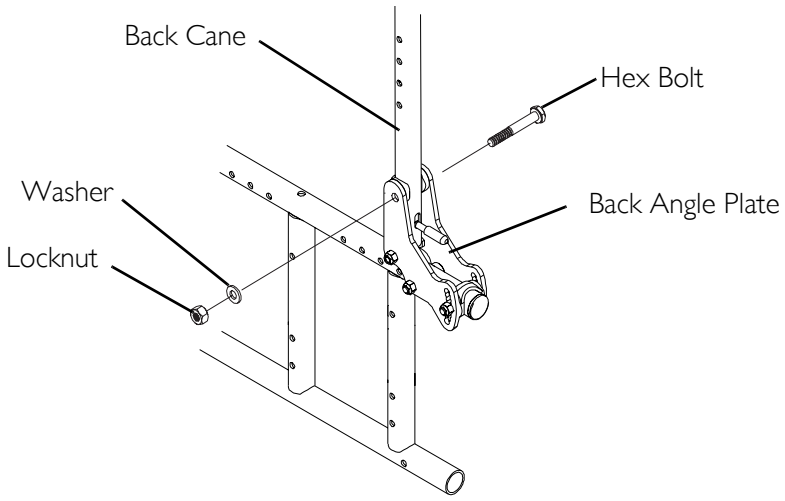


FIGURE 7.6 Adjusting Back Height - Fixed Height Backs

Recliner Backs

NOTE: For this procedure, refer to FIGURE 7.7 on page 70.

1. Press the push pins on the headrest extension tubes in and remove the headrest extension from the back canes.
2. Remove the existing recliner back upholstery from the wheelchair. Refer to Replacing Standard Back Upholstery on page 63.
3. Remove the mounting screws and locknuts that secure the existing folding push handle and trigger release levers to the back cane.
4. Remove the folding handle from the wheelchair.
5. Cut the tie wraps that secure the recliner cables to the existing back canes.
6. Remove the socket bolts, washers and locknuts that secure the actuator housing to the existing back canes.
7. Remove the socket bolts, coved washers, washers and locknuts that secure the existing back canes to the recliner brackets.
8. Remove existing back canes from the recliner brackets.

⚠ WARNING

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

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

13. Position the recliner handles on the new back canes.
14. Securely tighten the recliner handles and folding handle to the new back canes with the mounting screws and locknuts.
15. Install the new back upholstery onto the back canes. Refer to Replacing Standard Back Upholstery on page 63.
16. Install the headrest extension into the new back canes.

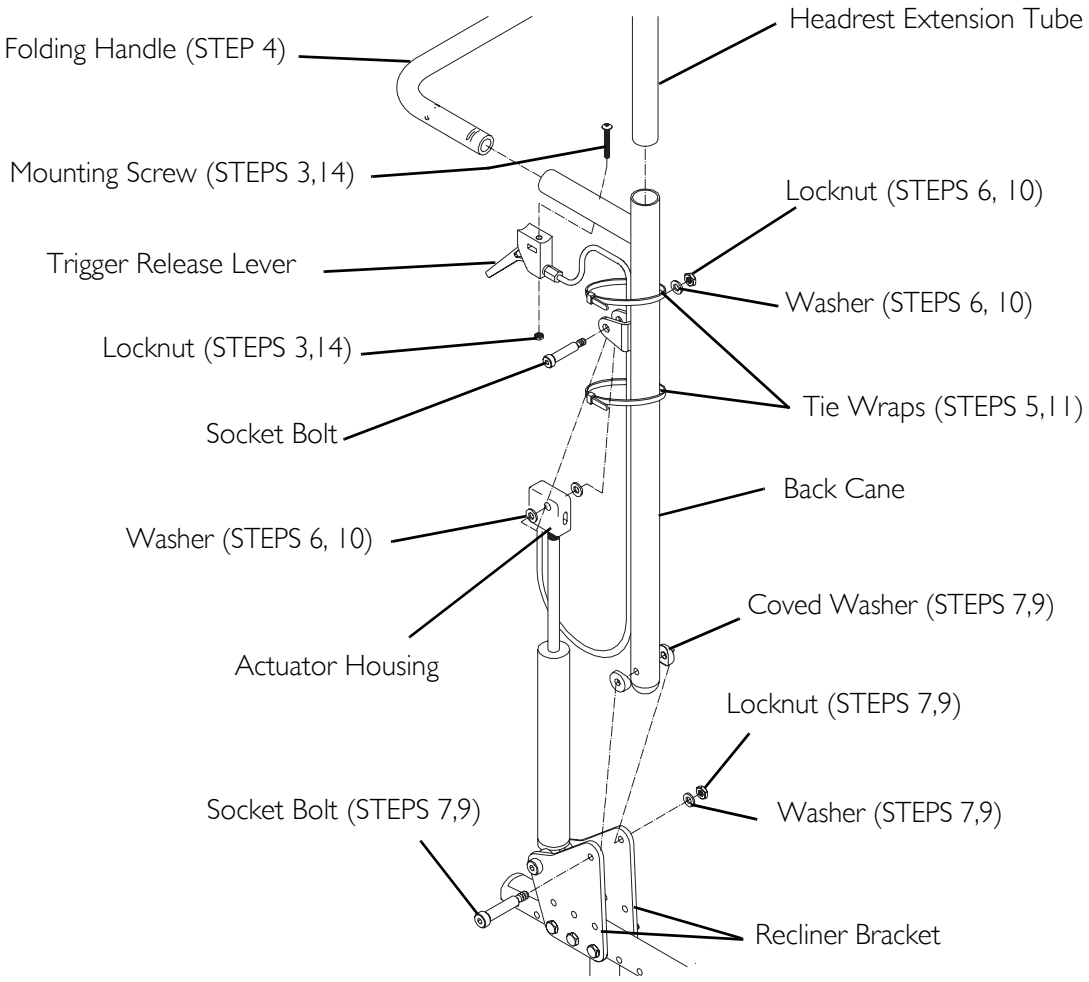


FIGURE 7.7 Adjusting Back Height - Recliner Backs

Replacing the Locking Mechanism in the Back Cane

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: For this procedure, refer to FIGURE 7.8.

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

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

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

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

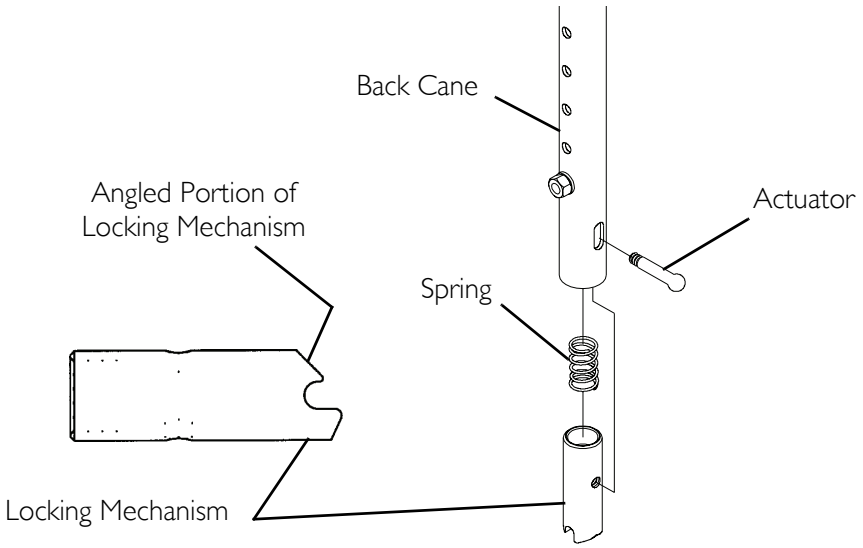


FIGURE 7.8 Replacing the Locking Mechanism in the Back Cane

Changing the Back Angle

NOTE: For this procedure, refer to FIGURE 7.9.

⚠ WARNING

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

1. Loosen, but do not remove the front hex bolt that secures the back angle plate to the wheelchair frame.
2. Remove the rear hex bolt, washer and locknut that secure the back angle plates to the wheelchair frame (Detail "A" of FIGURE 7.9).
3. Refer to Figure 10.9 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 (Detail "A" of FIGURE 7.9).
5. If the wheelchair is equipped with cantilever arms, adjust the arms to keep them parallel to the ground/floor. Refer to Using/Installing/Adjusting Cantilever Arms on page 47.
6. If the wheelchair has become less stable after changing the back angle, reposition the rear wheels. Refer to Adjusting the Wheelbase Length on page 110.

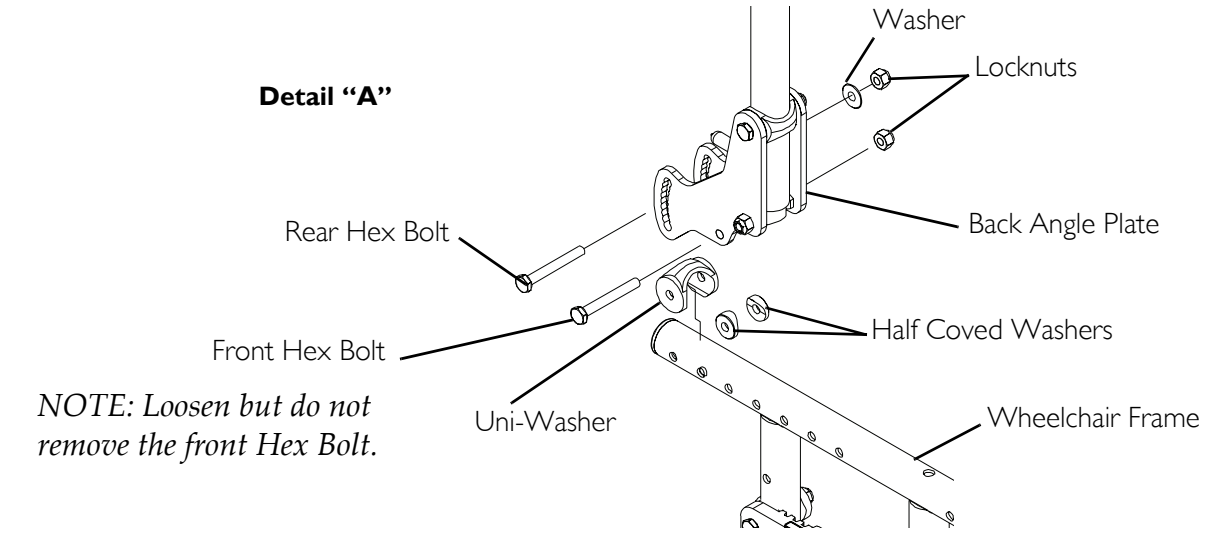


FIGURE 7.9 Changing the Back Angle

Repositioning the Back (Changing Seat Depth)

⚠ WARNING

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

Non-Recliners

NOTE: For this procedure, refer to FIGURE 7.10.

1. Determine the necessary back position for the desired seat depth of the wheelchair. Refer to Adjusting or Changing Seat Depth on page 85.
2. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
3. Remove the four hex bolts, spacers, washers and locknuts that secure the four 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.
5. Reinstall the hex bolts, spacers, washers and locknuts that secure the back angle plates to the wheelchair frame. Make sure the back is at the desired angle. Securely tighten.

NOTE: Make sure the four back angle plates are at the same angle before using the wheelchair

6. Reinstall the rear wheels onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
7. 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 on page 110.

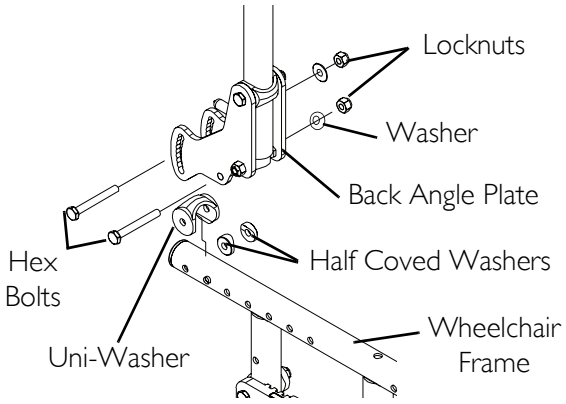


FIGURE 7.10 Repositioning the Back (Changing Seat Depth) - Non-Recliners

Recliners

⚠ WARNING

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

NOTE: For this procedure, refer to FIGURE 7.11.

1. Determine the necessary back position for the desired seat depth of the wheelchair. Refer to Adjusting or Changing Seat Depth on page 85.
2. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
3. Remove the hex bolts, spacers, washers and locknuts that secure the recliner brackets to the wheelchair frame.
4. Align the mounting holes in the recliner brackets with the mounting holes determined in STEP 1.
5. Reinstall the hex bolts, spacers, washers and locknuts through the recliner brackets and wheelchair frame and tighten securely (FIGURE 7.11).
6. Reinstall the rear wheels onto the wheelchair. Removing/Installing Rear Wheels on page 101.
7. 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 on page 110.

⚠ WARNING

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

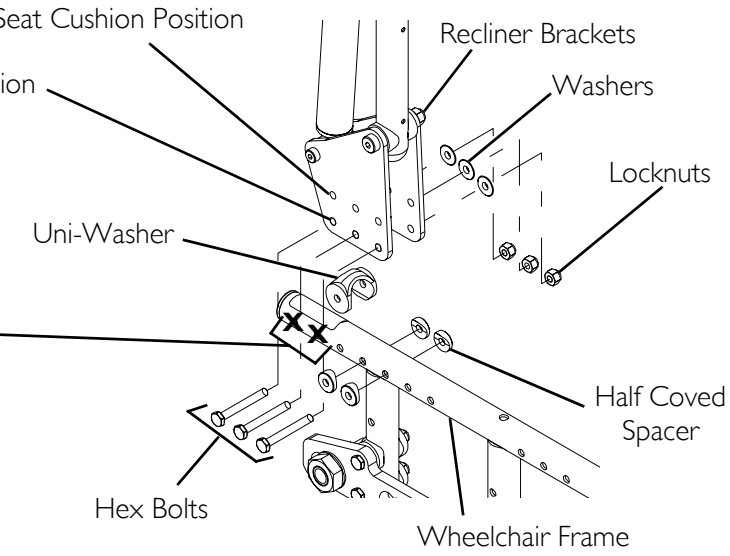


FIGURE 7.11 Repositioning the Back (Changing Seat Depth) - Recliners

2 or 3-Inch Seat Cushion (Recliners Only)

NOTE: For this procedure, refer to FIGURE 7.12.

1. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
2. Remove the hex bolts, spacers, washers and locknuts that secure the recliner brackets to the wheelchair frame.
3. Refer to FIGURE 7.12 to determine the recliner bracket mounting position for the corresponding seat cushion height.
4. Position the recliner brackets on the wheelchair frame at the position determined in STEP 3.
5. Reinstall the hex bolts, spacers, washers and locknuts through the recliner brackets and wheelchair frame and tighten securely. Refer to FIGURE 7.12 for correct hardware orientation.
6. Reinstall the rear wheels onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.

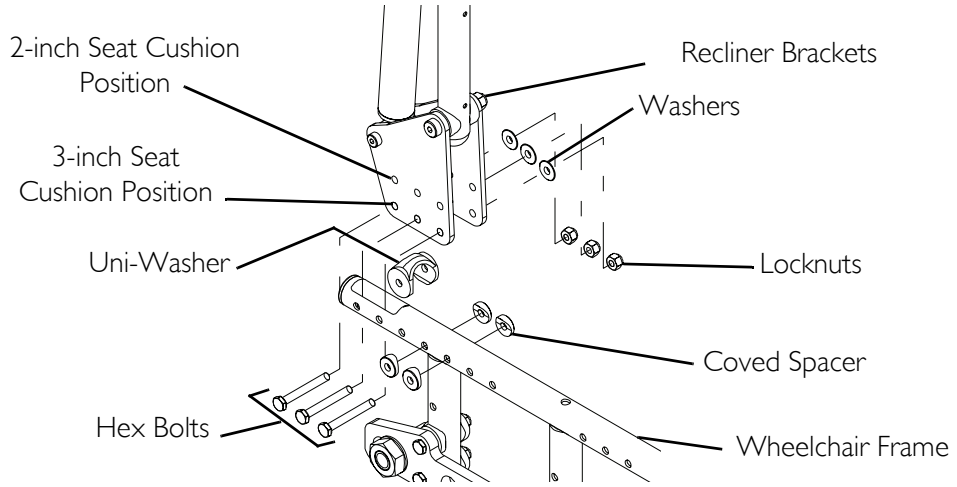


FIGURE 7.12 Repositioning the Back- 2 or 3-inch seat cushion (recliners only)

Replacing Folding Push Handle - Recliners Only

NOTE: For this procedure, refer to FIGURE 7.13.

NOTE: Refer to the Safety/Handling of Wheelchairs on page 20 to fold and unfold the wheelchair.

1. Remove the mounting screws 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 mounting screws through the trigger release levers, back canes and the new folding push handle and tighten securely with the locknuts.

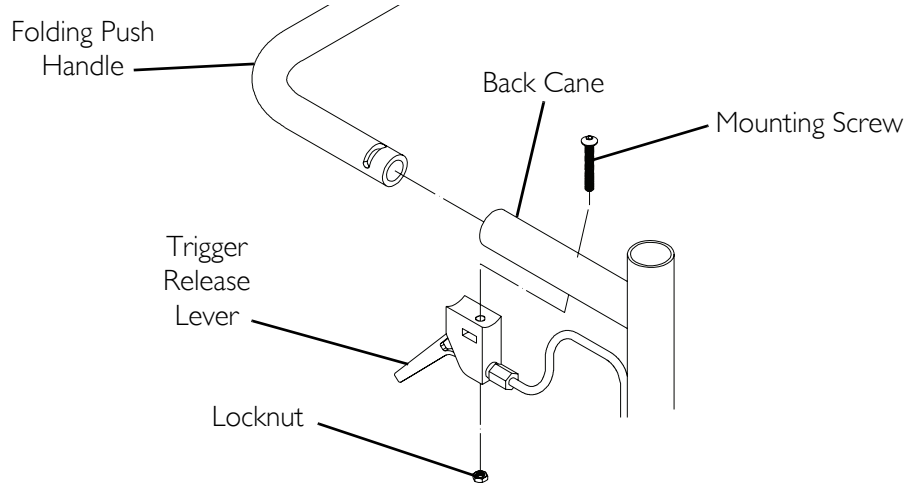


FIGURE 7.13 Replacing Folding Push Handle - Recliners Only

Installing/Replacing Chest Positioning Straps

NOTE: For this procedure, refer to FIGURE 7.14.

Installing

1. Position the chest positioning strap to one of the holes on the back cane.

NOTE: The standard recommended position for the chest positioning strap is in the top hole of the back cane, but may be mounted according to the user's needs.

2. Secure the chest positioning strap to the back canes with the new/existing hex screw and locknut (FIGURE 7.14).
3. Repeat STEPS 1-2 for opposite side.

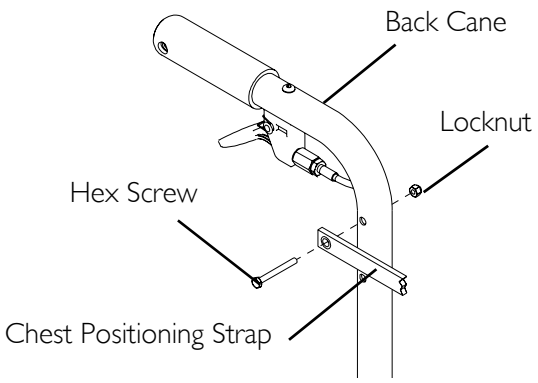


FIGURE 7.14 Installing/Replacing Chest Positioning Straps

Replacing

1. Remove the hex screw that secures the chest positioning strap to the back cane.
2. Discard existing chest positioning strap.
3. Repeat STEPS 1-2 for opposite side, if necessary.
4. Install the new chest positioning strap. Refer to Installing/Replacing Chest Positioning Straps on page 77.

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.

SECTION 8—SEAT

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Replacing Seat Upholstery

NOTE: For this procedure, refer to FIGURE 8.1.

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

1. Remove the eight mounting screws (four on either side) 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.

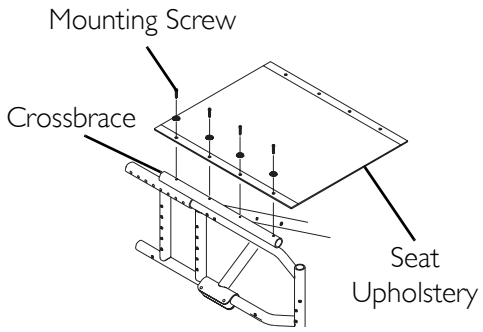


FIGURE 8.1 Replacing Seat Upholstery

Changing/Repositioning Seat Rails

NOTE: For this procedure, refer to FIGURE 8.2 on page 79.

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

⚠ WARNING

The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a 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 Adjusting or Changing Seat Depth on page 85.
2. Remove the seat upholstery from the wheelchair. Refer to Replacing Seat Upholstery on page 78.

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 on page 101.
4. Unfold the wheelchair and lay wheelchair on its side. If necessary, refer to Safety/ Handling of Wheelchairs on page 20.
5. Remove the two hex screws and two coved washers that secure the existing seat rails to the crossbraces.
6. Install the new or reposition the existing seat rails to position determined in STEP 1.
7. Secure new/existing seat rails to the crossbraces with existing coved washers and hex screws.
8. Install the new seat upholstery. Refer to Replacing Seat Upholstery on page 78.
9. Reposition the back if necessary. Refer to Replacing Standard Back Upholstery on page 63.
10. Reinstall the rear wheels onto the wheelchair. Refer to Removing/ Installing Rear Wheels on page 101.

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 on page 110.

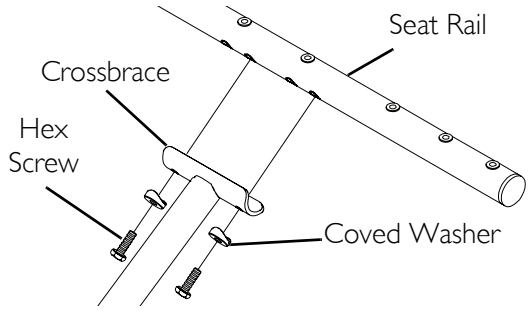


FIGURE 8.2 Changing/Repositioning Seat Rails

Repositioning the Crossbraces

NOTE: For this procedure, refer to FIGURE 8.3 on page 80.

⚠ WARNING

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

1. Determine the necessary self-tapping screw and washer position for the desired seat depth of the wheelchair. Refer to Changing Seat Depth on page 86.
2. Remove the two hex screws, two locknuts and lower crossbrace saddles that secure the bottom of the two crossbraces to the wheelchair frame.
3. Loosen, but do not remove the hex screws and locknuts that secure the two 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 on page 110.

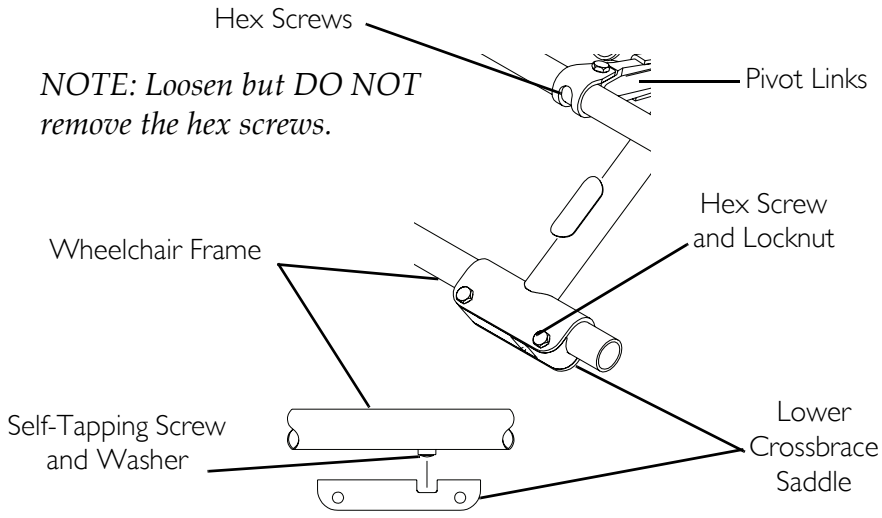


FIGURE 8.3 Repositioning the Crossbraces

Changing Seat Width

⚠ WARNING

The following procedure MUST be performed by a qualified technician.

Standard Folding Frames

NOTE: For this procedure, refer to FIGURE 8.4 on page 81.

1. Remove existing back and seat upholstery from the wheelchair. Refer to Replacing Standard Back Upholstery on page 63 and Refer to Replacing Seat Upholstery on page 78.

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 on page 78.
3. Remove the two hex screws and two locknuts that secure the two pivot links to the wheelchair frame and crossbraces.
4. Remove the hex screws, locknuts and lower crossbrace saddles that secure the bottom of the two crossbraces to the wheelchair frame.
5. Remove the hex bolt, coved spacers, washers and locknut that secure the two existing crossbraces together.

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

6. Assemble the two new crossbraces together.
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 screws and locknuts that secure the pivot link to the wheelchair frame and crossbrace.
9. Reinstall the hex screws, locknuts and crossbrace saddles that secure the bottom of the two 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 (FIGURE 8.4).

10. Reinstall the seat rails onto the crossbraces. Refer to Changing/Repositioning Seat Rails on page 78.
11. Install the new back and seat upholstery onto the wheelchair. Refer to Replacing Standard Back Upholstery on page 63 and Refer to Replacing Seat Upholstery on page 78.

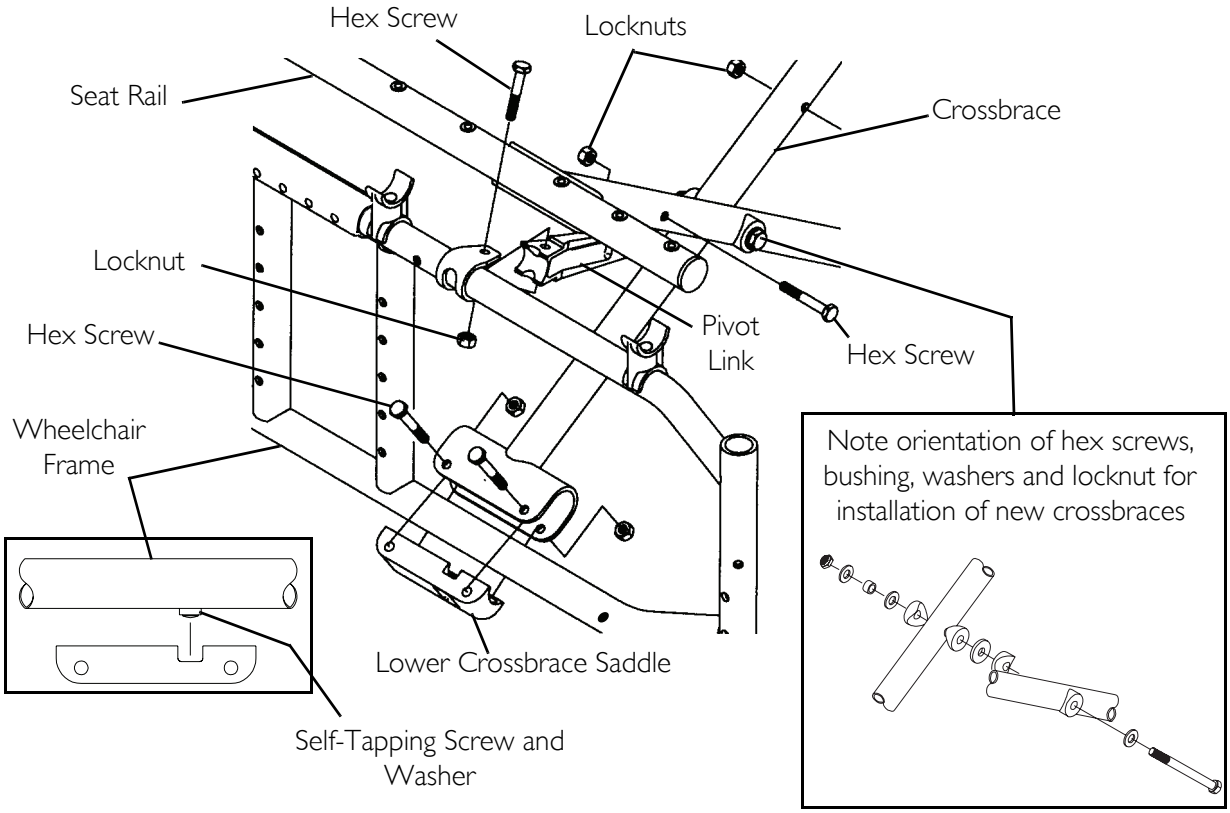


FIGURE 8.4 Changing Seat Width - Standard Folding Frames

Folding Frames without Seat Rails

NOTE: For this procedure, refer to FIGURE 8.5 on page 83.

1. Remove upholstery or seating system from the wheelchair. Refer to Replacing Standard Back Upholstery on page 63.

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

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

5. Assemble the two new crossbraces together.
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 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 screw, locknuts and crossbrace saddles that secure the bottom of the two 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 8.5.

9. Install the new upholstery or seating system onto the wheelchair. Refer to Replacing Standard Back Upholstery on page 63.

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

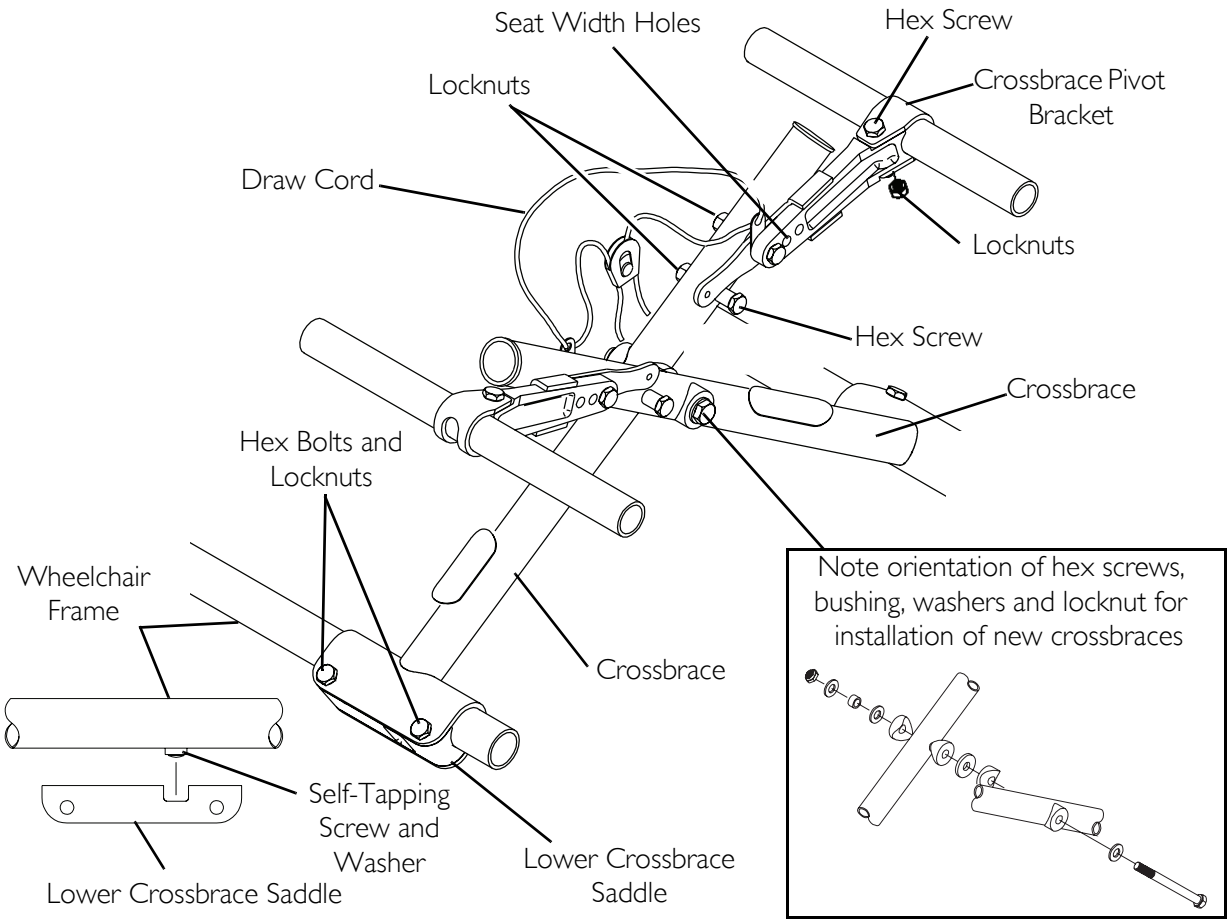


FIGURE 8.5 Changing Seat Width - Folding Frames without Seat Rails

Rigid Frames

NOTE: For this procedure, refer to FIGURE 8.6 on page 84.

1. Remove the existing back upholstery from the wheelchair if so equipped. Refer to Replacing Standard Back Upholstery on page 63.
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 hex screws and washers that secure the three existing rigid crossmembers to the wheelchair frame.
4. Install the new crossmembers onto the wheelchair by reversing STEP 3. Refer to FIGURE 8.6 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 Standard Back Upholstery on page 63 or refer to Replacing Recliner Back/ Headrest Upholstery on page 66.

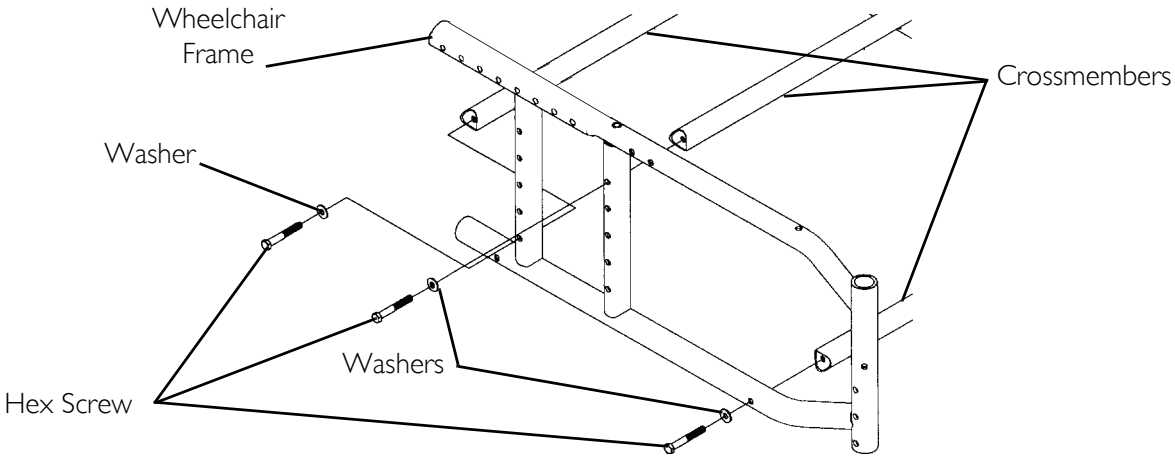


FIGURE 8.6 Changing Seat Width - Rigid Frames

Installing/Replacing Seat Positioning Straps

NOTE: For this procedure, refer to FIGURE 8.7 on page 85.

Installing Seat Positioning Straps

1. Remove the hex screw and locknut that secures the back cane to the back plate.
2. Position the seat positioning strap against the back plate.
3. Install the hex screw through the seat positioning strap, coved spacers and back cane.
4. Securely tighten the seat positioning strap to the wheelchair with the locknut.
5. Repeat STEPS 1-4 for opposite side.

Replacing Seat Positioning Straps

1. Remove the hex screw, locknut and seat positioning strap from the back plate of the wheelchair frame.
2. Discard existing seat positioning strap.
3. Install the hex screw through the seat positioning strap, coved spacers and back cane.
4. Securely tighten the seat positioning strap to the wheelchair with the locknut.
5. Repeat STEPS 1-4 for opposite side.

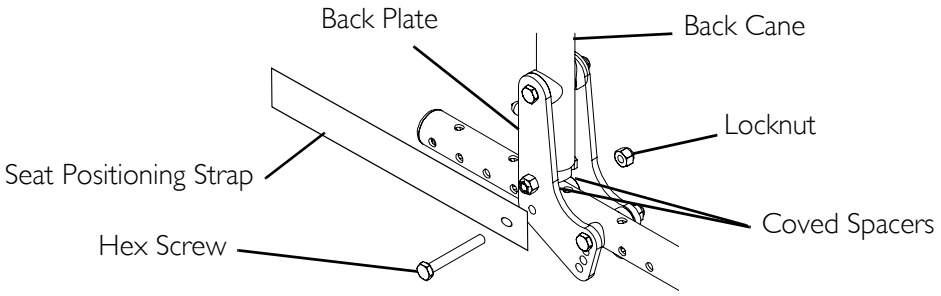


FIGURE 8.7 Installing/Replacing Seat Positioning Straps

Adjusting or 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 or any combination of the seven may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

RECLINERS ONLY: NEVER use the rear two recliner bracket mounting holes when using the recliner option. Using the rear two 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.

Determining Seat Depth

NOTE: For this procedure, refer to FIGURE 8.8.

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

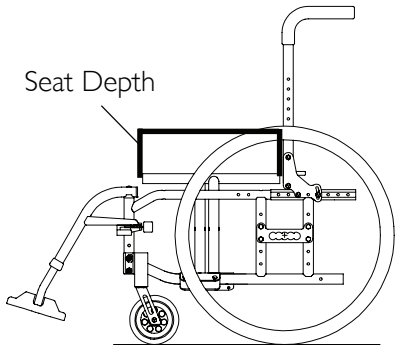


FIGURE 8.8 Determining Seat Depth

Changing Seat Depth

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

Seat Rail - Removable portion of crossbrace. One of three 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 of three components that determine seat depth.

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

Seat Depth Adjustment Checklist

- ❑ 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.

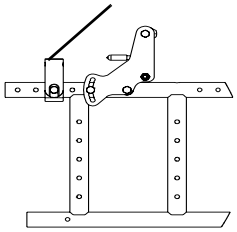
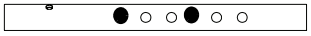
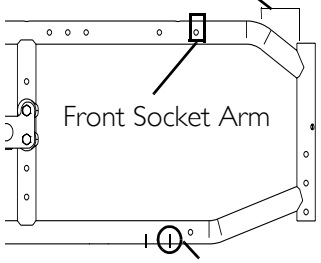
- ❑ After determining the back position for the necessary seat depth, refer to Changing Seat Depth on page 86.

NOTE: Front and rear arm sockets for the conventional arm option (two point attaching arms) may need repositioning depending on the new back position. Refer to Repositioning the Conventional Arms in Section 9 of this manual.

- ❑ After determining the seat rail position for the necessary seat depth, refer to Changing/Repositioning Seat Rails on page 78.
- ❑ After determining the crossbrace position for the necessary seat depth, refer to Changing Seat Width on page 80 and Repositioning the Crossbraces on page 79.

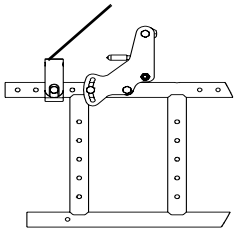
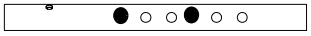
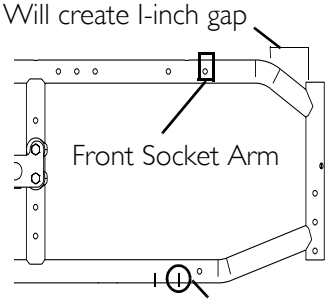
Back, Seat Rail and Crossbrace Positions for 12- inch Seat Depth

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
		STANDARD FOLDING FRAMES ONLY	STANDARD FOLDING FRAMES ONLY
MEDIUM SEAT FRAME (16 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of Wheelchair	Will create 2-inch gap  Front Socket Arm Front Mounting Hole

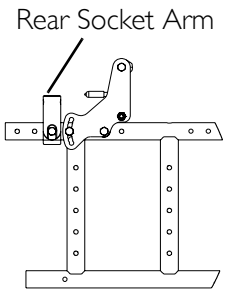
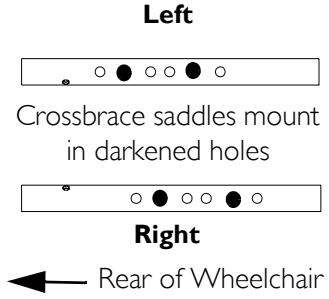
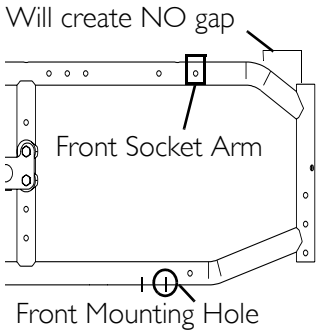
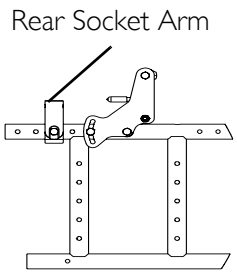
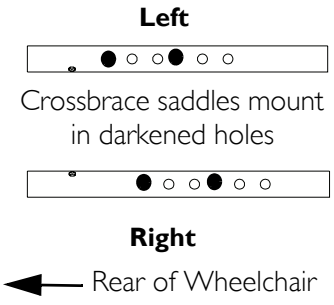
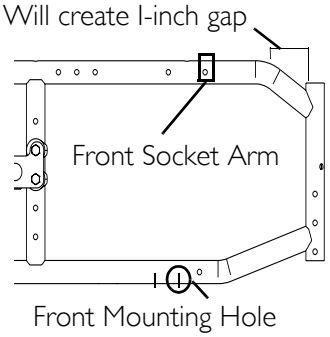
Back, Seat Rail and Crossbrace Positions for 13- inch Seat Depth

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.

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
MEDIUM SEAT FRAME (16 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of Wheelchair	Will create I-inch gap  Front Socket Arm Front Mounting Hole

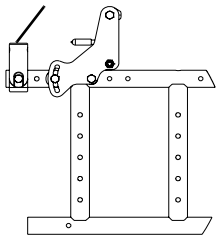
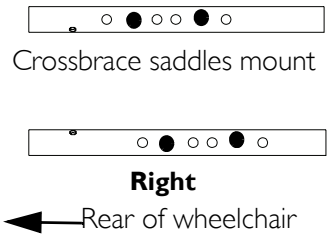
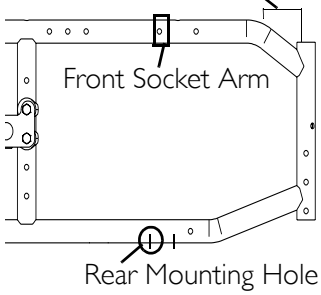
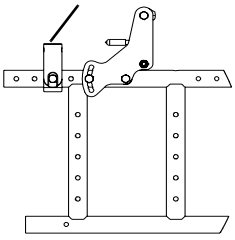
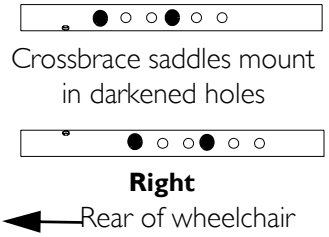
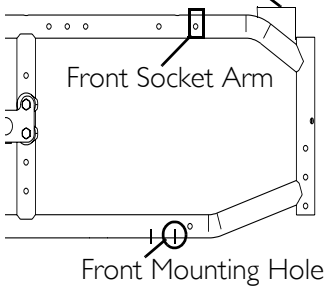
Back, Seat Rail and Crossbrace Positions for 14- inch Seat Depth

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
		STANDARD FOLDING FRAMES ONLY	STANDARD FOLDING FRAMES ONLY
MEDIUM SEAT FRAME (16 INCH)			
LONG SEAT FRAME (18 INCH)			

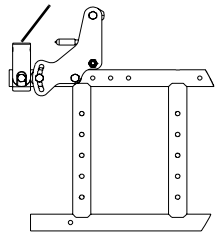
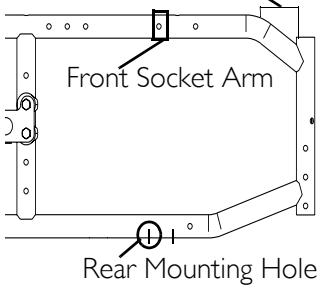
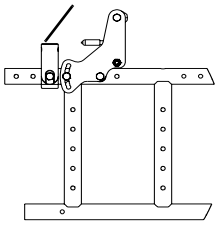
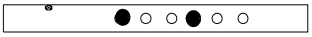
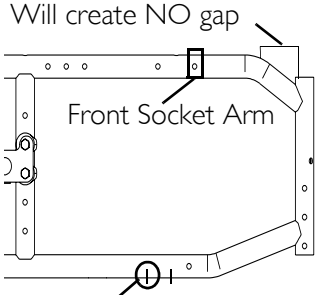
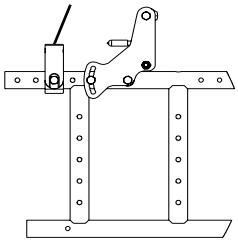
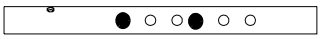
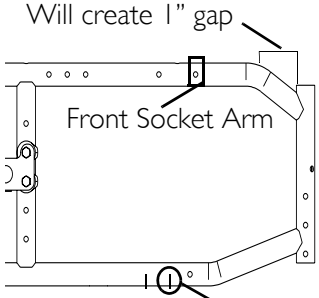
Back, Seat Rail and Crossbrace Positions for 15- inch Seat Depth

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.

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
MEDIUM SEAT FRAME (16 INCH)	Rear Socket Arm 	**Left** 	Will create NO gap 
LONG SEAT FRAME (18 INCH)	Rear Socket Arm 	**Left** 	Will create NO gap 

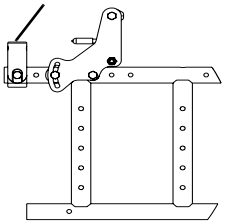
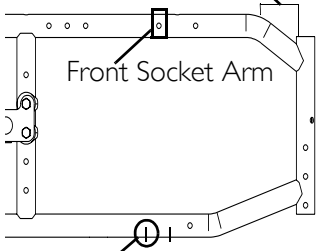
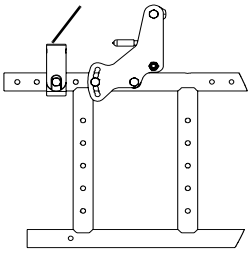
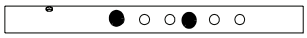
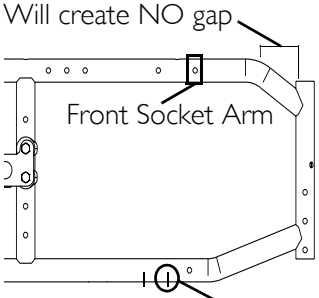
Back, Seat Rail and Crossbrace Positions for 16- inch Seat Depth

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
MEDIUM SEAT FRAME (16 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create NO gap  Front Socket Arm Rear Mounting Hole
LONG SEAT FRAME (18 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create NO gap  Front Socket Arm Rear Mounting Hole
X-LONG SEAT FRAME (20 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create 1" gap  Front Socket Arm Front Mounting Hole

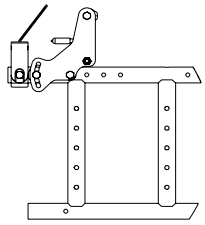
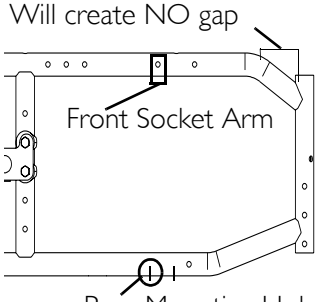
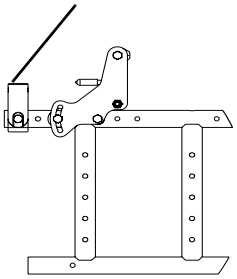
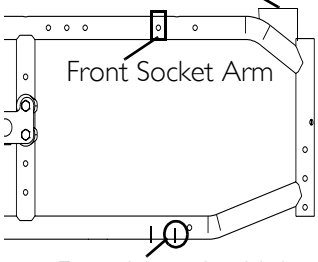
Back, Seat Rail and Crossbrace Positions for 17- inch Seat Depth

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
LONG SEAT FRAME (18 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create NO gap  Front Socket Arm Rear Mounting Hole
X-LONG SEAT FRAME (20 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create NO gap  Front Socket Arm Front Mounting Hole

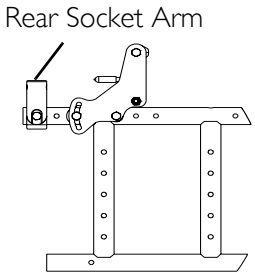
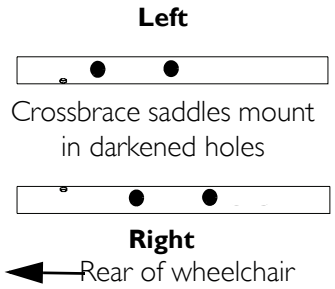
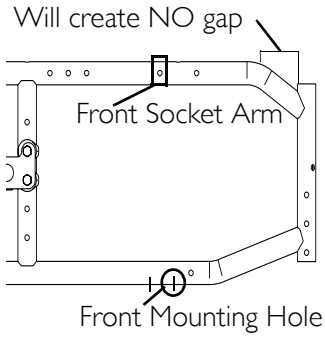
Back, Seat Rail and Crossbrace Positions for 18- inch Seat Depth

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.

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
LONG SEAT FRAME (18 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create NO gap  Front Socket Arm Rear Mounting Hole
X-LONG SEAT FRAME (20 INCH)	Rear Socket Arm 	**Left**  Crossbrace saddles mount in darkened holes  **Right** Rear of wheelchair	Will create 1" gap  Front Socket Arm Front Mounting Hole

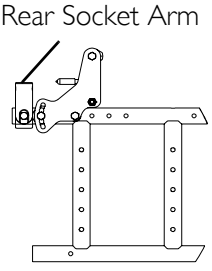
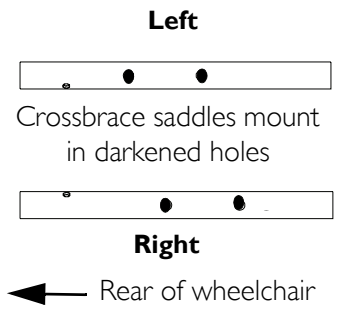
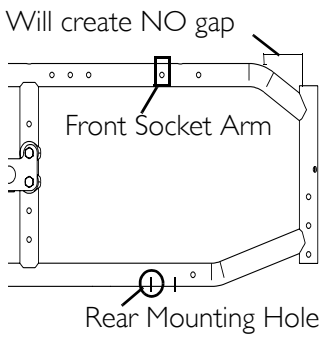
Back, Seat Rail and Crossbrace Positions for 19- inch Seat Depth

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
X-LONG SEAT FRAME (20 INCH)			

Back, Seat Rail and Crossbrace Positions for 20- 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
X-LONG SEAT FRAME (20 INCH)			

SECTION 9—CASTERS

Removing/Installing Front Caster Assembly

⚠ WARNING

If changing the size of the rear caster or the seat-to-floor height, this procedure MUST be performed by a qualified technician.

NOTE: For this procedure, refer to FIGURE 9.1.

NOTE: To install or replace the front caster assembly, reverse STEPS 1-2.

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 five or eight(8) 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 five or eight(8) inch front fork, refer to Changing Seat-to-Floor Height on page 125 to determine the front caster position needed for the required seat-to-floor height.

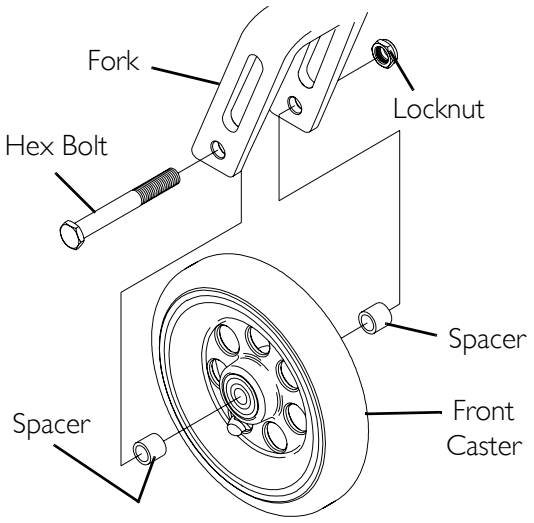


FIGURE 9.1 Removing/Installing Front Caster Assembly

Removing/Installing Front Fork Assembly

NOTE: For this procedure, refer to FIGURE 9.2 on page 96.

1. Remove the front caster assemblies from the wheelchair. Refer to Removing/Installing Front Caster Assembly on page 95.
2. Remove the headtube cap.
3. Remove the locknut and washer(s)/spacer(s).
4. Drop the fork out of the caster headtube.
5. Slide the new fork into the caster headtube.

NOTE: Check bearing assemblies and replace if necessary.

6. Ensure that fork slides completely into the caster head tube.
7. Install washer(s)/spacer(s) and secure with locknut.

8. Reinstall existing/new front casters onto the wheelchair. Refer to Removing/Installing Front Caster Assembly on page 95.
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.

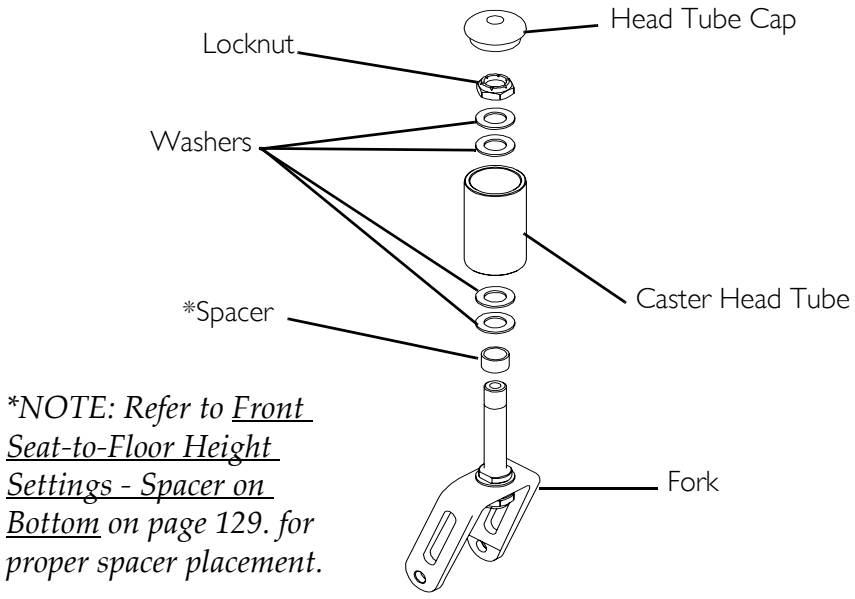


FIGURE 9.2 Removing/Installing Front Fork Assembly

Replacing/Repairing Front Caster Tire/Tube

⚠ WARNING

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

CAUTION

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

90° Adjustment of Caster Headtubes

NOTE: For this procedure, refer to FIGURE 9.3 on page 97.

NOTE: Whenever the seat height is raised or lowered by changing the caster size, fork 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.

1. Make sure the wheelchair is on a flat surface.
2. Loosen, but DO NOT remove the bottom socket screw, and locknut that secure the caster headtube to the wheelchair frame.
3. Remove the top locknut that secures the positioning cam to the caster headtube.
4. Remove the positioning cam from the caster headtube.
5. Position a large right triangle or "L" square on the flat surface and against the caster headtube (Detail "A" of FIGURE 9.3).
6. Move the caster headtube back and forth until the caster headtube is perpendicular to the ground/floor.
7. Reinstall the positioning cam onto the top socket screw that secures the positioning cam and caster headtube to the wheelchair frame.
8. Rotate the cam until it fits into the headtube channel with the headtube remaining perpendicular to the floor/ground.

NOTE: An indexing notch has been put on the positioning cam to help determine the setting of the positioning cam on the opposite caster headtube.

9. Reinstall the locknut that secures the positioning cam to the caster headtube.

⚠ WARNING

Torque nuts to 140-160 inch-pounds, otherwise, caster headtube may collapse and cause injury to occupant.

10. Repeat STEPS 2-9 for the opposite side of the wheelchair.

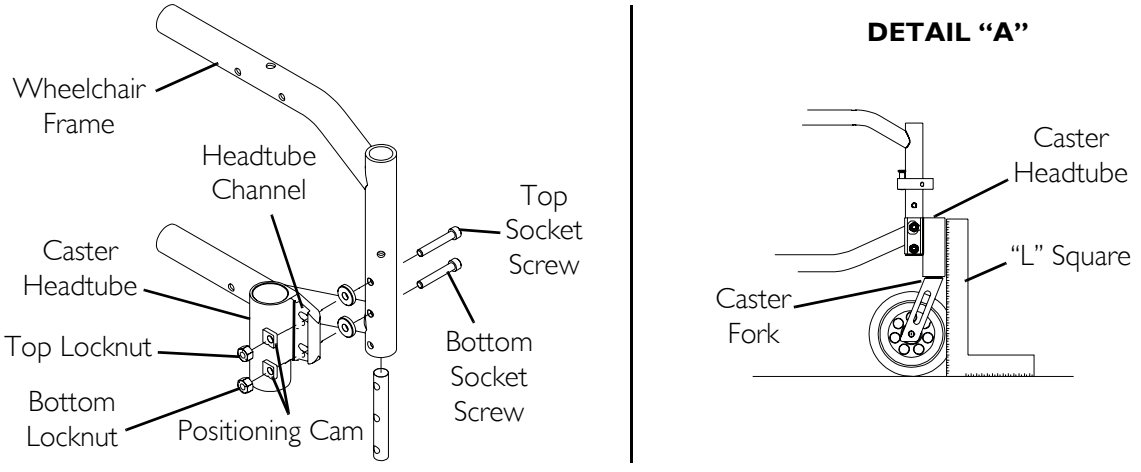


FIGURE 9.3 90° Adjustment of Caster Headtubes

Adjusting Caster Headtube Mounting

Positioning Leading or Trailing Caster Headtube

NOTE: For this procedure, refer to Detail "A" or Detail "B" of FIGURE 9.4 on page 98.

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.

Adjusting Height

NOTE: 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

NOTE: For this procedure, refer to Detail "C" of FIGURE 9.4.

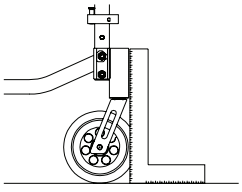
1. Determine the front caster position required for the desired seat-to-floor height. Refer to Changing Seat-to-Floor Height on page 125.
2. Remove the attaching hardware that secures the caster headtube to the wheelchair.
3. Reposition the caster headtube to the position determined in STEP 1.
4. Secure the caster headtube to the wheelchair with the existing hardware. Refer to FIGURE 9.4 correct hardware orientation.

⚠ WARNING

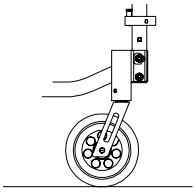
Torque nuts to 140-160 inch-pounds, otherwise, caster headtube may collapse and cause injury to occupant.

5. Repeat STEPS 2-4 for the opposite side of the wheelchair.

DETAIL "A" - CASTER LEADING



DETAIL "B" - CASTER TRAILING



DETAIL "C" - CASTER HEADTUBE HARDWARE

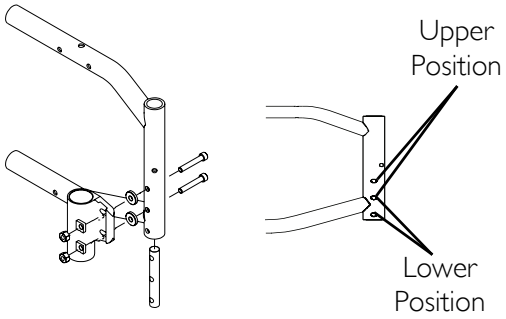


FIGURE 9.4 Adjusting Caster Headtube Mounting

Installing Quick-Release Casters

⚠ 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 9.5 when installed, DO NOT USE. Contact Customer Service at 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.

Installing

NOTE: For this procedure, refer to FIGURE 9.5 on page 100.

1. Remove the hex screw and locknut that secure the front caster and the two 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, washers 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.

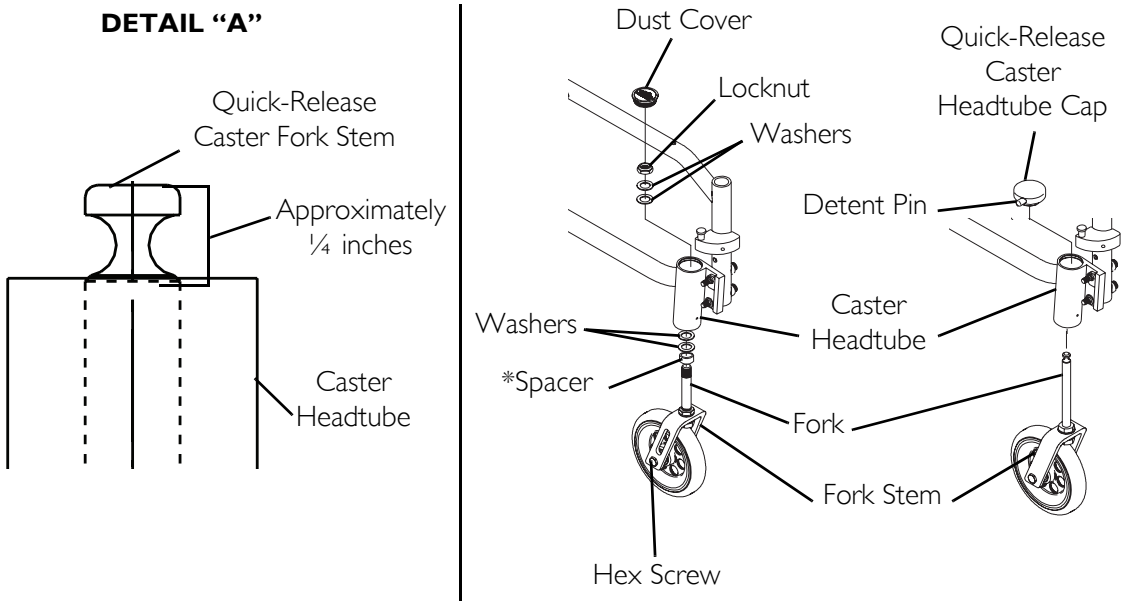
4. Remove the existing fork but keep the washers and spacers for installation of the quick-release caster fork.
5. Install the quick release caster fork through the head tube of the wheelchair making sure the fork stem is approximately ¼-inch above the caster head tube. Refer to Detail "A" of FIGURE 9.5.

⚠ WARNING

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

6. Depress the detent pin of the quick-release caster headtube cap and install over the top of the quick-release caster fork stem.

7. 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.
8. Reinstall the two spacers and caster onto the quick-release caster fork.
9. Repeat this procedure for the opposite side.



**NOTE: Reference Front Seat-to-Floor Height Settings - Spacer on Bottom on page 129 and/or Front Seat-to-Floor Height Settings - Spacer on Top on page 131.*

FIGURE 9.5 Installing Quick-Release Casters

SECTION 10—WHEELS

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing/Installing Rear Wheels

⚠ WARNING

If changing the size of the rear wheel or the seat-to-floor height, this procedure MUST be performed by a qualified technician.

NOTE: For this procedure, refer to FIGURE 10.1 on page 102.

Quick-Release

NOTE: To remove rear wheels, reverse this procedure.

1. Push in the detent pin of the quick-release axle and insert the quick-release axle through the center of the rear wheel.
2. Push in the tip of the quick-release axle again and insert the axle (with wheel) into the axle mounting plate on the side of the wheelchair frame until the assembly locks in place.

⚠ WARNING

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

The locking pins MUST be protruding past the inside of the axle mounting plate for a positive lock.

Keep locking pins clean.

3. Ensure quick release axle locking pins are properly engaged and secure in the axle mounting plate by pulling the rear wheel away from the wheelchair frame. If the locking pins DO NOT engage or there is too much movement of the rear wheel assembly in a back and forth position. Refer to Adjusting the Quick-Release Axle on page 103.
4. Repeat STEPS 1-3 for other rear wheel assembly.
5. Adjust the wheel locks. Refer to Adjusting the Wheel Locks on page 121.

NOTE: Only 12-inch rear wheel is shown. All other wheels will install/remove in the same manner.

Permanent Axles

NOTE: To remove rear wheels, reverse this procedure.

1. Remove the permanent axles from the packaged container.
2. Install permanent axle through the rear wheel and axle plate.
3. Securely tighten the wheel to the wheelchair frame with locknut.

NOTE: Only 12-inch rear wheel is shown. All other wheels will install/remove in the same manner.

4. Repeat STEPS 2-3 for other rear wheel assembly.
5. Adjust the wheel locks. Refer to Adjusting the Wheel Locks on page 121.

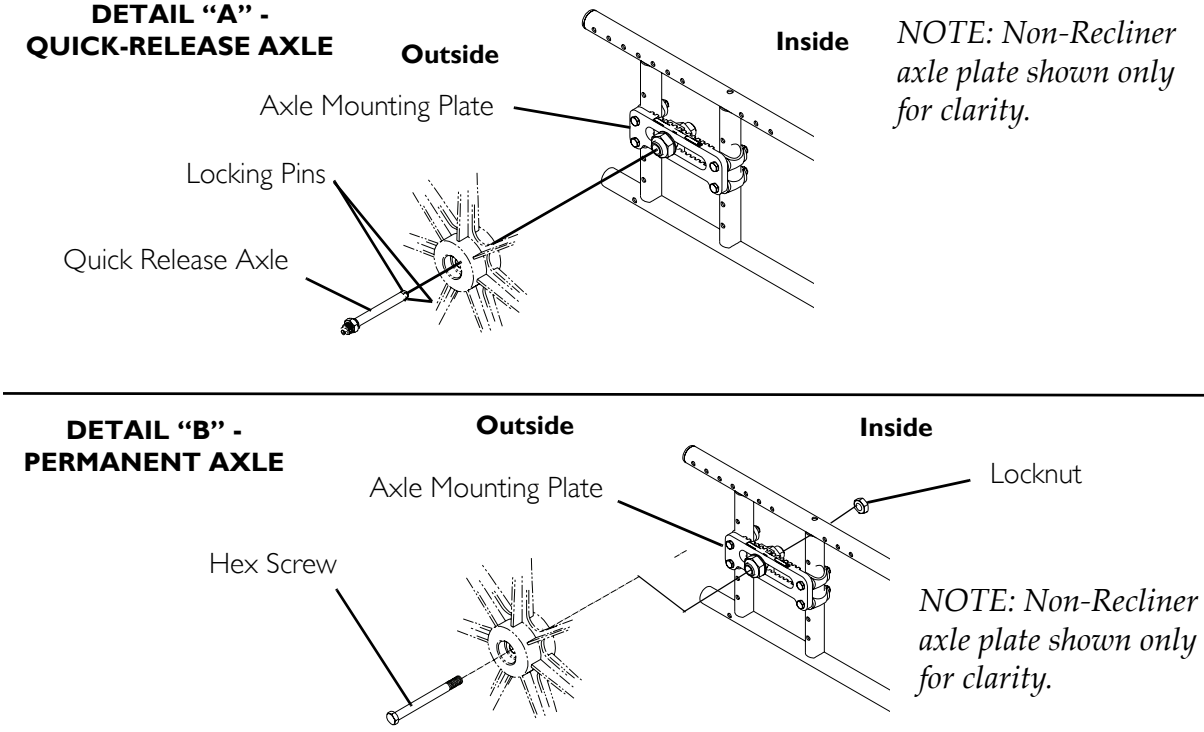


FIGURE 10.1 Removing/Installing Rear Wheelss

Adjusting the Quick-Release Axle

NOTE: For this procedure, refer to FIGURE 10.2.

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. Refer to Removing/Installing Rear Wheels on page 101.

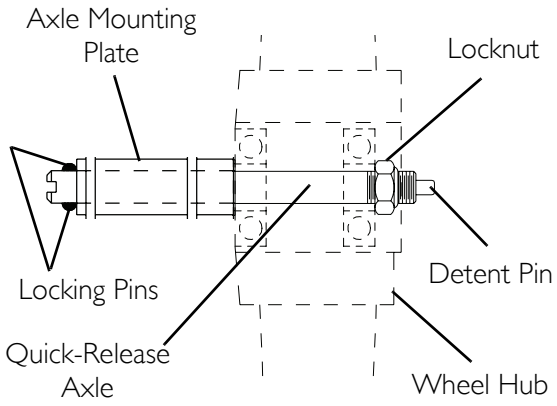


FIGURE 10.2 Adjusting the Quick-Release Axle

Installing/Adjusting the Quad-Release Axle

Installing the Quad-Release Axle

NOTE: For this procedure, refer to FIGURE 10.3 on page 104.

1. Remove rear wheel and the existing quick-release axle. Refer to Removing/Installing Rear Wheels on page 101.
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. Refer to Removing/Installing Rear Wheels on page 101.

⚠ 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 in Installing/Adjusting the Quad-Release Axle.
8. Repeat STEPS 1-7 for the opposite rear wheel.

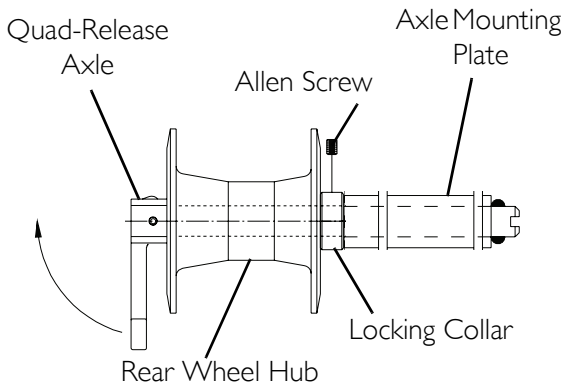


FIGURE 10.3 Installing the Quad-Release Axle

Adjusting the Quad-Release Axle

NOTE: For this procedure, refer to FIGURE 10.4 on page 105.

In and/or Out

1. Remove rear wheel and the quad-release axle. Refer to Removing/Installing Rear Wheels on page 101.
2. Loosen the locking screw.
3. Make the following adjustments:
   A. If the quad-release handle is not releasing the locking pins completely, rotate the quad-release handle approximately one-quarter turn clockwise**.**
   B. If the quad-release handle hits the spokes of the rear wheel when assembled, rotate the quad-release handle approximately one-quarter turn counterclockwise.
4. Tighten the locking screw.
5. Reinstall the rear wheel and quad-release axle onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.

⚠ 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. Repeat the above procedures until the quad-release axle locks correctly.

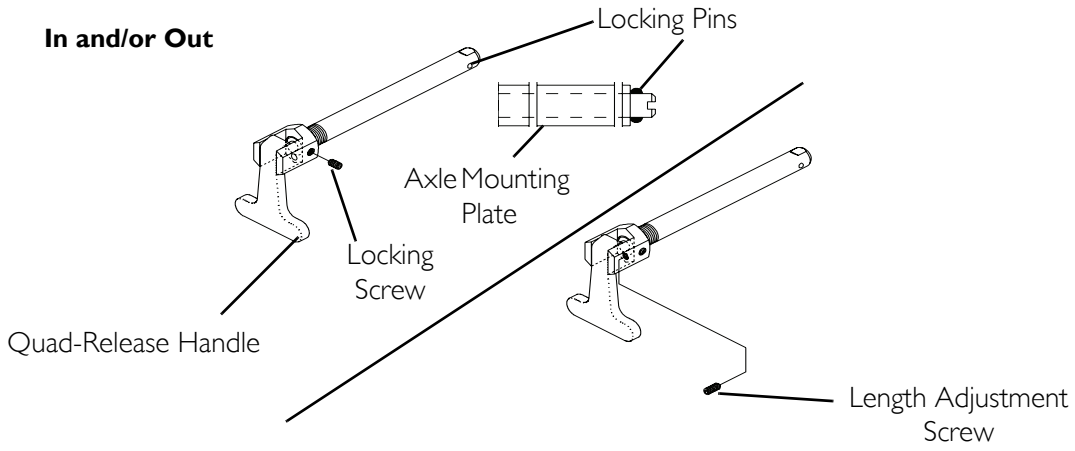


FIGURE 10.4 Adjusting the Quad-Release Axle - Removing the Play From the Rear Wheels

Removing the Play From the Rear Wheels

NOTE: For this procedure, refer to FIGURE 10.4.

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

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

Replacing Handrim

⚠ WARNING

Tire MUST be deflated before any disassembly procedures are performed.

NOTE: For this procedure, refer to FIGURE 10.5 on page 106.

Spoke Rear Wheels

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
2. Remove all air from the bar 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 mounting screws and remove the locknuts that secure the handrim to the rear wheel.
4. Remove the existing handrim.
5. Install the new handrim by reversing STEPS 1-4.

⚠ WARNING

DO NOT inflate tire until it is completely assembled.

6. Inflate the tire to the correct p.s.i. 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.

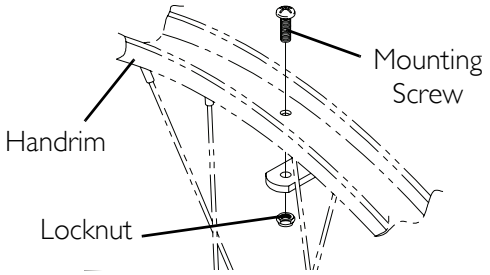
7. Reinstall rear wheel to the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
8. If the locking pins of the quick/quad-release axles are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position, refer to Adjusting the Quick-Release Axle on page 103 or Adjusting the Quad-Release Axle on page 104.
9. Repeat the procedure for the opposite rear wheel if necessary
10. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
11. Remove the button screws and washers that secure the handrim to the rear wheel.
12. Remove the existing handrim.
13. 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.

14. Reinstall rear wheel to the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
15. 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 on page 103 or Adjusting the Quad-Release Axle on page 104.
16. Repeat the procedure for the opposite rear wheel if necessary.

DETAIL "A" - SPOKE REAR WHEELS



DETAIL "B" - COMPOSITE REAR WHEELS

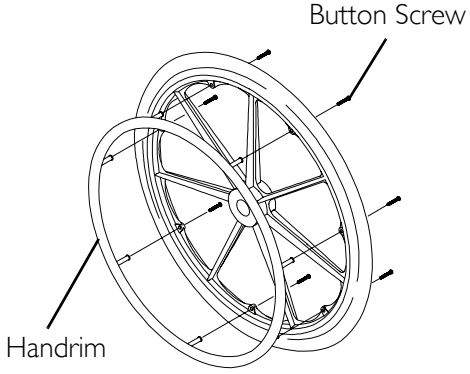


FIGURE 10.5 Composite Rear Wheels

Installing Projection Handrims

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

Composite Rear Wheels

NOTE: For this procedure, refer to FIGURE 10.6 on page 108.

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
2. Remove the existing handrim from the rear wheel. Refer to Replacing Handrim on page 105.
3. Using the long screws, assemble the links to the projection handrim.
4. Position one link with one of the mounting holes in the rear wheel.
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 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 link
8. Securely tighten the washers and locknuts that secure the protection handrim to the rear wheel.
9. Reinstall the rear wheel onto the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
10. If the locking spins 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 on page 103 or Adjusting the Quad-Release Axle on page 104.
11. Repeat the procedure for the opposite rear wheel.

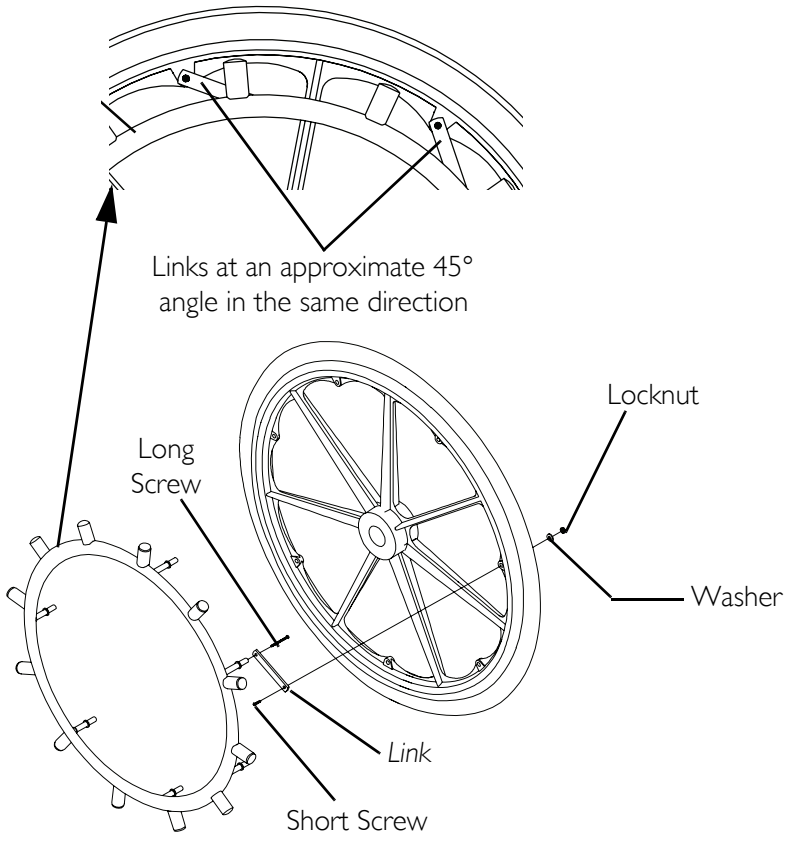


FIGURE 10.6 Installing Projection Handrims Composite Rear Wheels

Spoke Rear Wheels

NOTE: For this procedure, refer to FIGURE 10.7 on page 109.

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.

⚠ WARNING

Tire MUST be deflated before any disassembly procedures are performed.

2. Remove all air from the bar 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 mounting screws 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 mounting screw and securely tighten the locknuts that secure the handrim to the rear wheel.

⚠ WARNING

DO NOT inflate tire until it is completely assembled.

7. Inflate the tire to the correct p.s.i. 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.

8. Reinstall rear wheel to the wheelchair.
9. 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 on page 103 or Adjusting the Quad-Release Axle on page 104.
10. Repeat the procedure for the opposite rear wheel if necessary.

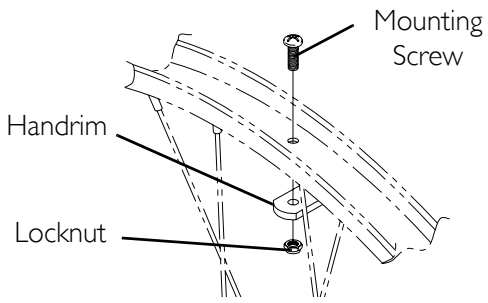


FIGURE 10.7 Installing Projection Handrims Spoke Rear Wheels

Repairing/Replacing Rear Wheel Tire/Tube

⚠ WARNING

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

Adjusting the Wheelbase Length

⚠ WARNING

The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a 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.

Wheel locks MUST be adjusted BEFORE using the wheelchair.

Anti-tippers, if equipped, MUST be repositioned BEFORE using the wheelchair.

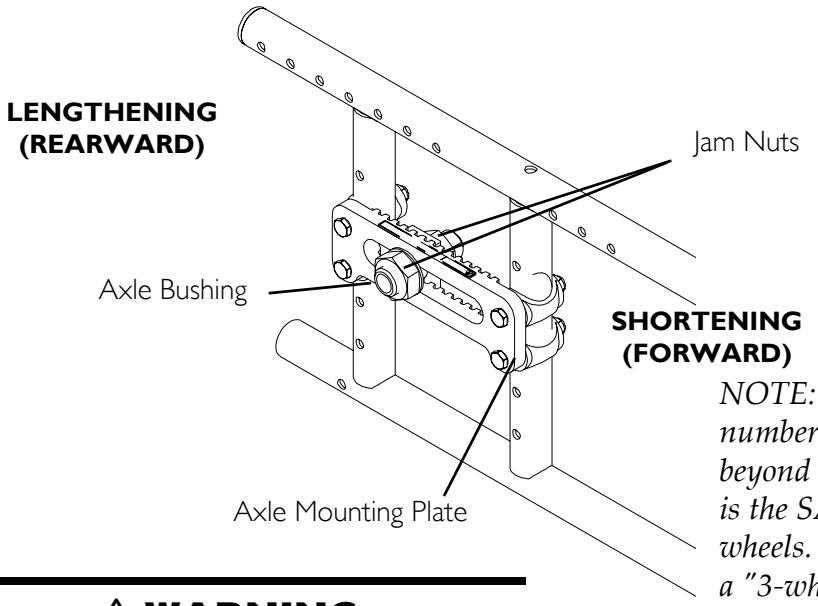
NOTE: For this procedure, refer to FIGURE 10.8 on page 111.

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.

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
2. Loosen the two jam nuts that secure the axle bushing to the axle mounting plate.
3. Move the axle bushing forward or rearward 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. Refer to Removing/Installing Rear Wheels on page 101.
6. Repeat STEPS 1-5 for the opposite side of the wheelchair.
7. Adjust the wheel locks. Refer to Adjusting the Wheel Locks on page 121.
8. If wheelchair is equipped with anti-tippers, adjust to maintain proper clearance. Refer to Installing/Adjusting the Anti-Tippers on page 123.



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.

⚠ WARNING

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.

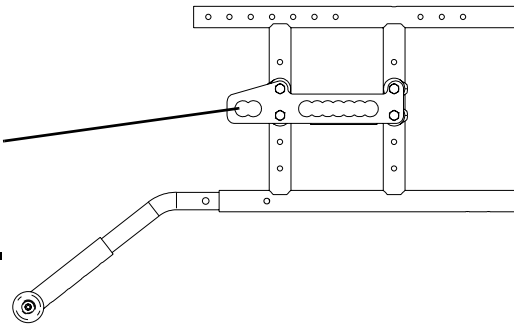


FIGURE 10.8 Adjusting the Wheelbase Length

Adjusting the Wheelbase Width

⚠ WARNING

The following procedure must be performed only by a qualified technician.

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 10.9 on page 112.

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. Refer to Removing/Installing Rear Wheels on page 101.
2. Loosen the two 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.Refer to Removing/Installing Rear Wheels on page 101.
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.

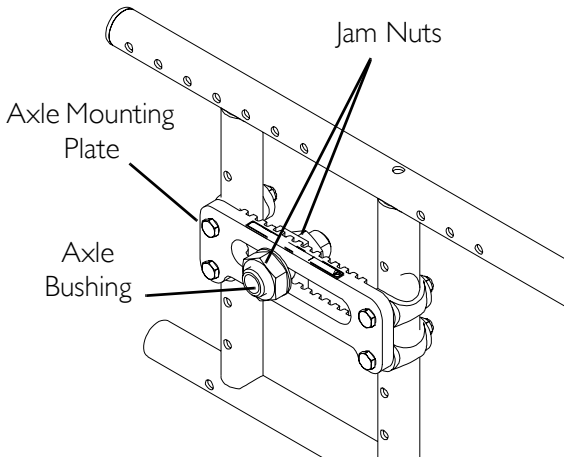


FIGURE 10.9 Adjusting the Wheelbase Width

Adjusting Rear Wheel Height

⚠ WARNING

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

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 10.10 on page 113.

1. Determine the rear wheel position for the desired seat-to-floor height. Refer to Changing Seat-to-Floor Height on page 125.
2. Remove the rear wheels from the wheelchair. Refer to Removing/Installing Rear Wheels on page 101.
3. Remove the four hex screws, washers, locknuts and four uni-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.
5. Resecure the axle mounting plate to the wheelchair frame. Refer to FIGURE 10.10 for correct hardware orientation. Torque to 60 inch-pounds.
6. Repeat STEPS 3-5 for the opposite side of the wheelchair.

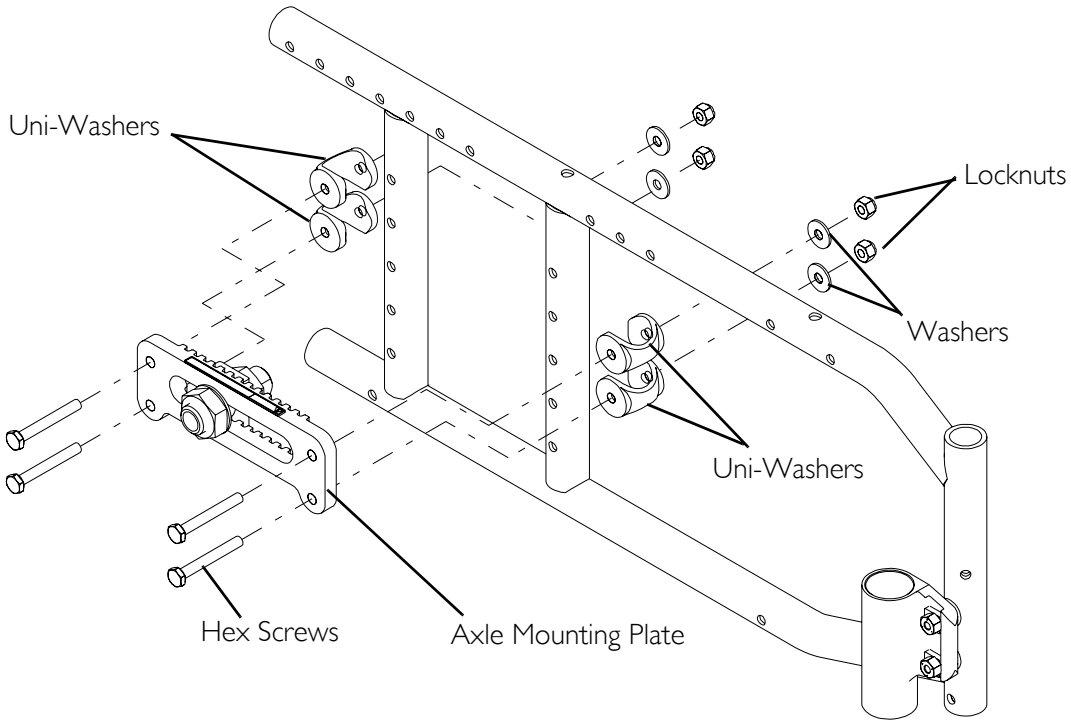


FIGURE 10.10 Adjusting Rear Wheel Height

SECTION 11—RECLINER

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

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

NOTE: Refer to the section indicated if any of the following procedures are required.

REPLACEMENT/ADJUSTMENT	LOCATION IN MANUAL:
Folding/Unfolding the Wheelchair	Safety/Handling of Wheelchairs on page 20.
Replacing Back/Headrest Upholstery	back on page 63.
Adjusting the Back Height	Adjusting Back Height on page 67.
Repositioning the Back (Changing Seat Depth)	Repositioning the Back (Changing Seat Depth) on page 73.
Repositioning Back For 2 or 3-inch Seat Cushion	2 or 3-Inch Seat Cushion (Recliners Only) on page 75.
Replacing Folding Push Handle	Replacing Folding Push Handle - Recliners Only on page 76.
Replacing the Seat Upholstery	Replacing Seat Upholstery on page 78.
Changing/Repositioning Seat Rails	Changing/Repositioning Seat Rails on page 78.
Repositioning the Crossbraces	Repositioning the Crossbraces on page 79.
Changing Seat Width	Changing Seat Width on page 80.

Recliner Operation

⚠ WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using recliner. DO NOT operate the recliner option if only one 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 Safety/Handling of Wheelchairs on page 20.

ALWAYS use the seat positioning strap.

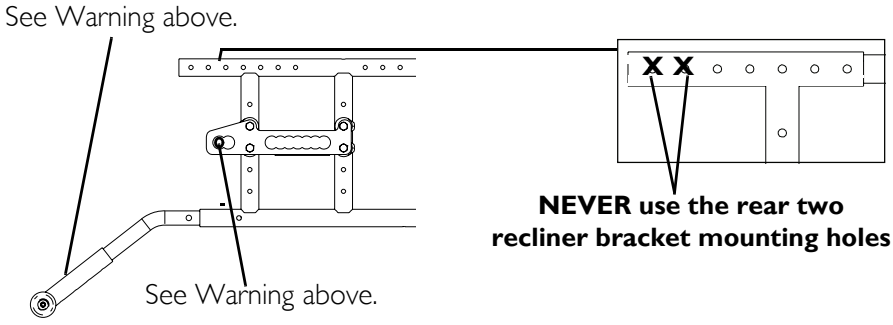
The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, seat positioning strap MUST be replaced immediately.

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 recliner bracket mounting holes when using the recliner option. Using the rear two recliner bracket mounting holes WILL make the wheelchair less stable, possibly causing injury.



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.

NOTE: For this procedure, refer to FIGURE 11.1.

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. Slowly, squeeze the trigger release levers of the recliner cable assemblies and allow the back to recline to the desired angle.

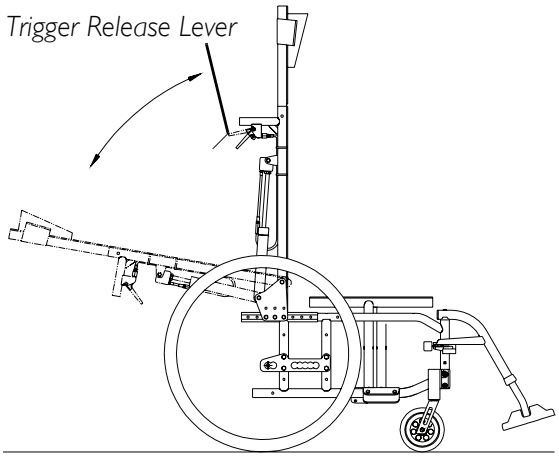


FIGURE 11.1 Recliner Operation

6. When the back reaches desired angle, slowly release the levers.
7. To return the back to the full upright position, reverse the above steps keeping in mind proper body mechanics.
8. Pull up on the handles of the recliner cable assemblies to release the gas cylinders.

Adjusting the Recliner Cables

NOTE: Refer to Adjusting the Gas Cylinders on page 119.

Replacing the Recliner Cables

NOTE: For this procedure, refer to FIGURE 11.2 on page 117.

NOTE: For ease of assembly, replace one recliner cable at a time.

Removing Existing Recliner Cables

1. While holding the locknut in the trigger release lever, remove the mounting 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" of FIGURE 11.2 on page 117 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.

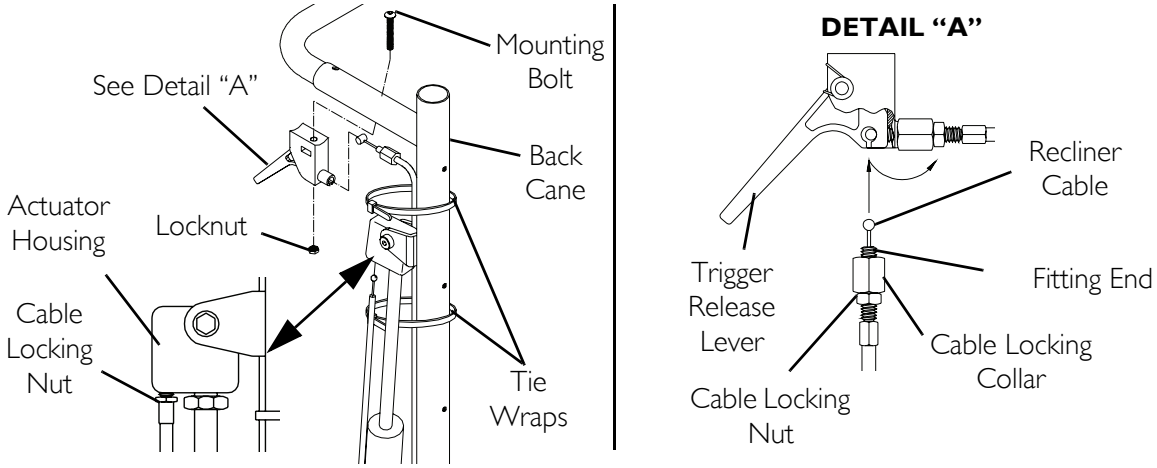


FIGURE 11.2 Replacing the Recliner Cables

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" of FIGURE 11.2.
2. Reinstall the locknut into the trigger release lever, if necessary.

NOTE: Refer to Detail "A" of FIGURE 11.2 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.While holding the cable locking collar and locking nut, tighten the cable locking nut against the cable locking collar.
5. Reposition the trigger release lever on the back cane.
6. Secure the trigger release lever to the back cane with the mounting bolt and locknut.

CAUTION

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

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

Replacing the Gas Cylinders

NOTE: For this procedure, refer to FIGURE 11.3 on page 119.

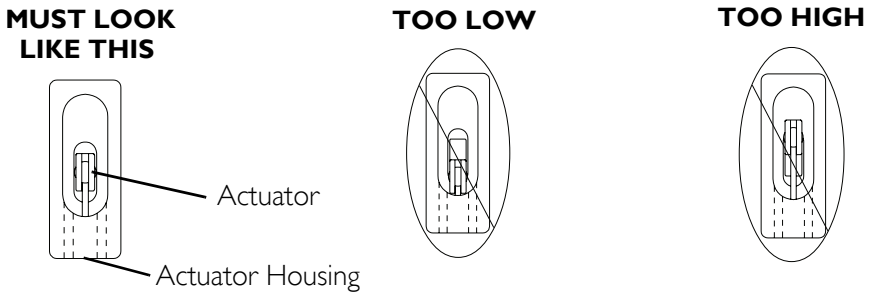
⚠ WARNING

Both gas cylinders MUST be operational and adjusted properly BEFORE using the recliner. DO NOT operate the recliner if only one 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 of the following:
   A. Replacing both gas cylinders - Repeat STEPS 1-2 for the opposite gas cylinder.
   B. Replacing one 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. Hand 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.
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 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 on page 119.

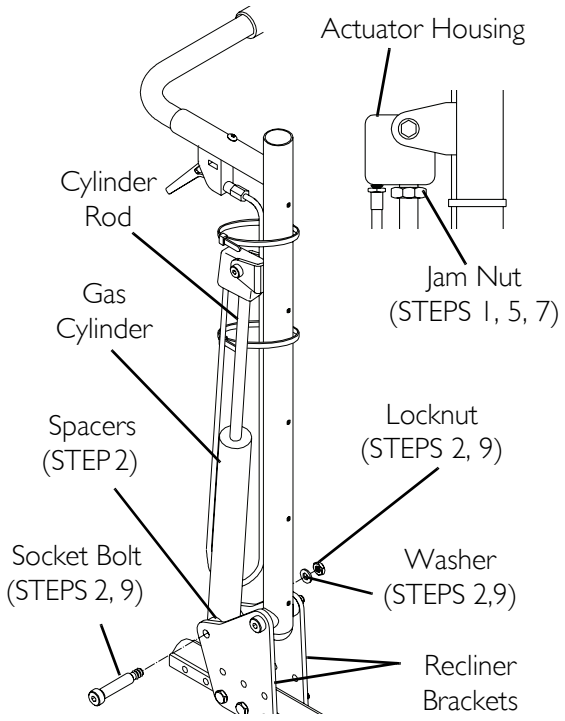


FIGURE 11.3 Replacing the Gas Cylinders

Adjusting the Gas Cylinders

⚠ WARNING

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

NOTE: For this procedure, refer to FIGURE 11.4 on page 120.

1. To adjust the left gas cylinder:
    A. 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 of two 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 "A" in FIGURE 11.4.
- Counterclockwise - Turning the cable adjusting nut counterclockwise will loosen the recliner cable.

3. If the recliner cable is too loose, the gas cylinders will not work.
4. While holding the cable adjusting nut in place, tighten the cable locking nut against the cable adjusting nut.
5. Repeat STEP 1.
6. Repeat STEP 2 until the left side of the back does NOT recline.
7. To adjust the right gas cylinder repeat STEPS 1 and 2 for the left handle of the recliner cable.

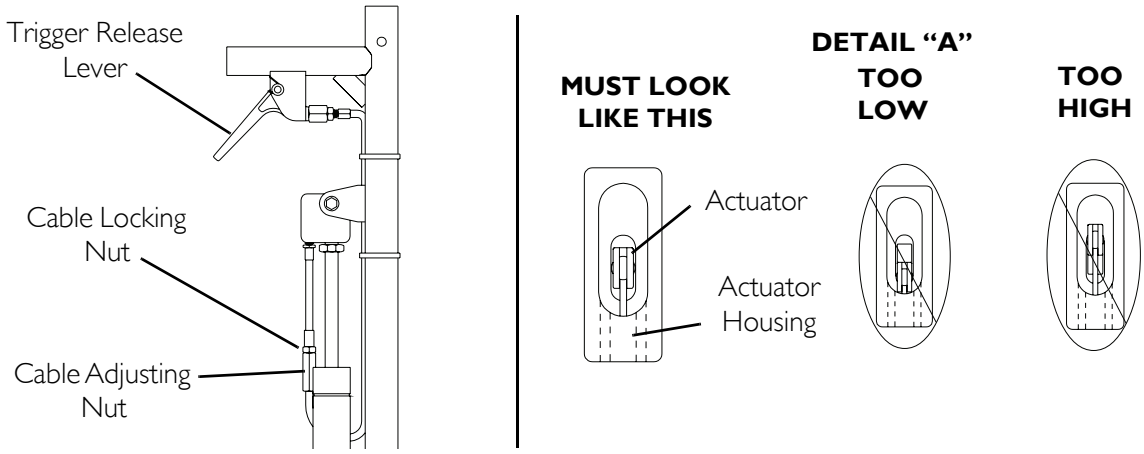


FIGURE 11.4 Adjusting the Gas Cylinders

SECTION 12—WHEELOCKS AND ANTI-TIPPERS

⚠ WARNING

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

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

Adjusting the Wheel Locks

⚠ WARNING

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

NOTE: For this procedure, refer to FIGURE 12.1 on page 122.

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.
3. Reposition the wheel lock so that when engaged, the wheel lock shoe embeds the tire 1/8 inch (3/16 inch for pneumatic tires) and holds the occupied wheelchair in place when pushed.
4. Securely tighten the bolt and locknut or socket screws securing the wheel lock to the wheelchair frame.
5. Engage the wheel lock.

NOTE: For steps 6-9 refer to FIGURE 12.1 on page 122, Detail "A" - Bolt-on wheel locks.

6. Measure the distance the wheel lock is embedded into the tire.

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

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

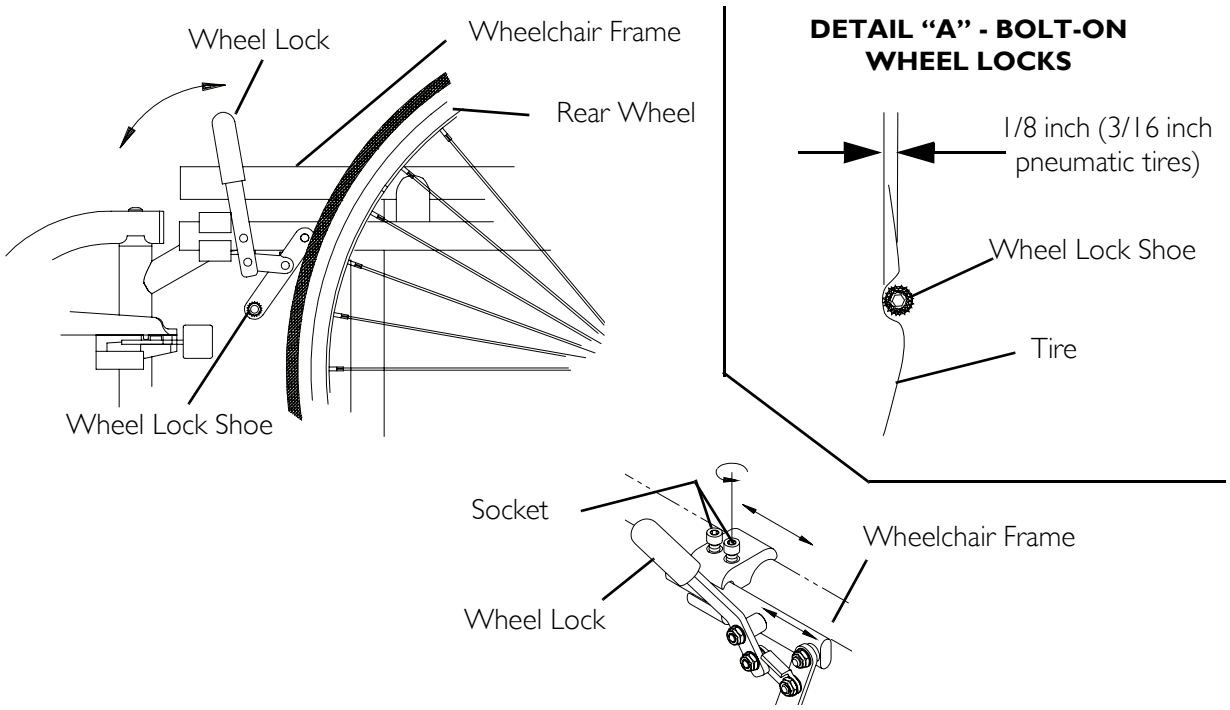


FIGURE 12.1 Adjusting the Wheel Locks

Installing Wheel Lock Extension Handle

NOTE: For this procedure, refer to FIGURE 12.2 .

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.

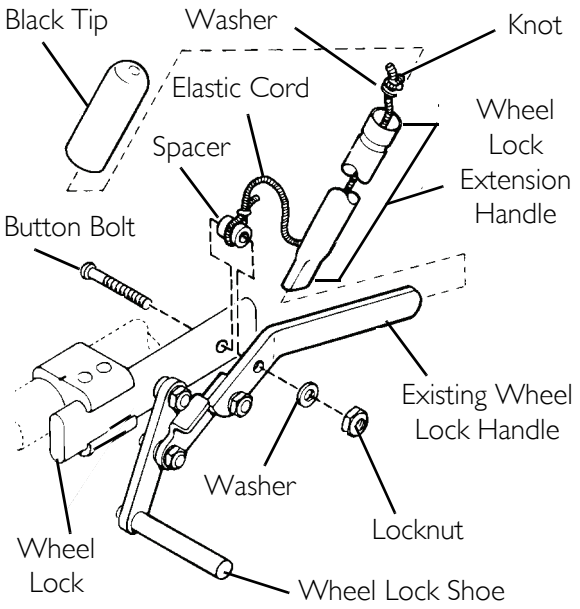


FIGURE 12.2 Installing Wheel Lock Extension Handle

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.
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.

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

NOTE: For this procedure, refer to FIGURE 12.3.

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 locking pins are secured in place.

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

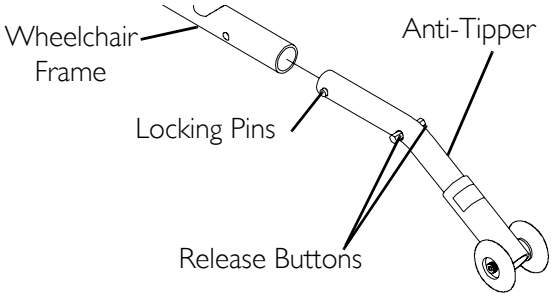


FIGURE 12.3 Installing the Anti-Tippers

2. Adjust the anti-tippers. Refer to Adjusting the Anti-Tippers on page 123.

Adjusting the Anti-Tippers

NOTE: For this procedure, refer to FIGURE 12.4.

1. Press the spring button on the wheeled portion of the anti-tipper and slide it up or down to achieve a 1½ to 2-inch clearance.
2. Check to make sure that the spring buttons are fully engaged in adjustment holes.

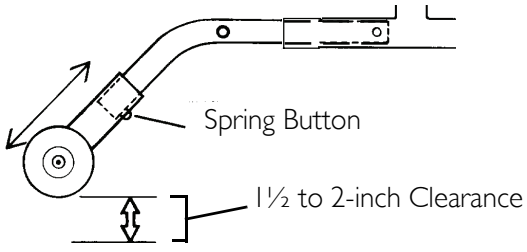


FIGURE 12.4 Adjusting the Anti-Tippers

SECTION 13—SEAT-TO-FLOOR

⚠ WARNING

The back height, seat depth, back angle, seating system, seat height, size/position of the rear wheels, size/position of the front casters, as well as the user condition directly relate to the stability of the wheelchair. Any change to one or and combination of the nine may cause the wheelchair to decrease in stability.

These adjustments MUST be performed by a qualified technician.

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Determining Seat-to-Floor Height

Rear Seat-to-Floor Height

NOTE: For this procedure, refer to FIGURE 13.1.

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 ¼-inch from the measurements listed on the following pages. All heights are approximate to ± ¼-inch due to tire wear and air pressure.

NOTE: For Folding and Rigid Frames without seat rails, subtract 1½ inches from seat-to-floor listed below. This will give distance from top of side frame to floor.

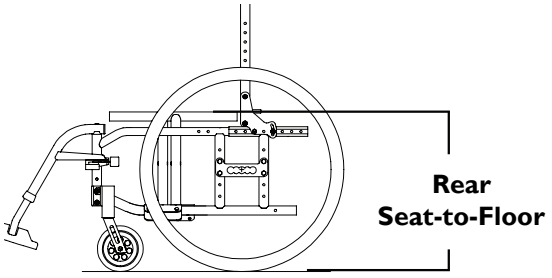


FIGURE 13.1 Rear Seat-to-Floor Height

Front Seat-to Floor Height

NOTE: For this procedure, refer to FIGURE 13.2.

NOTE: The front seat-to-floor heights are approximate to ± ¼-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 without seat rails, subtract 1½ inches from seat-to-floor listed below. This will give distance from top of side frame to floor.

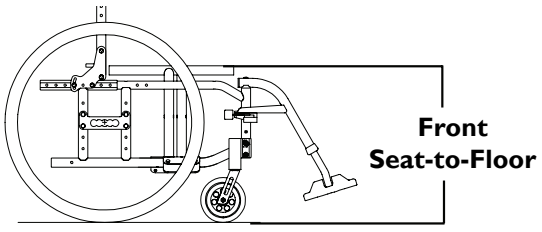


FIGURE 13.2 Front Seat-to Floor Height

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 18¼ inch front seat-to-floor height measurement

MINUS

A 17 inch rear seat-to-floor height measurement

EQUALS

1¼ 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

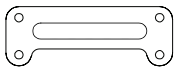
NEVER use the standard multi-position or offset multi-position axle plates with the recliner option. Using the standard multi-position or offset multi-position axle plates will reduce the stability of the wheelchair, causing injury to the user and/or assistant(s).

NOTE: For this procedure, refer to FIGURE 13.3.

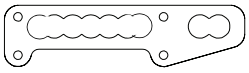
The following axle mounting positions for rear seat-to-floor height apply to any of the axle mounting plates.

After determining axle mounting plate placement for necessary rear seat-to-floor height, refer to Adjusting Rear Wheel Height on page 112 to reposition the axle mounting plates.

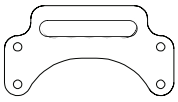
NOTE: The following rear seat-to-floor heights shown are the most common rear seat-to-floor heights available.



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)

FIGURE 13.3 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 the leading or trailing position.

Refer to Adjusting Caster Headtube Mounting on page 98 of this manual for more information on mounting the front casters in the leading/trailing positions.

After determining front caster headtube position and seat-to-floor height desired, refer to Repositioning the Caster Headtubes on page 98 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 Removing/Installing Front Caster Assembly on page 95 of this manual to reposition the caster on the fork.

After determining fork size, refer to Removing/Installing Front Fork Assembly on page 95 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 without seat rails, subtract 1½ inches from seat-to-floor listed below. This will give distance from top of side frame to floor.

FRONT SEAT-TO-FLOOR HEIGHTS (in inches)

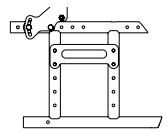
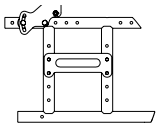
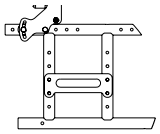
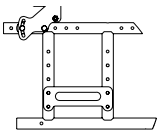
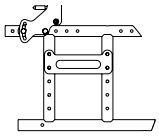
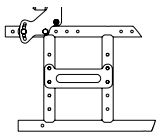
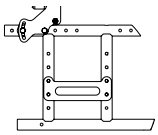
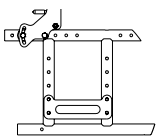
FORK STYLE	3 AT900	5 5ALUM AT901	6 AT902 6SKYWAY	6X2 1259	8 AT903 1228
A1103 3 INCH FORK	15.25 15.75 16.50 17.00	16.25 16.75 17.50 18.00	N/A	N/A	N/A
A1105 5 INCH FORK	16.25 16.75 17.25 17.50 18.00 18.50	16.75 17.25 17.75 18.00 18.25 18.50 19.00 19.50	17.25 17.75 18.25 18.50 18.75 19.00 19.50 20.00	N/A	N/A
A1108 8 INCH FORK	N/A	N/A	N/A	18.00 18.50 19.00 19.25 19.50 19.75 20.25 20.75	19.00 19.50 20.00 20.25 20.50 20.75 21.25

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

Refer to the following tables 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 ¼ inch from the measurements listed below. All heights are approximate to ± ¼ inch due to tire wear and air pressure.

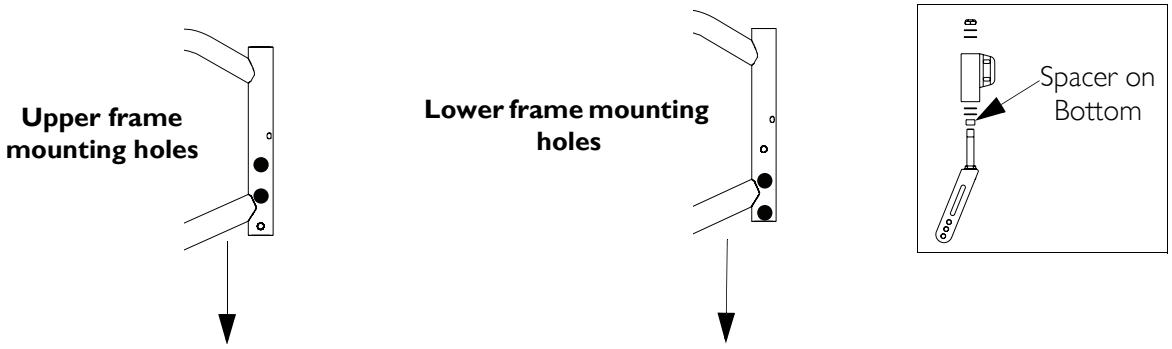
NOTE: The following charts are shown with non-recliner back hardware only for clarity. The axle mounting positions are the same for recliner wheelchairs.

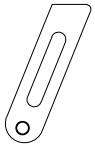
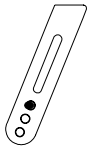
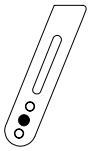
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	15 inches	
22	16 inches	
24	16¾ inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	16¼ inches	
22	17¼ inches	
24	18 inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	17½ inches	
22	18½ inches	
24	19¼ inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	18¾ inches	
22	19¾ inches	
24	20½ inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	15¾ inches	
22	16¾ inches	
24	17½ inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	17 inches	
22	18 inches	
24	18¾ inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	18¼ inches	
22	19½ inches	
24	20 inches	
REAR WHEEL SIZE	REAR SEAT-TO-FLOOR HEIGHT	AXLE PLATE POSITION
20	19½ inches	
22	20½ inches	
24	21¼ inches	

Front Seat-to-Floor Height Settings - Spacer on Bottom

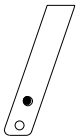
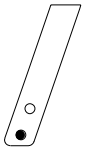
Refer to the following figures and table to determine the obtainable front seat-to-floor height for with 3, 5, 6 or 8-inch casters with 3, 5 or 8-inch forks:

All measurements are in inches. The front seat-to-floor heights are approximate to ± ¼ - inch.



3-INCH FORK			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
15¾	3	17	
16¾	5	18	
N/A	6 or 8	N/A	
5-INCH FORK- POSITION 1			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
17¼	5	18½	
17¾	6	19	
N/A	3 or 8	N/A	
5-INCH FORK - POSITION 2			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
16¾	3	18	
17¾	5	19	
18¼	6	19½	
N/A	8	N/A	

NOTE: Using a spacer with a fork to achieve higher seat-to floor heights will maintain a tighter turning radius that a larger fork.

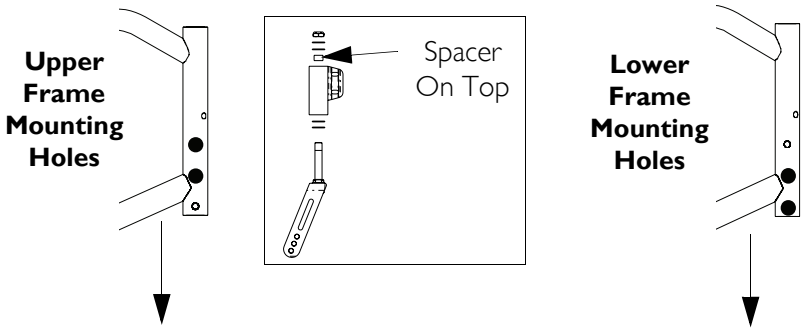
5-INCH FORK - POSITION 3			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
17¼	3	18½	
18¼	5	19½	
18¾	6	20	
N/A	8	N/A	
8-INCH FORK - POSITION 1			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
N/A	3, 5, or 6x1	N/A	
19½	8	20¾	
18½	6x2	19¾	
8-INCH FORK - POSITION 2			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
N/A	3, 5 or 6x1	N/A	
20½	8	Do NOT use this setting. Chair may become unstable.	
19½	6x2	20¾	

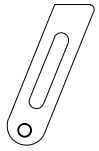
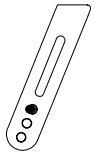
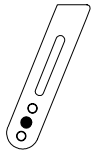
NOTE: Using a spacer with a fork to achieve higher seat-to floor heights will maintain a tighter turning radius that a larger fork.

Front Seat-to-Floor Height Settings - Spacer on Top

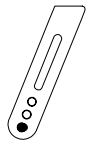
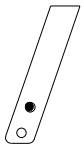
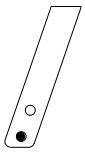
Refer to the following figures and tables to determine the obtainable front seat-to-floor height for with 3, 5, 6 or 8-inch casters with 3, 5 or 8-inch forks:

NOTE: All measurements are in inches. The front seat-to-floor heights are approximate to ± ¼ inch.



3-INCH FORK			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
15¼	3	16½	
16¼	5	17½	
N/A	6 or 8	N/A	
5-INCH FORK - POSITION 1			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
16¾	5	18	
17¼	6	18½	
N/A	3 or 8	N/A	
5-INCH FORK - POSITION 2			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
16¼	3	17½	
17¼	5	18½	
17¾	6	19	
N/A	8	N/A	

NOTE: Using a spacer with a fork to achieve higher seat-to floor heights will maintain a tighter turning radius that a larger fork.

5-INCH FORK - POSITION 3			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
16¾	3	18	
17¾	5	19	
18¼	6	19½	
N/A	8	N/A	
8-INCH FORK - POSITION 1			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
N/A	3, 5 or 6x1	N/A	
19	8	20¼	
18	6x2	19¼	
8-INCH FORK - POSITION 2			
FRONT SEAT-TO-FLOOR	**CASTER SIZE**	**FRONT SEAT-TO-FLOOR**	
N/A	3, 5 or 6x1	N/A	
20	8	21¼	
19	6x2	20¼	

NOTE: Using a spacer with a fork to achieve higher seat-to floor heights will maintain a tighter turning radius that a larger fork.

SECTION 14— TRANSPORT READY OPTION

NOTE: The information in this section is for wheelchairs ordered with the transport ready option only.

⚠ WARNING

Contact Invacare Corporation (800-333-6900) with any questions about using this wheelchair for seating in a motor vehicle.

When feasible, wheelchair occupants should transfer into the vehicle seat and use the OEM (Original Equipment Manufacturer) vehicle-installed restraint system.

This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy restrained by BOTH pelvic and upper-torso belt(s) (shoulder belts), and that BOTH pelvic and upper torso belt(s) should be used to reduce the possibility of head and chest impacts with vehicle components.

Use ONLY Wheelchair Tie-down and Occupant Restraint Systems (WTORS) which meet the requirements of the SAE (Society of Automotive Engineers) J2249 Recommended Practice during travel in a motor vehicle.

This wheelchair has been tested for seating in a motor vehicle with the factory installed seating system ONLY.

This wheelchair MUST be in a forward facing position during travel in a motor vehicle.

This wheelchair is equipped, and has been dynamically tested to rely on WHEELCHAIR-ANCHORED pelvic belts. If desired, VEHICLE-ANCHORED pelvic belts may be used.

IT IS STRONGLY RECOMMENDED THAT BOTH PELVIC AND UPPER-TORSO BELT(S) BE USED TO REDUCE THE RISK OF INJURY.

To reduce the potential of injury to vehicle occupants, wheelchair-mounted accessories, including but not limited to IV poles, trays, respiratory equipment, backpacks, and other personal items should be removed and secured separately.

Postural supports, positioning devices, and/or strap(s) should NOT be relied on for occupant restraint. These items may be used IN ADDITION TO the wheelchair-anchored or vehicle-anchored belts.

DO NOT alter or substitute wheelchair frame parts, components, or seating systems.

A sudden stop and/or collision may structurally damage your wheelchair. Wheelchairs involved in such incidents should be replaced.

TRANSPORT READY PACKAGES ARE NOT RETROFITTABLE TO EXISTING MODELS AND ARE NOT FIELD SERVICEABLE.

Only use the transport brackets included with TRRO and TRBKTS for the purposes described in this manual.

About Transport Ready Packages

TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. TRRO has been crash-tested in accordance with ANSI/RESNA WC Vol 1 Section 19.5.3. Frontal Impact Test requirements for wheelchairs with a 168 lb crash dummy, which corresponds to a person with a weight of 114 to 209 lbs.

TRBKTS includes four factory-installed wheelchair transport brackets. TRBKTS has not been crash-tested in accordance with WC 19.5.3. Invacare recommends that these transport brackets be used only to secure an unoccupied wheelchair during transport.

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.

Compliance Information

This wheelchair conforms with the requirements of the ANSI/RESNA WC/Vol. 1 - Section 19.5.3 (Frontal Impact Test)

NOTE: ANSI = American National Standards Institute, RESNA= Rehabilitation Engineering and Assistive Technology Society of North America.

This wheelchair has been dynamically tested in a forward-facing mode with the specified crash test dummy, which corresponds to a person **with a weight of 114-209 pounds**, restrained by BOTH pelvic and shoulder belts in accordance with ANSI/RESNA WC Vol 1 Section 19.5.3. BOTH pelvic and upper torso belts should be used to reduce the possibility of head and chest impacts with vehicle components.

Specifications

Only wheelchairs which fit in the following size ranges should be occupied in a motor vehicle:

- 14-inches to 20-inches wide
- 14-inches to 20-inches deep

Weight Limit

MODEL	WHEELCHAIR WEIGHT LIMIT
Compass XE and Allegro - Folding Frame	Up to 250 pounds
Compass XE and Allegro - Rigid Frame	Up to 150 pounds

Securing the Wheelchair to the Vehicle

Positioning the Wheelchair in the Vehicle

⚠ WARNING

This wheelchair must be in a forward facing position during travel in a motor vehicle.

The recommended clear zones for wheelchair seated occupants restrained by BOTH pelvic and upper torso belt(s) and ONLY by a pelvic belt are shown in the diagrams and described below.

Frontal Clear Zones (FCZ) need to be LARGER when upper torso belt(s) are NOT used.

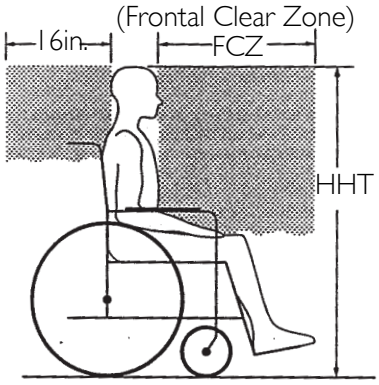
The rear clear zone of 16-inches is measured from the rearmost point on an occupant's head.

The frontal clear zone is measured from the frontmost point on an occupant's head and is 26-inches with pelvic and upper-torso belt(s) and 37-inches with ONLY a pelvic belt.

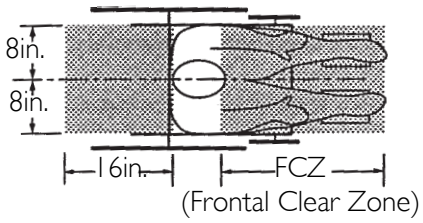
The frontal clear zone may not be achievable for wheelchair-seated drivers.

The estimated seated height (HHT) from the ground or floor to the top of the wheelchair-seated occupant's head ranges from approximately 47-inches for a small adult female to about 61-inches for a tall adult male.

DETAIL "A" - SIDE VIEW



DETAIL "B" - TOP VIEW



Securement Points

NOTE: For this procedure, refer to FIGURE 14.1.

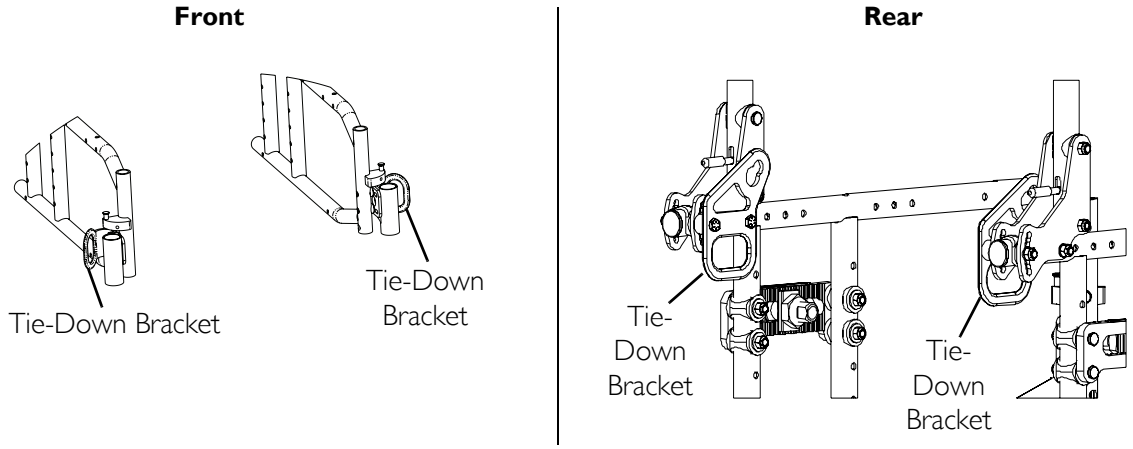


FIGURE 14.1 Securement Points

Securing the Wheelchair

This wheelchair is to be used only with Wheelchair Tie-down and Occupant Restraint Systems (WTORS) that have been installed in accordance with the manufacturer's instructions and SAE J2249.

NOTE: A copy of SAE J2249 Wheelchair Tie-down and Occupant Restraint Systems (WTORS) for use in Motor Vehicles can be obtained from: SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, (877) 606-7232 or (724) 776-4970.

Attach WTORS to the tie-down brackets in accordance with the manufacturer's instructions and SAE J2249.

Securing the Occupant

Wheelchair-Anchored Belts

⚠ WARNING

The pelvic belt that is provided by Invacare has been tested for use in a motor vehicle on this wheelchair ONLY. DO NOT replace the pelvic belt with a different style pelvic belt.

NOTE: For this procedure, refer to FIGURE 14.2.

The wheelchair has been provided with a pelvic belt which meets the requirements of ANSI/RESNA WC/19.5.3.

The pelvic belt provided by Invacare has been designed to accommodate use on either side of the vehicle. If necessary, follow the instructions below to reverse the orientation of the pelvic belt to accommodate the vehicle-anchored upper torso belt.

1. Install the pelvic belt pin (Detail "A" of FIGURE 14.2) into slot in the pelvic belt bracket. Pull upwards until it snaps into place.

NOTE: Note the position of the male end of the belt when installing the pelvic belt onto the pelvic belt brackets. The male end of the pelvic belt (Detail "A" of FIGURE 14.2) has a pin which is used to secure the vehicle-anchored upper torso belt.

2. Repeat STEP 1 for the opposite pelvic belt bracket.
3. Install the vehicle-anchored upper torso belt onto the pin on the male end of the pelvic belt.

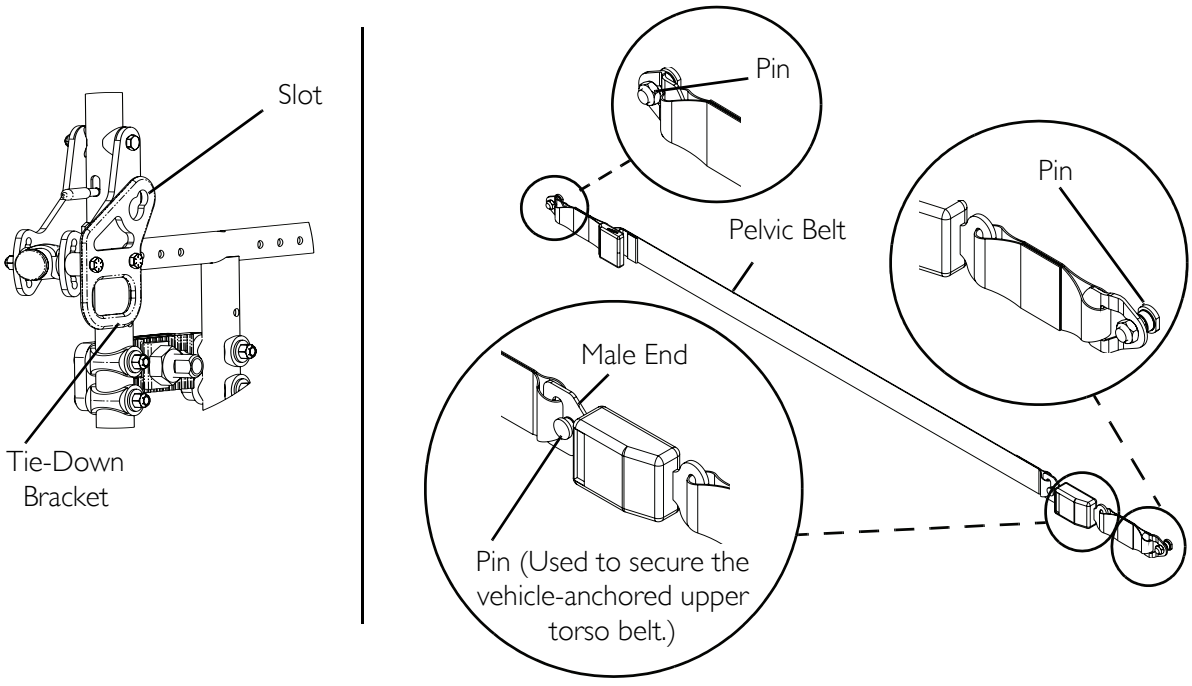


FIGURE 14.2 Wheelchair-Anchored Belts

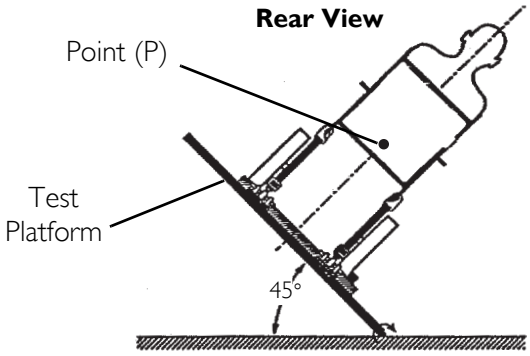
Vehicle-Anchored Belts

NOTE: For this procedure, refer to FIGURE 14.3.

This wheelchair has an overall rating of "B" with regard to accommodating the use and fit of vehicle-anchored belts. This rating is scored as follows:

RATING	DESCRIPTION
A	Excellent
B	Good
C	Fair
D	Poor

The test for Lateral Stability Displacement for Point (P) is shown in FIGURE 14.3. The average test result for point (P) is 0.75-inches (19 mm).



NOTE: Rear view of wheelchair and human surrogate secured on test platform and tilted to 45 degrees.

FIGURE 14.3 Vehicle-Anchored Belts

Seating System

⚠ WARNING

This wheelchair has been tested for seating in a motor vehicle with the factory installed seating system ONLY.

When feasible, wheelchair occupants should transfer into the vehicle seat and use the OEM (Original Equipment Manufacturer) vehicle-installed restraint system.

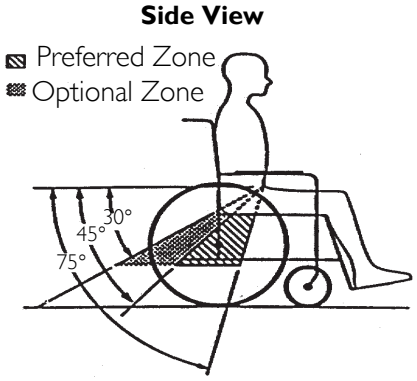
Ensure that the factory installed seating system is secured to the wheelchair frame before operation. Refer to the seating system owner's manual.

Positioning Belts

⚠ WARNING

The angle of the pelvic belt should be within the preferred zone of 45 to 75 degrees to the horizontal OR within the optional zone of 30 to 45 degrees to the horizontal.

Steeper side-view pelvic belt angles are especially important if the pelvic belt is intended to be used for postural support in addition to occupant restraint in a frontal crash. Steeper angles will reduce the tendency for a vertical gap to develop between the user and the belt due to compliance of seat cushions and belt movement, thereby reducing the tendency for the user to slip under the belt and for the belt to ride up on the soft abdomen during normal use.

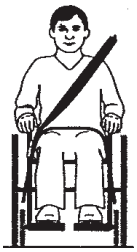


Steeper belt angles also reduce the tendency for upper-torso belts to pull the pelvic belt onto the abdomen during frontal impact loading.

NOTE: For this procedure, refer to FIGURE 14.4.

1. The pelvic belt should be worn low across the front of the pelvis.
2. Position the upper torso belt(s) over the shoulders.
3. The belt(s) should not be held away from the body by wheelchair components or parts, including but not limited to wheelchair armrests or wheels. Refer to FIGURE 14.4 for proper and improper positioning of the belts.
4. Ensure the belt(s) are not twisted.
5. Adjust belts as firmly as possible, being mindful of user comfort.

DO position belts INSIDE of armrests, wheels, etc.



DO NOT position belts OUTSIDE of armrests, wheels, etc.

FIGURE 14.4 Positioning Belts

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 its product to be free from defects in materials and workmanship for a period of one (1) year from date of purchase. The side frames and crossmembers are warranted for the lifetime of the original purchaser/user. 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 at the bottom of the back cover. Provide dealer's name, address, 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, COMMERCIAL OR INSTITUTIONAL USE, 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 THESE INSTRUCTIONS.

THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED 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.

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