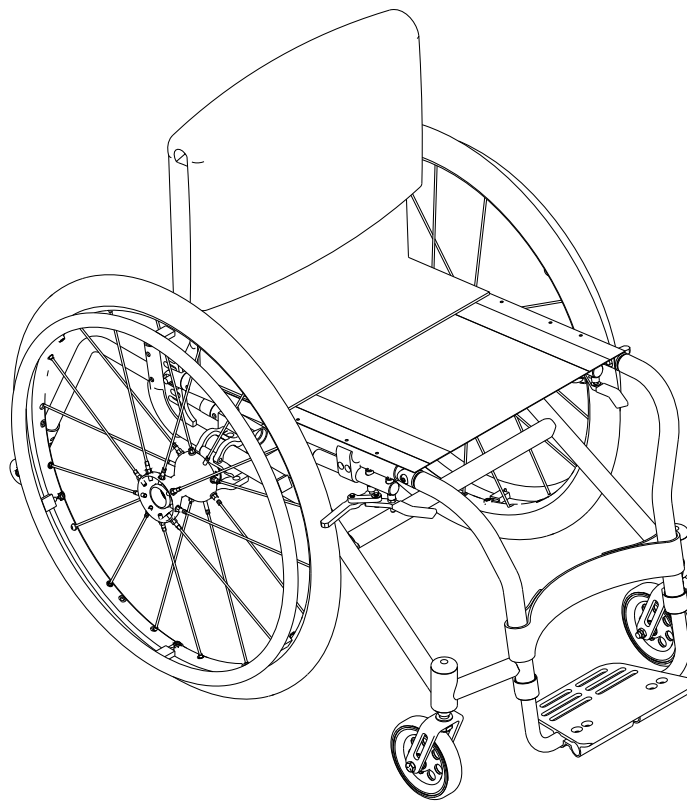


Owner's Operator And Maintenance Manual

A4™ and A4™ Titanium (Adjustable Seat Angle)



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.



Yes, you can:

WARNING

DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS AND INSTRUCTIONS, CONTACT A QUALIFIED TECHNICIAN BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.

SAVE THESE INSTRUCTIONS

TABLE OF CONTENTS

SPECIAL NOTES	5
LABEL LOCATIONS	6
SPECIFICATIONS	7
SECTION 1 - GENERAL GUIDELINES	8
STABILITY	8
OPERATING INFORMATION	9
TIRE PRESSURE	10
WEIGHT TRAINING	10
WEIGHT LIMITATION	10
SAFETY/HANDLING OF WHEELCHAIRS	11
SECTION 2 - SAFETY INSPECTION	17
SAFETY INSPECTION CHECKLIST	17
TROUBLESHOOTING	18
MAINTENANCE	18
SECTION 3 - UPHOLSTERY	20
UNFOLDING/FOLDING THE BACK	20
REMOVING/INSTALLING STANDARD BACK UPHOLSTERY	21
ADJUSTABLE TENSION BACK UPHOLSTERY	22
SEAT UPHOLSTERY REPLACEMENT	23
SECTION 4 - FRAME	24
BACK ANGLE ADJUSTMENT	24
BACK HEIGHT ADJUSTMENT	26
REAR SEAT-TO-FLOOR HEIGHT ADJUSTMENT	27
REPLACING SEAT FRAME	28
OPENING/CLOSING CAMBER CLAMPS	30
DETERMINING TOE IN/TOE OUT	32
ADJUSTING TOE IN/TOE OUT	33
ADJUSTING THE AXLE TUBE	35
REPOSITIONING CAMBER INSERTS (ADJUSTING REAR WHEEL CAMBER) (FIGURE 9)	37
ADJUSTING WHEELBASE LENGTH (ADJUSTING CENTER OF GRAVITY) (FIGURE 10)	39
ADJUSTING WHEELBASE WIDTH	41
REPLACING AXLE TUBE	42

CONTENTS

CONTENTS

SECTION 5 - WHEELS	44
REMOVING/INSTALLING REAR WHEELS	44
ADJUSTING QUICK-RELEASE AXLE	45
INSTALLING QUAD-RELEASE AXLE	45
ADJUSTING THE QUAD-RELEASE HANDLE IN AND/OR OUT	46
REMOVING THE PLAY FROM THE REAR WHEELS	46
REPAIRING/REPLACING REAR WHEEL TIRE/TUBE	47
HANDRIM REPLACEMENT	47
WHEEL LOCK ADJUSTMENT/REPLACEMENT	48
REPLACING/ADJUSTING CASTERS	49
REPLACING FORKS	50
ADJUSTING CASTER HEIGHT	51
ADJUSTING FRONT SEAT-TO-FLOOR HEIGHT	52
SECTION 6 - FOOTREST	59
FOOTREST REPLACEMENT/ADJUSTMENT	59
SECTION 7 - ANTI-TIPPERS	61
ANTI-TIPPER ADJUSTMENT/REPLACEMENT	61
SECTION 8 - ARMS	63
INSTALLING THE T-ARM SOCKETS	63
INSTALLING/REMOVING T-ARMS	64
ADJUSTING THE T-ARMS	65
ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS	68
REPLACING THE T-ARM LOCKING LEVER	69
INSTALLING THE HALF ARM SOCKET	70
ADJUSTING HALF ARM HEIGHT	70
SECTION 9 - SUSPENSION	71
ELASTOMERS AND SUSPENSION	71
REPLACING REAR ELASTOMERS	71
REPLACING FRONT ELASTOMERS	73
LIMITED WARRANTY	75

SPECIAL NOTES

WARNING/CAUTION notices as used in this manual apply to hazards or unsafe practices which could result in personal injury or property damage.

NOTICE

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

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

WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT POSITIONING STRAPS

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

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

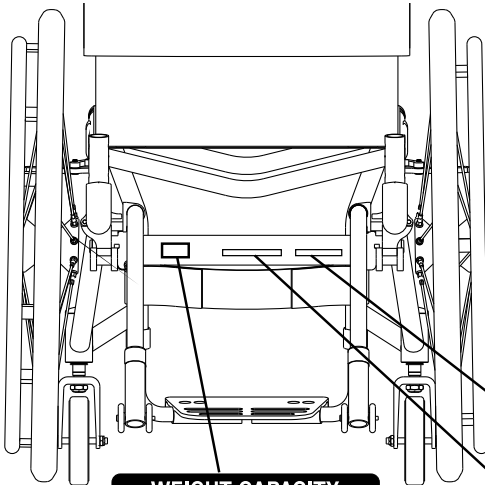
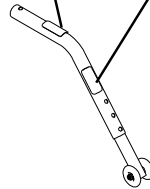
AS REGARDS TO RESTRAINTS - SEAT /CHEST POSITIONING STRAPS - IT IS THE OBLIGATION OF THE DME DEALER, THERAPISTS AND OTHER HEALTHCARE PROFESSIONALS TO DETERMINE IF A SEAT/CHEST POSITIONING STRAP IS REQUIRED TO ENSURE THE SAFE OPERATION OF THIS EQUIPMENT BY THE USER. SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM A WHEELCHAIR.

LABEL LOCATIONS

LABEL LOCATIONS

⚠ WARNING
DO NOT OPERATE WITHOUT
THE ANTI-TIP TUBES
INSTALLED. P/N 60106X144
REV. 5/98

⚠ WARNING
Refer to Owner's Manual
for proper anti-tipper
setting. 1085379



WEIGHT CAPACITY
300 LBS. (136 kgs.)
REFER TO OWNER'S MANUAL
P/N 1111016

⚠ WARNING 1086191 Refer to Owner's Manual **BEFORE**
lengthening or shortening wheelbase.

⚠ WARNING Detent balls should extend beyond the diameter
of the axle bushing for a positive lock. Keep
detent balls clean. REV.10/98 1026960

SPECIFICATIONS

INVACARE A4						
Frame Type:	Tapered or "V"					
Seat Width:	12 to 22-inches					
Camber Width: Add the inches listed in the chart to the wheelchair width to obtain the overall width of the wheelchair at the widest point.	Camber (in degrees)	0	3	6	9	12
	Rear Wheel Type: Spoke Composite	6-3/4 7	8 8-1/4	10 10-1/4	12-1/4 12-1/2	14-1/4 14-1/2
Seat Depth:	14 to 22-inches					
Seat-to-Floor (approx.)* Front: Rear:	17 to 21-inches - in 1-inch increments					
	Possible Rear Seat-to-Floor			Rear Wheel Size		
	14-1/2 to 19-inches 15-1/2 to 20-inches 16-1/2 to 20-inches			22-inch 24-inch 26-inch		
Back Style:	Fold Down					
Back Height:	8 to 20-inches - Adjustable (8-11, 10-14, 12-16, 14-18 or 16-20-inch ranges)					
Footrest:	5-inch Adjustable Height, Adjustable Angle or Tubular					
Side Wheel Clearance:	1/2 to 2-1/2-inches (1-inch Standard)					
Rear Axle:	Quick-Release, Quad-Release					
Rear Wheel Camber Single: Dual:	Custom - 0°, 3°, 6°, 9° and 12° Custom - 0° and 3°, 0° and 6°, 0° and 9°, 3° and 6°, 3° and 9°, 3° and 12°, 6° and 9°, 6° and 12°, 9° and 12°					
	Rear Wheels: 22 or 24-inch Composite, Spoke or Spinergy (24-inch Spoke Standard) 26-inch Spoke or Spinergy, 559mm Spoke or 700C Spoke					
Handrims:	Aluminum Welded Tab (Standard), Plastic Coated or Projections					
Wheel Locks:	Push to Lock, Pull to Lock, Hill Holder or Hideaway Undermount					
Caster Size:	3-inch Rollerblade, 4 or 5-inch Soft Roll, 5-inch Urethane, 6-inch Urethane or 6-inch Semi-Pneumatic ("V" Front Only)					
Seat Cushion:	2 or 3-inch					
Back Upholstery:	U240 Black (standard) or Adjustable Tension					
Arms (Optional):	Half (Swingaway Padded) or "T"					
Weight**:	22 pounds - 16 x 16 frame, with anti-tippers, 24-inch spoke wheels, and dual camber inserts.					
Shipping Weight** (approx):	34 pounds - 15 x 15 seat frame with complete package					

* NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed above. All heights are measured with properly inflated new tires. These heights can vary ± 1/4-inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

** NOTE: Subtract one (1) pound for Titanium models. Subtract one-half (1/2) pound for single camber inserts. Add one (1) pound for wheelchairs with the suspension option.

Section I - General Guidelines includes the following:

Stability

Operating Information

Weight Training

Weight Limitation

Safety/Handling of Wheelchairs

STABILITY

STABILITY WARNINGS

The position of the footrest, seat angle, back angle, seating system/upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME** care **MUST** be taken when changing the stability of the wheelchair.

	Footrest Position	Seat Angle	Back Angle	Seating System	Caster Size	Caster Position	Rear Wheel Size	Rear Wheel Position	Anti-Tippers	User Condition
Footrest Position	•	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	✓
Seat Angle	✓	•	✓	✓	N/A	N/A	N/A	N/A	N/A	✓
Back Angle	N/A	✓	•	✓	N/A	N/A	N/A	N/A	N/A	✓
Seating System/Upholstery	✓	✓	✓	•	N/A	N/A	N/A	N/A	N/A	✓
Caster Size	N/A	N/A	N/A	•	✓	✓	✓	✓	✓	N/A
Caster Position	N/A	N/A	N/A	N/A	•	✓	✓	✓	✓	N/A
Rear Wheel Size	N/A	N/A	N/A	✓	✓	•	✓	✓	✓	N/A
Rear Wheel Position	N/A	N/A	N/A	✓	✓	✓	•	✓	✓	N/A
Anti-Tippers	N/A	N/A	N/A	N/A	✓	✓	✓	✓	•	✓
User Condition	✓	✓	✓	✓	✓	✓	✓	✓	✓	•

NOTE: When changes to the left hand column occur, follow across the chart and refer to the procedure that is checked (✓) to maintain the proper stability, safety and handling of the wheelchair.

NOTE: Additional adjustments may be needed according to the wheelchair type. Refer to the wheelchair owner's manual for these procedures.

To maintain maximum stability, the rear wheels should be left in the factory setting. Moving the rear wheels forward causes the wheelchair to decrease in stability.

ALWAYS ensure stability BEFORE moving the rear wheels forward. TEST wheelchair BEFORE it is occupied by the end user to ensure safety.

OPERATING INFORMATION**WARNING**

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

All service and adjustments should be performed while the wheelchair is unoccupied.

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

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

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

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

DO NOT tip the wheelchair without assistance.

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

NEVER position the camber inserts in the axle tube with more than 3-inches (3-inches is 12 indexing marks showing) of the camber insert outside of the axle tube. The camber inserts will not be securely tightened in the axle tube resulting in possible injury to the user or damage to the wheelchair.

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

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. When transferring to and from the wheelchair, **ALWAYS ENGAGE BOTH WHEEL LOCKS.**

DO NOT operate on roads, streets or highways.

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

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

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

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

WARNING (CONTINUED)

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.

DO NOT stand on the frame of the wheelchair.

Anti-tippers MUST BE attached at all times. Inasmuch as the **ANTI-TIPPERS** are an option on this wheelchair (You may order with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as an additional safeguard for the wheelchair user.

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

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.

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.

TIRE PRESSURE**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.

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

WEIGHT TRAINING**WARNING**

Invacare **DOES NOT** recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have **NOT** been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, Invacare shall **NOT** be liable for bodily injury and the warranty will be voided immediately.

WEIGHT LIMITATION**WARNING**

The Invacare A4 wheelchair has a weight limitation of 300 lbs. (136 kg.).

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 users.

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 barriers 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 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.

Anti-tippers MUST BE attached at all times. Inasmuch as the ANTI-TIPPERS are an option on this wheelchair (You may order with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as an additional safeguard for the wheelchair user.

To assure safe stability and operation of the wheelchair, proper balance and positioning must be maintained by the user. Your wheelchair has been designed to remain upright and stable during normal daily activities provided you do not move beyond the center of gravity. Depending on your individual circumstances, proper positioning may require the use of a seat positioning strap.

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 problems of everyday obstacles can be improved somewhat by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

A NOTE TO WHEELCHAIR ASSISTANTS

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

WARNING

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

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

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

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.

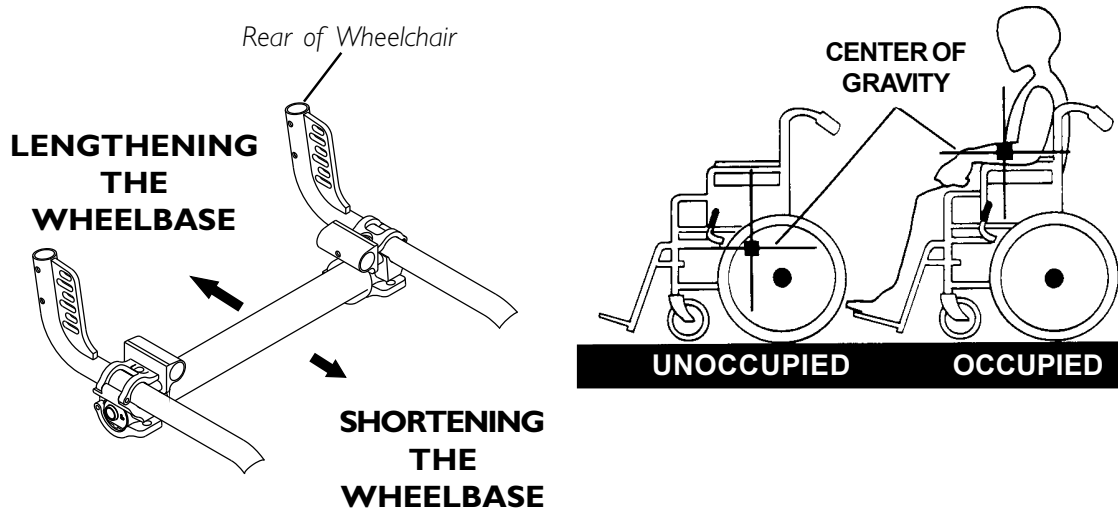
Many activities require the wheelchair user to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, the center of gravity, and the weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending,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

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

The position of the footrest, seat angle, back angle, seating system/ upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME care MUST be taken when changing the stability of the wheelchair.**

LENGTHENING THE WHEELBASE will increase the stability and maintain standard maneuverability of the wheelchair.

SHORTENING THE WHEELBASE will increase the maneuverability, distribute additional weight onto the rear wheels and **make the wheelchair less stable.**

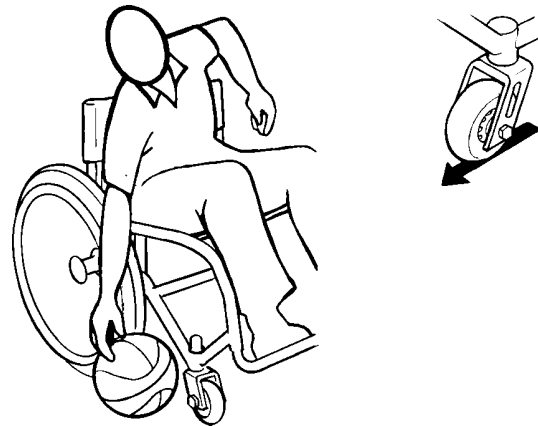


GENERAL GUIDELINES

Reaching, Leaning and Bending - Forward.

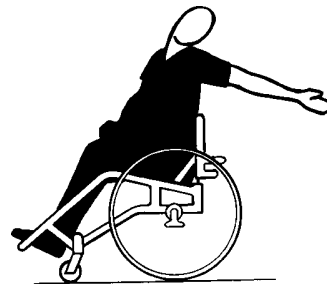
Position the front casters so that they are extended as far forward as possible and engage wheel locks.

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.



Reaching, Leaning - Backwards.

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



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

TIPPING**WARNING**

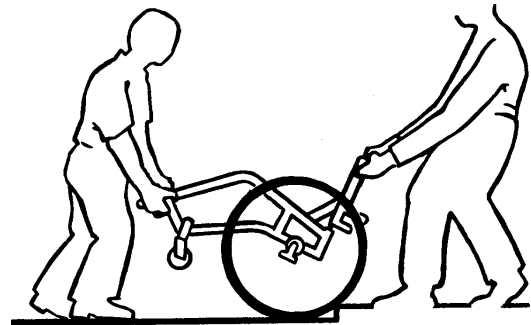
DO NOT tip the wheelchair without assistance.

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.

Tipping - Curbs.

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

Turn the anti-tippers so the wheels are facing UP. Unless the first assistant has exceptional upper body strength, it is recommended that two (2) assistants perform this operation. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.



The first assistant should stand on the sidewalk and turn the wheelchair so that the rear wheels are against the curb. The wheelchair should be tipped 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. Turn the anti-tippers so the wheels are facing DOWN.

STAIRWAYS**WARNING**

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

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

EXTREME CAUTION is advised when it is necessary to move an occupied wheelchair up or down the stairs. Invacare recommends that, if possible, the user be removed from the wheelchair prior to moving. Invacare recommends using two (2) assistants and making thorough preparations. Make sure to use **ONLY** secure, non-detachable parts for hand-held supports.

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

1. Turn the anti-tippers so the wheels are facing UP.
2. After the wheelchair has been tipped 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 (1) foot on the next stair and repeats STEP 1.
4. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been rolled away from the stairway.
5. Turn the anti-tippers so the wheels are facing DOWN.

ESCALATORS? SORRY!

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

TRANSFERRING TO AND FROM OTHER SEATS**WARNING**

BEFORE attempting to transfer in or out of the wheelchair, every precaution should be taken to reduce the gap distance. **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.**

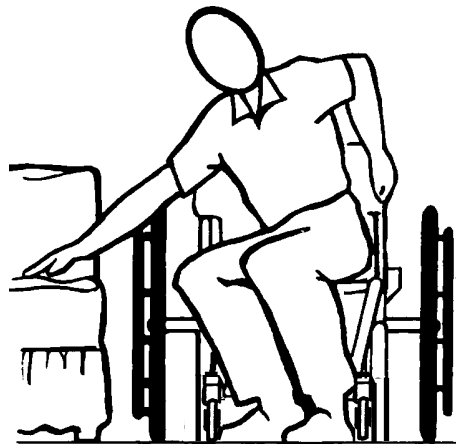
CAUTION

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

Position the wheelchair as close as possible along side the seat to which you are transferring, with the front casters pointing parallel to it. Remove, lower or rotate the armrest so it is out of the way. Engage wheel locks. Shift body weight into seat with transfer.

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



Section 2 - Safety Inspection includes the following:**Safety Inspection Checklist****Troubleshooting****Maintenance**

NOTE: Every six (6) months or as necessary, take your wheelchair to a qualified technician for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

SAFETY INSPECTION CHECKLIST

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

ITEM	Initially	Weekly	Monthly	Periodically
GENERAL				
• Wheelchair rolls straight (no excessive drag or pull to one side).	X			X
• Inspect for loose/missing/broken hardware in all locations.	X			X
WHEEL LOCKS				
• Do not interfere with tires when rolling.	X		X	
• Pivot points free of wear and looseness.	X		X	
• Wheel locks easy to engage.	X			X
• Wheel locks prevent wheelchair from moving when engaged.	X	X		
SEAT AND BACK				
• Inspect upholstery for rips or sagging.	X			X
• Inspect for loose or broken hardware.	X		X	
• Inspect fastening flaps to ensure they securely latch.	X		X	
REAR WHEELS				
• Quick/Quad-release axles lock properly.				
• Lubricate if necessary (with Teflon® lubricant ONLY).	X	X		
• No excessive side movement or binding when lifted and spun.	X			X
• Inspect for cracked, worn, bent or broken spokes.	X	X		
• Ensure all spokes are uniformly tight.	X	X		
• Inspect wheels for cracks and wear (hubs and rims).	X			X
HANDRIMS				
• Inspect for signs of rough edges or peeling.	X			X
FRONT CASTERS/FORKS				
• Inspect wheel/fork assembly for proper tension by spinning caster; caster should come to a gradual stop.	X	X		
• Adjust bearing system if wheel wobbles noticeably or binds to a stop. Ensure wheel bearings are clean and free of moisture.	X		X	
• Check headtube locknuts for tightness.	X		X	
• Inspect casters for cracks and wear (hubs and rims).	X			X
• Inspect for cracked, worn or broken spokes.	X	X		
CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced if damaged.				
TIRES				
• Inspect for flat spots, cracks and wear.	X	X		
• If pneumatic tires check for proper inflation.	X	X		
CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced if damaged.				
CAMBER/AXLE TUBE				
• Axle tube is securely tightened.	X		X	
• Camber inserts are not extended more than 3-inches.	X		X	
CLEANING				
• Clean upholstery and armrests.	X			X
• Clean optional quick release levers.	X		X	

TROUBLESHOOTING

Chair Veers Right/Left	Chair 3 Wheels	Sluggish Turn or Performance	Caster Flutter	Squeaks and Rattles	Looseness in Chair	SOLUTIONS
X	X	X	X			If pneumatic, check tires for correct and equal pressure.
		X	X	X	X	Check for loose stem nuts and bolts.
				X	X	Check spokes/nipples.
X	X		X			Check washers/spacers above and below bearings in headtube.
		X	X	X	X	Check that rear wheels are equally spaced away from seat frame.

MAINTENANCE

MAINTENANCE SAFETY PRECAUTIONS

WARNING

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

CAUTION

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

SUGGESTED MAINTENANCE PROCEDURES

1. Before using your A4 wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
2. Keep quick-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to ADJUSTING THE QUICK-RELEASE AXLE in SECTION 6 of this manual.

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.

3. Clean/oil quick-release axles once (1) a week with a Teflon lubricant.
4. Keep optional quick release levers on axle tubes free of dirt and lint to ensure positive locking and proper operation.

WARNING

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

5. If tires are pneumatic, recommended tire pressure is listed on the sidewall of the tire.

CAUTION

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

6. The rear wheels, casters and tires should be checked periodically for cracks and wear, and should be replaced by a qualified technician if damaged.
7. Regularly check for loose, worn or cracked spokes in the rear wheels and casters. If loose, have them adjusted by a qualified technician. If damaged, replace wheel or caster.
8. Periodically check handrims to ensure they are secured to the rear wheels. If loose, have them tightened by a qualified technician.
9. Periodically adjust wheel locks as tires wear. Refer to WHEEL LOCK ADJUSTMENT in SECTION 8 of this manual.
10. Periodically check caster and rear wheel bearings to make sure they are clean and free from moisture. Use a Teflon lubricant if necessary.
11. Check upholstery for sagging, rips and tears.

Section 3 - Upholstery includes the following:

Unfolding/Folding the Back

Removing/Installing Standard Back Upholstery

Adjustable Tension Back Upholstery

Seat Upholstery Replacement

WARNING

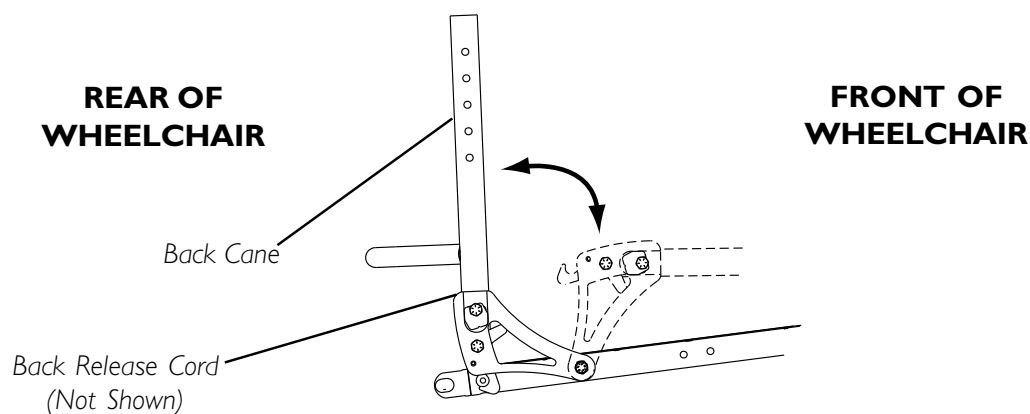
After ANY adjustments, repair or service and BEFORE use, make sure all attachment hardware is tightened securely - otherwise, injury or damage may result.

UNFOLDING/FOLDING THE BACK (FIGURE 1)

WARNING

Back MUST be locked securely in place before using the wheelchair.

1. To unfold the back, lift up on the back canes and pull back towards the rear of the wheelchair until it locks into place.
2. To fold the back, pull up on the cord and push the back canes forward towards the front of the wheelchair.



NOTE: Back upholstery removed for clarity.

FIGURE 1 - UNFOLDING/FOLDING THE BACK

REMOVING/INSTALLING STANDARD BACK UPHOLSTERY (FIGURE 2)

WARNING

The position of the footrest, seat angle, back angle, seating system/ upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME** care **MUST** be taken when changing the stability of the wheelchair. Refer to the chart in **STABILITY** in SECTION I of this manual.

REMOVING STANDARD BACK UPHOLSTERY

1. Unfasten the two (2) fastening flaps that secure the bottom of the existing back upholstery to the back canes.
2. Unfold the top of the back upholstery.
3. Lift up on the existing back upholstery and remove from the wheelchair.

INSTALLING STANDARD BACK UPHOLSTERY

1. Install the new back upholstery onto the back canes.
2. Wrap the end of a fastening flap around the back cane.
3. Insert the end of the fastening flap through the loop.
4. Wrap the fastening flap around the back cane again and press firmly to secure.
5. Fold the top of the back upholstery down over the back canes towards the front of the wheelchair.
6. Press firmly to secure the fastening strips.

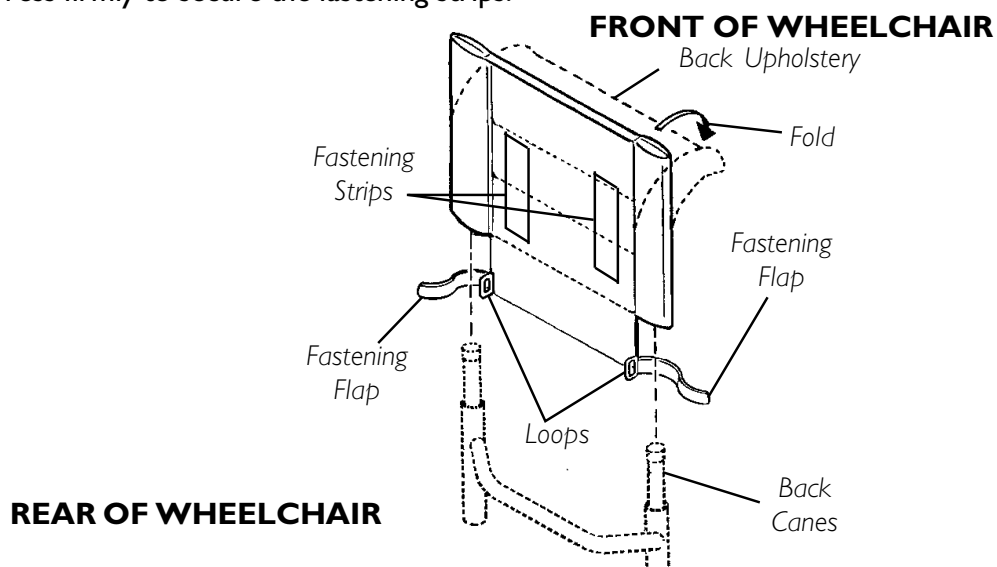


FIGURE 2 - REMOVING/INSTALLING STANDARD BACK UPHOLSTERY

ADJUSTABLE TENSION BACK UPHOLSTERY (FIGURE 3)

WARNING

The position of the footrest, seat angle, back angle, seating system/ upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME** care **MUST** be taken when changing the stability of the wheelchair. Refer to the chart in **STABILITY** in SECTION 1 of this manual.

THE ADJUSTABLE TENSION STRAPS

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

THE BACK UPHOLSTERY COVER

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

1. The first is as a modesty cover.
2. The second is to keep 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 cover is pulled under the seat cushion.

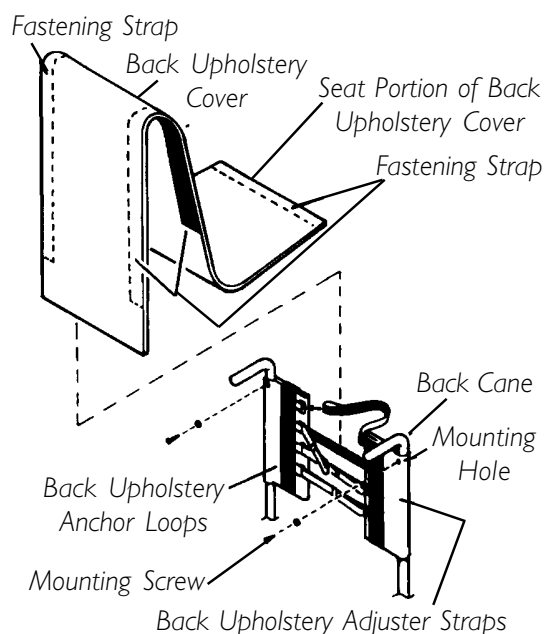


FIGURE 3 - ADJUSTABLE TENSION BACK UPHOLSTERY

REMOVING/INSTALLING ADJUSTABLE TENSION BACK UPHOLSTERY

NOTE: To remove adjustable tension back upholstery, reverse STEPS 2-4.

1. Remove the existing back upholstery from the wheelchair. Refer to REMOVING/INSTALLING STANDARD BACK UPHOLSTERY in this section of the manual.
2. Stand behind the wheelchair and perform the following:
 - A. Slide anchor loop section of adjustable tension back upholstery over the LEFT back cane with the grommet hole facing the rear of the wheelchair.
 - B. Slide adjuster strap section of adjustable tension back upholstery over the RIGHT back cane with the grommet hole facing the rear of the wheelchair.
3. Adjust the adjuster straps to the desired tension.

- Secure adjustable tension back upholstery to the back canes with the mounting screws. Torque to 20-25 in./lbs.

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

WARNING

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

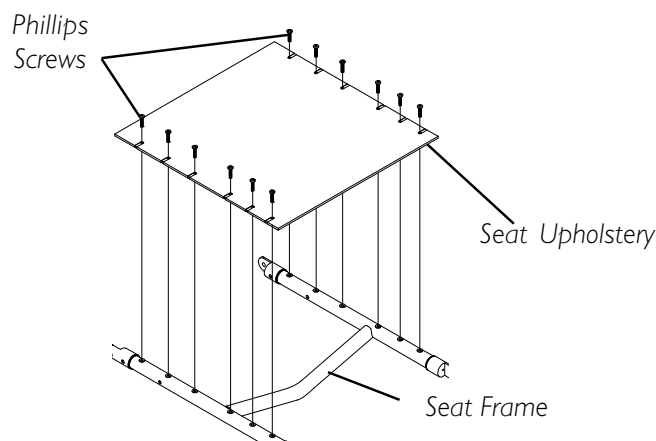
UPHOLSTERY

SEAT UPHOLSTERY REPLACEMENT (FIGURE 4)

- Remove the seat cushion from the wheelchair.
- Remove the phillips screws that secure the existing seat upholstery to the seat frame.

WHEELCHAIR DEPTH	NUMBER OF SCREWS
14 to 15-inches	10
16 to 17-inches	12
18-inches	14
19 to 20-inches	16
22-inches	18

- Remove the existing seat upholstery.
- Install the NEW seat upholstery by reversing the above steps.
- Reinstall the seat cushion onto the wheelchair.



NOTE: Wheelchair frame not shown for clarity.

FIGURE 4 - SEAT UPHOLSTERY REPLACEMENT

Section 4 - Frame includes the following:**Back Angle Adjustment****Back Height Adjustment****Rear Seat-to-Floor Height Adjustment****Replacing Seat Frame****Opening/Closing Camber Clamps****Determining Toe in/Toe out****Adjusting Toe in/Toe out****Adjusting the Axle Tube****Repositioning Camber Inserts (Adjusting Rear Wheel Camber)****Adjusting Wheelbase Length (Adjusting Center of Gravity)****Adjusting Wheelbase Width****Replacing Axle Tube****WARNING**

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

BACK ANGLE ADJUSTMENT (FIGURE 1)

NOTE: Perform this procedure on both sides of the wheelchair at the same time.

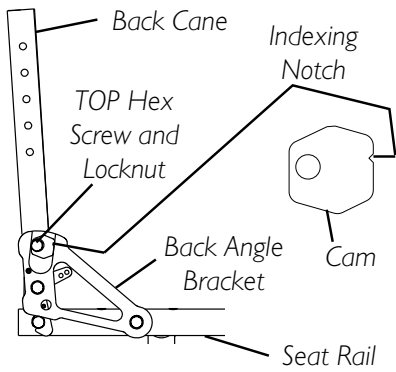
1. Loosen, but DO NOT remove the locknuts and hex screws that secure the back angle bracket to the seat rail and the back cane.
2. Loosen the TOP locknut and slide the TOP hex screw away from the back angle bracket to adjust the cam.
3. Adjust back canes to back angle required.
4. Adjust cam to achieve desired position.

NOTE: An indexing notch has been put on the cam to help determine cam position for desired back angle adjustment.

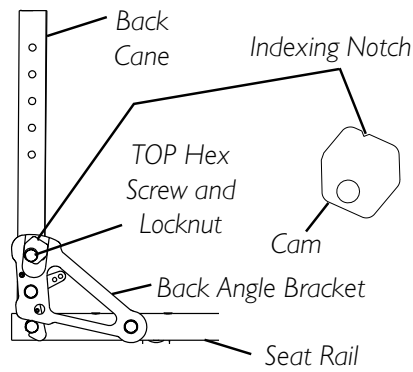
5. Secure cam in desired position. Torque all hex screws and locknuts to 960-1020 inch pounds (80-85 foot pounds).

NOTE: As shown in FIGURE 1, the adjustment cam can be rotated to several different positions thus changing the overall back angle relative to the seat rail.

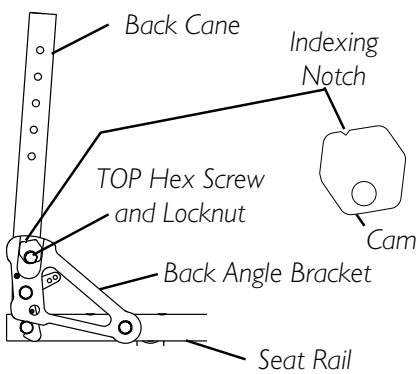
95° BACK ANGLE TO SEAT RAIL



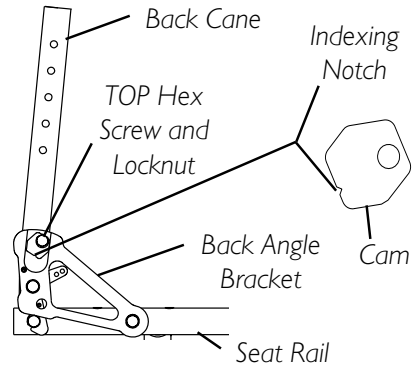
90° BACK ANGLE TO SEAT RAIL



85° BACK ANGLE TO SEAT RAIL



80° BACK ANGLE TO SEAT RAIL



75° BACK ANGLE TO SEAT RAIL

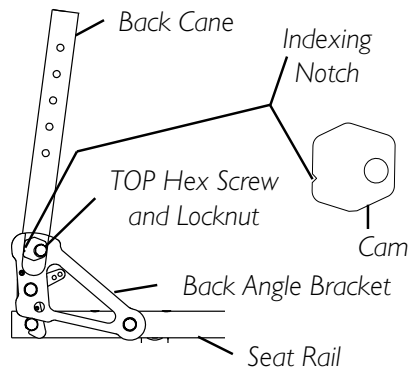


FIGURE I - BACK ANGLE ADJUSTMENT

BACK HEIGHT ADJUSTMENT (FIGURE 2)

NOTE: Observe the tautness of the back upholstery/adjustable tension back upholstery adjuster straps for proper reinstallation.

1. Remove the back upholstery by performing one (1) of the following:
 - A. **STANDARD BACK UPHOLSTERY** - Refer to REMOVING/INSTALLING STANDARD BACK UPHOLSTERY in SECTION 3 of the manual.
 - B. **ADJUSTABLE TENSION BACK UPHOLSTERY** - Refer to ADJUSTABLE TENSION BACK UPHOLSTERY in SECTION 3 of the manual.

WARNING

Push pin of the back cane insert bar MUST be protruding through hole in each back cane.

Ensure that both back cane insert bars are at same height BEFORE reassembling the wheelchair.

2. Press the push pin on the back cane insert bar IN and adjust the back height to one (1) of five (5) heights depending on original back height:

* HOLE #	BACK HEIGHT (IN INCHES)				
	8-11	10-14	12-16	14-18	16-20
1	8	10	12	14	16
2	10	11	13	15	17
3	11	12	14	16	18
4	N/A	13	15	17	19
5	N/A	14	16	18	20

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

3. Reinstall back upholstery by performing one (1) of the following:
 - A. **STANDARD BACK UPHOLSTERY** - Refer to REMOVING/INSTALLING STANDARD BACK UPHOLSTERY in SECTION 3 of the manual.
 - B. **ADJUSTABLE TENSION BACK UPHOLSTERY** - Refer to ADJUSTABLE TENSION BACK UPHOLSTERY in SECTION 3 of this manual.

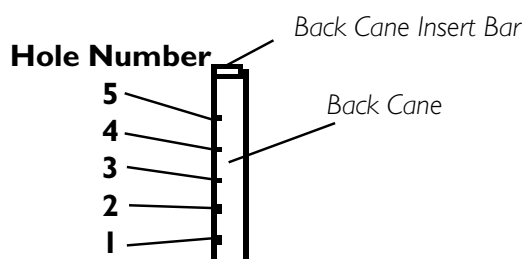


FIGURE 2 - BACK HEIGHT ADJUSTMENT

REAR SEAT-TO-FLOOR HEIGHT ADJUSTMENT (FIGURE 3)**WARNING**

After making adjustments, always make sure that **ALL** parts are properly tightened **BEFORE** using the wheelchair.

NOTE: All A4 wheelchairs are manufactured with the REAR seat-to-floor height 1-inch lower than the FRONT seat-to-floor height. REAR seat-to-floor height adjustment slots are in 1/2-inch increments. The number of available adjustment slots depends on the configuration of the wheelchair. Refer to specifications in this manual for complete information.

1. Remove the two (2) screws, nylon washers and locknuts that secure the seat frame to the wheelchair frame.
2. Reposition the seat frame so the mounting hole is aligned with the desired mounting position in the wheelchair frame.
3. Resecure the seat frame to the wheelchair frame with the two (2) screws, nylon washers and locknuts.

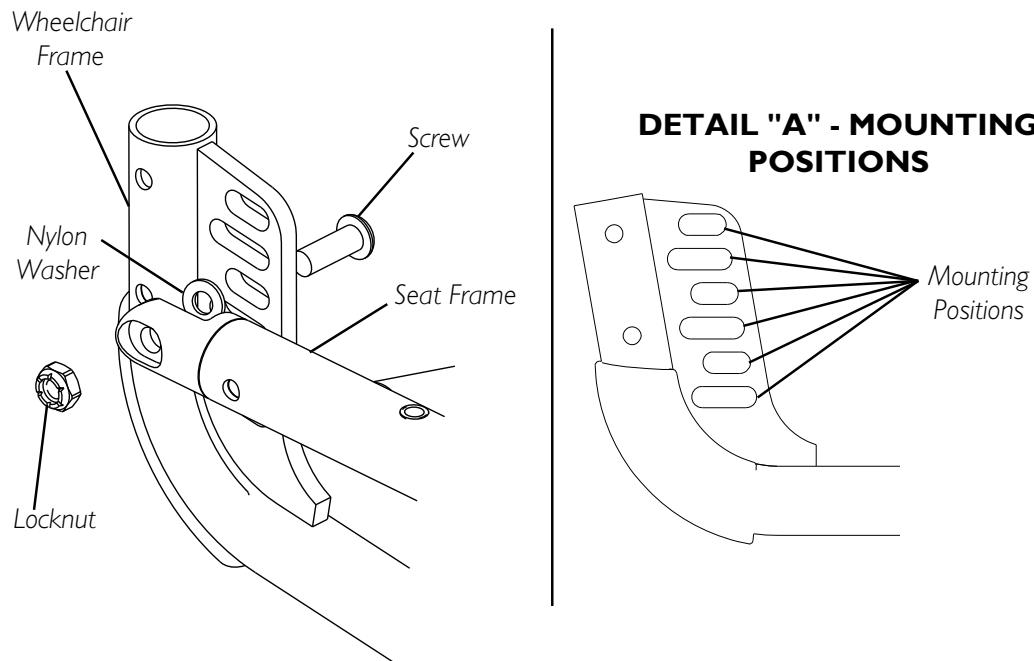
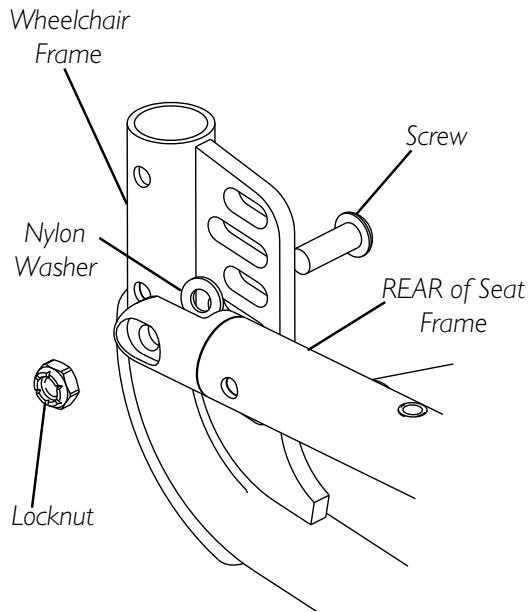


FIGURE 3 - REAR SEAT-TO-FLOOR HEIGHT ADJUSTMENT

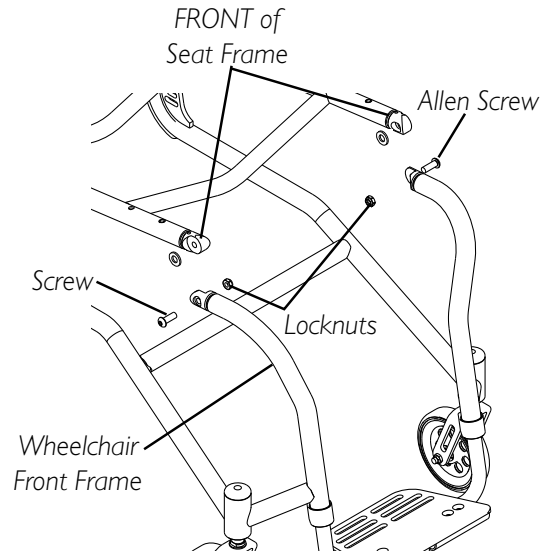
REPLACING SEAT FRAME (FIGURE 4)

1. Remove the rear wheels from the wheelchair. Refer to REMOVING/INSTALLING REAR WHEELS in SECTION 5 of the manual.
2. Remove the seat upholstery from the wheelchair. Refer to SEAT UPHOLSTERY REPLACEMENT in SECTION 3 of the manual.
3. Remove the wheel locks from the wheelchair. Refer to WHEEL LOCK ADJUSTMENT/REPLACEMENT in SECTION 5 of this manual.
4. Note the installation position of the rear seat frame for proper reinstallation.
5. Remove the locknut, nylon washer and screw securing each side of the REAR seat frame to the wheelchair frame as shown in DETAIL "A" of FIGURE 4.
6. Remove two (2) allen screws and washers that secure FRONT seat frame to the wheelchair front frame as shown in DETAIL "B" of FIGURE 4.
7. Remove the locknut, two (2) washers, stop and bolt from the REAR of the seat frame as shown in DETAIL "C" of FIGURE 4.
8. Remove the locknut, washer, coved spacer, nylon spacer, washer and bolt securing the FRONT of the back angle bracket to the seat frame as shown in DETAIL "C" of FIGURE 4.
9. Repeat STEPS 7-8 for the opposite side of the wheelchair.
10. Remove the back canes with back angle brackets from the seat frame.
11. Align FRONT of seat frame with wheelchair front frame as shown in DETAIL "B" of FIGURE 4.
12. Install two (2) allen screws and locknuts to secure FRONT of seat frame to wheelchair front frame as shown in DETAIL "B" of FIGURE 4.
13. Install the screw, nylon washer and locknut to secure the REAR of the seat frame to the wheelchair frame in the position noted in STEP 4.
14. Install the bolt, stop, two (2) washers and locknut onto the rear of the seat frame as shown in DETAIL "C" of FIGURE 4.
15. Repeat for opposite side of the wheelchair.
16. Align the latches on the back angle brackets with the stops installed in STEP 14 as shown in DETAIL "D" of FIGURE 4.
17. Secure the FRONT of the back angle brackets to the seat frame with the bolts, washers, nylon spacers, coved spacers, washers and locknuts as shown in DETAIL "C" of FIGURE 4.
18. Reverse STEPS 1-3 to install wheel locks, seat upholstery and rear wheels.

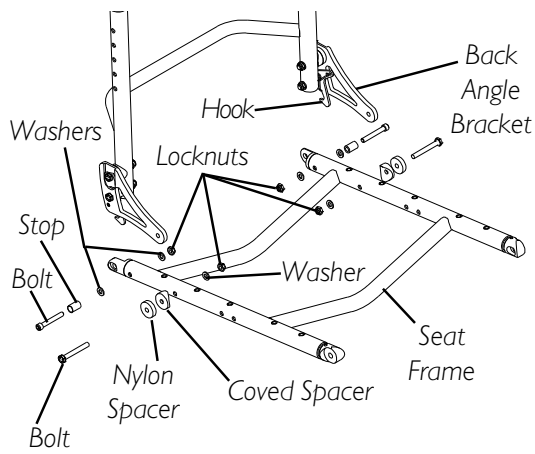
DETAIL "A" - REAR SEAT FRAME



DETAIL "B" - FRONT SEAT FRAME



DETAIL "C" - REMOVING/INSTALLING THE BACK



DETAIL "D" - INSTALLING THE BACK

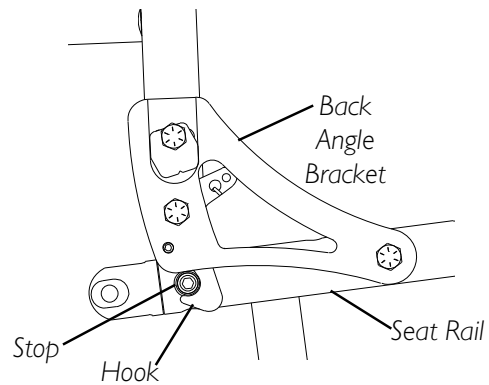


FIGURE 4 - REPLACING SEAT FRAME

FRAME

OPENING/CLOSING CAMBER CLAMPS (FIGURE 5)**WARNING**

QUICK-RELEASE LEVERS - Make sure the quick-release levers are in the **CLOSED** position **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

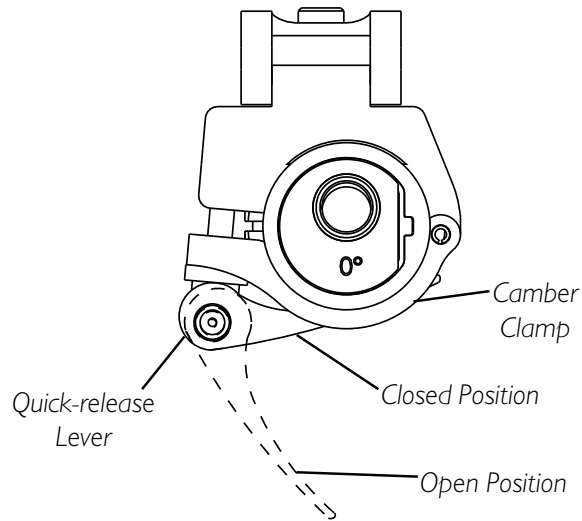
STANDARD AND SUSPENSION CAMBER CLAMPS - Make sure the hex screws are securely tightened **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

CAUTION

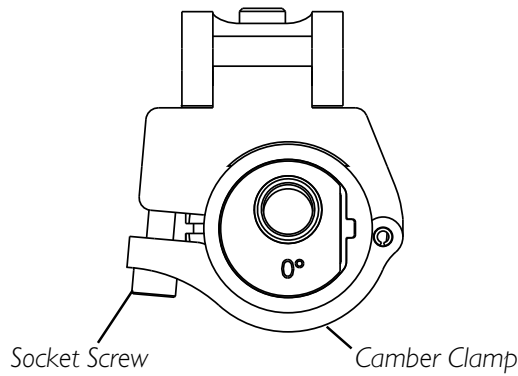
DO NOT close the quick-release levers or tighten the socket screws or hex screws without camber inserts in the axle tube. **Damage to the axle tube will occur.**

1. Perform one (1) of the following to open a camber clamp:
 - A. **QUICK-RELEASE LEVERS** - Pull the quick-release lever to the open position.
 - B. **STANDARD CAMBER CLAMPS** - Loosen, but do not remove the socket screw on the camber clamp.
 - C. **SUSPENSION CAMBER CLAMPS** - Loosen, but do not remove the hex screw on the bottom rear of the camber clamp.
2. Perform one (1) of the following to close a camber clamp:
 - A. **QUICK-RELEASE LEVERS** - Secure the quick-release lever to the camber clamp by threading it completely into the camber clamp. Push the quick-release lever on the camber clamps to the closed position.
 - B. **STANDARD CAMBER CLAMPS** - Securely tighten the socket screw to secure the axle tube.
 - C. **SUSPENSION CAMBER CLAMPS** - Securely tighten the hex screw on the bottom rear of the camber clamp to secure the axle tube.

SIDE VIEW OF QUICK-RELEASE LEVER



SIDE VIEW OF STANDARD CAMBER CLAMP



REAR VIEW OF SUSPENSION CAMBER CLAMP

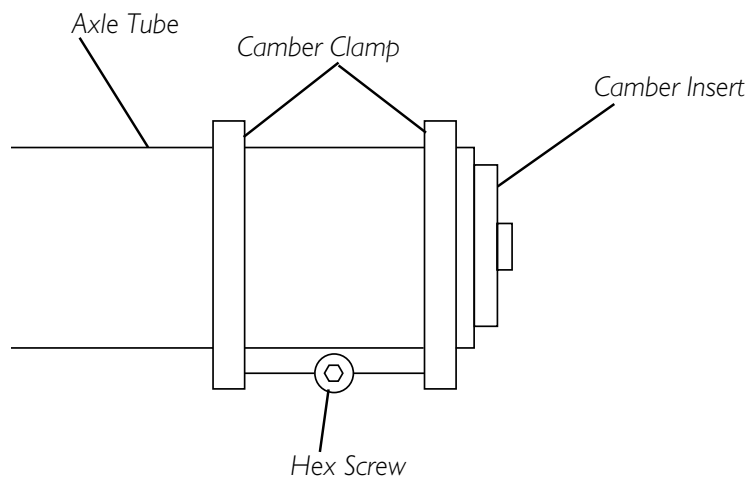


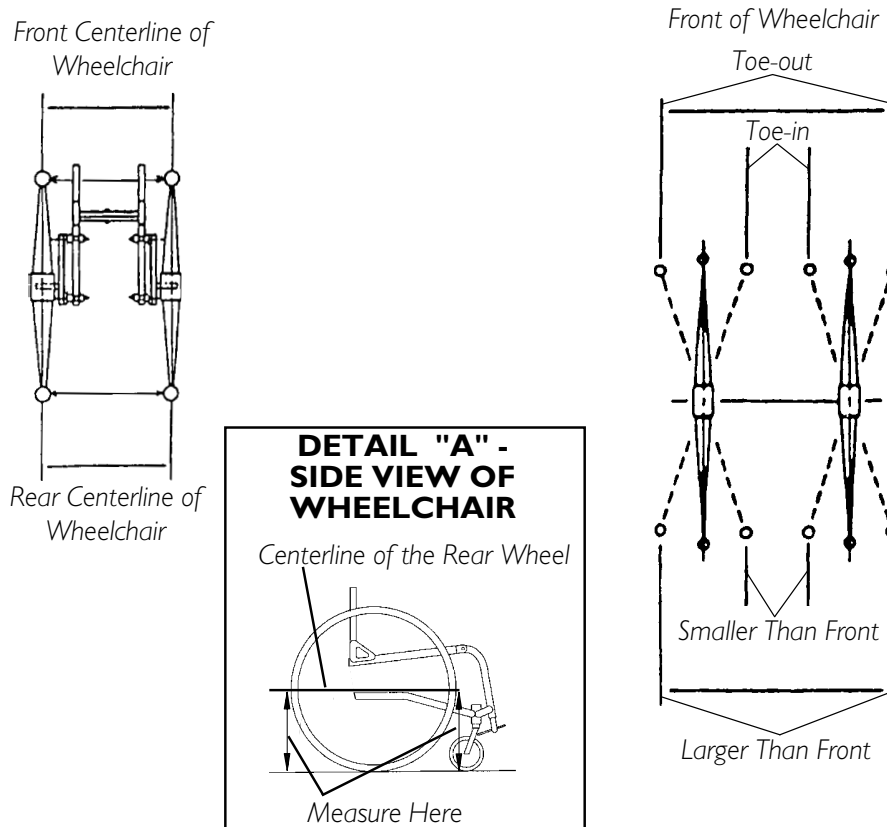
FIGURE 5 - OPENING/CLOSING CAMBER CLAMPS

DETERMINING TOE IN/TOE OUT (FIGURE 6)

1. Inflate all pneumatic tires to recommended tire pressures (listed on the sidewall of the tire).
2. Measure the distance between the rear of the rear wheels and front of the rear wheels at the centerline of the rear wheels (FIGURE 6).

NOTE: For optimum accuracy, perform STEP 2 with the wheelchair occupied.

3. Determine the difference between the two (2) measurements. If the **difference** between the **two (2) measurements** is **NOT** within $\pm 1/8$ -inch, one (1) of two (2) conditions exists:
 - A. If the **back centerline measurement** of the rear wheels is **SMALLER** than the **front centerline measurement** of the rear wheels, a **TOE-OUT** condition exists (FIGURE 6).
 - B. If the **back centerline measurement** of the rear wheels is **LARGER** than the **front centerline measurement** of the rear wheels, a **TOE-IN** condition exists (FIGURE 6).
4. If the difference between the measurements is not within $\pm 1/8$ -inch, correct the toe-in/toe-out condition. Refer to ADJUSTING TOE-IN/TOE-OUT in this section of the manual.

TOP VIEW OF WHEELCHAIR**FIGURE 6 - DETERMINING TOE IN/TOE OUT**

ADJUSTING TOE IN/TOE OUT

NOTE: If the axle tube has been repositioned or replaced, proceed to ADJUSTING THE AXLE TUBE in this section of the manual.

AXLE TUBE POSITIONING FOR 0°/3°, 0°/6°, 3°/6° OR 9°/12° CAMBER INSERTS (FIGURE 7)

CAUTION

DO NOT rotate the axle tube if the axle tube is locked out by the toe adjustment rings. If a locked out axle tube is rotated, damage to the toe adjustment rings will occur.

NOTE: Refer to FIGURE 7 for a description of a locked out axle tube.

There is NO adjustment required to maintain a correct toe in/toe out measurement.

NOTE: The axle tube will be locked out by the toe adjustment rings and will NOT rotate.

AXLE TUBE POSITIONING FOR 0°/9°, 0°/12°, 3°/9°, 6°/9°, 3°/12° OR 6°/12° CAMBER INSERTS (FIGURE 7)

NOTE: Stand behind the wheelchair to determine LEFT or RIGHT.

WARNING

QUICK-RELEASE LEVERS - Make sure the quick-release levers are in the **CLOSED** position **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

STANDARD AND SUSPENSION CAMBER CLAMPS - Make sure the hex screws are securely tightened **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

CAUTION

DO NOT close the quick-release levers or tighten the socket screws or hex screws without camber inserts in the axle tube. Damage to the axle tube will occur.

0°, 3° or 6° Camber.

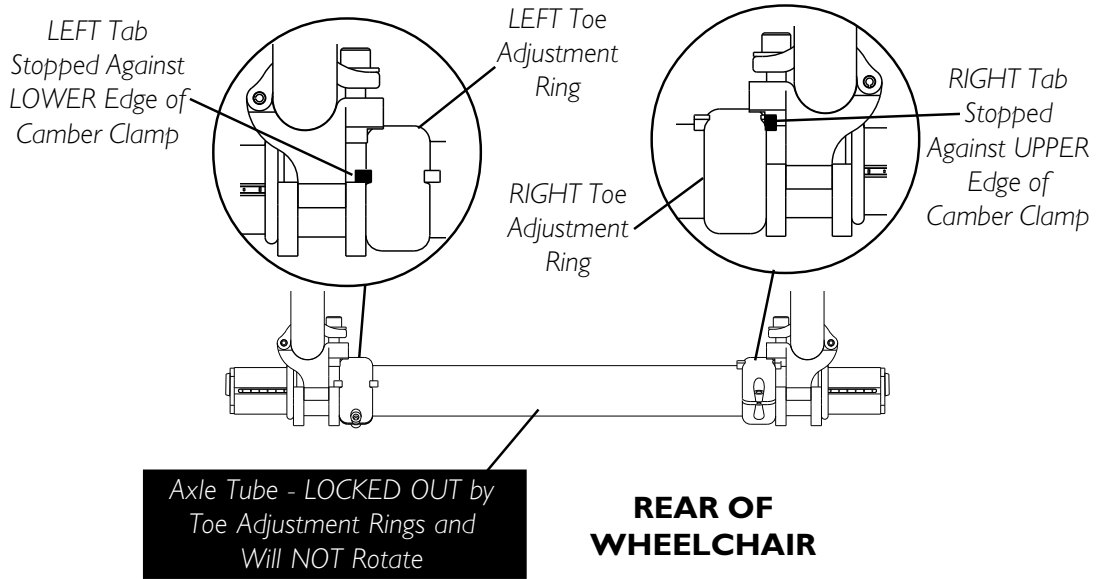
1. Open the camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
2. Slowly rotate the axle tube until the tab on the LEFT toe adjustment ring is stopped against the LOWER edge of the camber clamp (FIGURE 7).
3. Close the camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.

9° or 12° Camber.

1. Open the camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
2. Slowly rotate the axle tube until the tab on the RIGHT toe adjustment ring is stopped against the UPPER edge of the camber clamp (FIGURE 7).
3. Close the camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.

FRAME

AXLE TUBE POSITIONING FOR 0°/3°, 0°/6°, 3°/6° OR 9°/12° CAMBER INSERTS - NO ADJUSTMENT REQUIRED -



AXLE TUBE POSITIONING FOR 0°/9°, 0°/12°, 3°/9°, 3°/12°, 6°/9° or 6°/12° CAMBER INSERTS

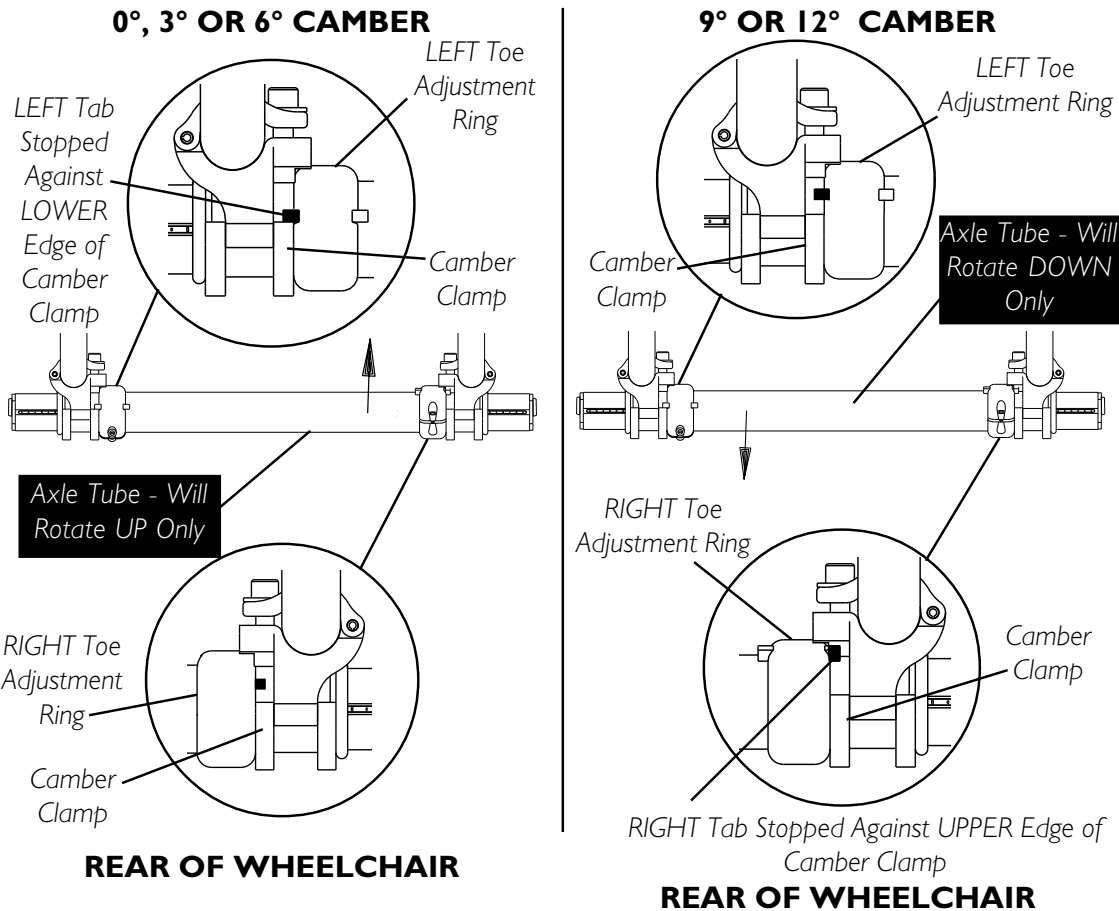


FIGURE 7 - ADJUSTING TOE IN/TOE OUT

ADJUSTING THE AXLE TUBE (FIGURE 8)**WARNING**

QUICK-RELEASE LEVERS - Make sure the quick-release levers are in the **CLOSED** position **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

STANDARD AND SUSPENSION CAMBER CLAMPS - Make sure the hex screws are securely tightened **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

CAUTION

DO NOT close the quick-release levers or tighten the socket screws or hex screws without camber inserts in the axle tube. **Damage to the axle tube will occur.**

NOTE: Before performing this procedure, make sure the camber inserts are positioned to the lowest degree of camber. Refer to REPOSITIONING CAMBER INSERTS (ADJUSTING REAR WHEEL CAMBER) in this section of the manual.

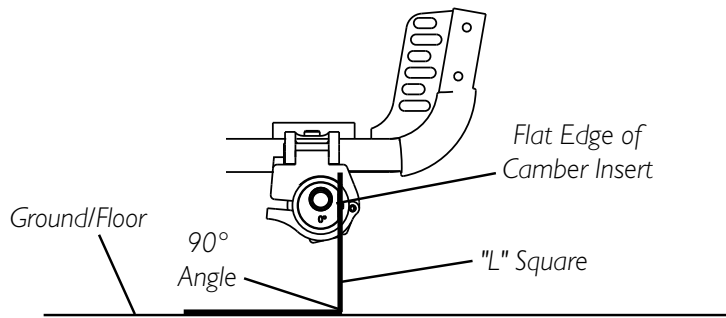
NOTE: Stand behind the wheelchair to determine LEFT or RIGHT.

1. If necessary, open BOTH camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
2. Loosen the set screw that secures each toe adjustment ring to the axle tube (FIGURE 8).
3. Using an "L" square, rotate the axle tube until the flat edge of the camber insert is at a 90° angle with the ground/floor as shown in FIGURE 8.
4. Close the RIGHT camber clamp. Refer to OPENING/CLOSING CAMBER clamps in this section of the manual.
5. Rotate the LEFT toe adjustment ring until the tab stops against the LOWER edge of the camber clamp.
6. Securely tighten set screw on LEFT toe adjustment ring.
7. Measure the distance between the rear of the rear wheels and front of the rear wheels at the centerline of the rear wheels. Refer to DETERMINING TOE IN/TOE OUT in this section of the manual.
8. Perform one (1) of the following:
 - A. **TOE IN/TOE OUT MEASUREMENT IS WITHIN ±1/8-INCH** - Proceed to STEP 8.
 - B. **TOE IN/TOE OUT MEASUREMENT IS NOT WITHIN ±1/8-INCH** - Repeat STEPS 1-7 until toe in/toe out measurement is within ±1/8 inch.
9. Open the RIGHT camber clamp. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
10. Reposition the camber inserts to the highest degree of camber. Refer to REPOSITIONING CAMBER INSERTS (ADJUSTING REAR WHEEL CAMBER) in this section of the manual.
11. Repeat STEP 3.
12. Close the LEFT camber clamp. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
13. Rotate the RIGHT toe adjustment ring until the tab stops against the UPPER edge of the camber clamp.
14. Securely tighten set screw on RIGHT toe adjustment ring.

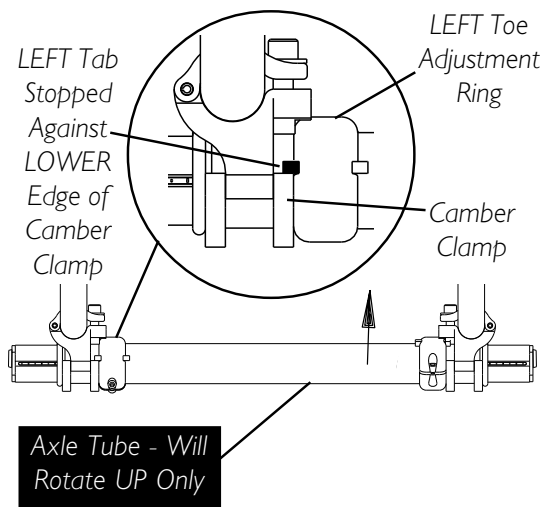
FRAME

15. Repeat STEP 7.
16. Perform one (1) of the following:
 - A. **TOE IN/TOE OUT MEASUREMENT IS WITHIN $\pm 1/8$ -INCH -**
 1. Proceed to STEP 17.
 - B. **TOE IN/TOE OUT MEASUREMENT IS NOT WITHIN $\pm 1/8$ -INCH -**
 1. Repeat STEP 1.
 2. Loosen the set screw on the RIGHT toe adjustment ring.
 3. Repeat STEP 3.
 4. REPEAT STEPS 12-16 until toe in/toe out measurement is within $\pm 1/8$ inch.
17. If desired, reposition camber inserts to the desired degree of camber. Refer to REPOSITIONING CAMBER INSERTS (ADJUSTING REAR WHEEL CAMBER) in this section of the manual.

STEP 3



LOWER DEGREE OF CAMBER



HIGHER DEGREE OF CAMBER

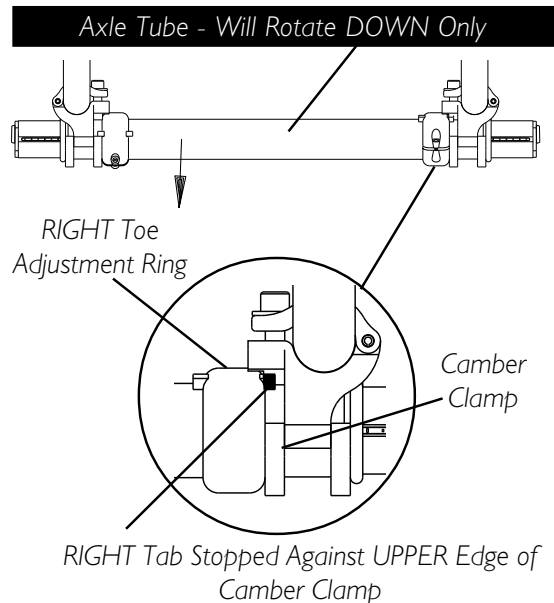


FIGURE 8 - ADJUSTING THE AXLE TUBE

REPOSITIONING CAMBER INSERTS (ADJUSTING REAR WHEEL CAMBER) (FIGURE 9)

NOTE: Perform this procedure on one (1) side of the wheelchair at a time for ease of adjustment.

1. Open the camber clamp. Refer to OPENING/CLOSING CAMBER clamps in this section of the manual.
2. Pull one (1) rear wheel with the camber insert out of the axle tube.
3. Remove the rear wheel from the camber insert. Refer to REMOVING/INSTALLING REAR WHEELS in SECTION 5 of the manual.
4. Rotate the camber insert 180°.
5. Reinstall the rear wheel into the camber insert. Refer to REMOVING/INSTALLING REAR WHEELS in SECTION 5 of the manual.

WARNING

NEVER position the camber inserts in the axle tube with more than 3-inches (12 indexing marks showing) of the camber insert outside of the axle tube. Otherwise, the camber inserts will not be securely tightened in the axle tube resulting in possible injury to the user or damage to the wheelchair.

6. Position camber insert to desired position. Make sure there are no more than 3-inches (12 indexing marks) of the camber inserts outside of axle tube.
7. Slide the indexing ring on the camber insert until it is flush with the camber clamp.

WARNING

QUICK-RELEASE LEVERS - Make sure the quick-release levers are in the **CLOSED** position **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

STANDARD AND SUSPENSION CAMBER CLAMPS - Make sure the hex screws are securely tightened **BEFORE** using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

CAUTION

DO NOT close the quick-release levers or tighten the socket screws or hex screws without camber inserts in the axle tube. Damage to the axle tube will occur.

8. Close the camber clamp. Refer to OPENING/CLOSING CAMBER clamps in this section of the manual.
9. Repeat STEPS 1-8 for opposite side of wheelchair.

NOTE: Before using the wheelchair, make sure both camber inserts are set to the same indexing mark. This will make sure the distance between the rear wheel and the wheelchair is the same on both sides.

10. **Wheelchairs equipped with 0°/9°, 0°/12°, 3°/9°, 6°/9°, 3°/12° or 6°/12° camber inserts** - Adjust the toe in/toe out of the wheelchair. Refer to ADJUSTING TOE IN/TOE OUT in this section of the manual.

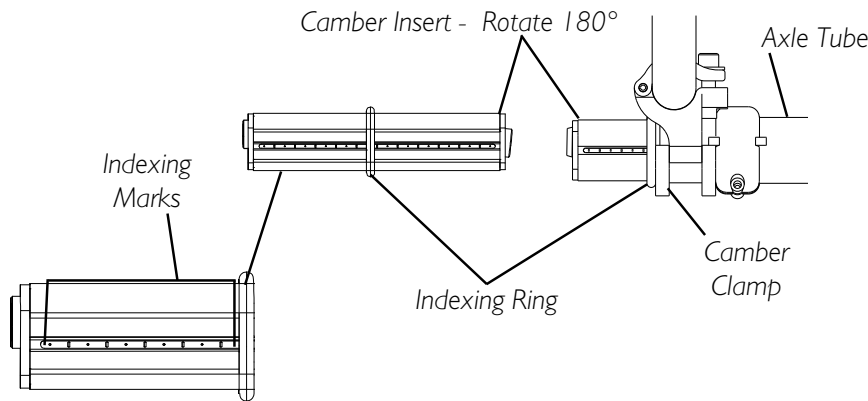
WARNING

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

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

Keep locking pins clean.

11. 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 QUICK-RELEASE AXLES or REMOVING THE PLAY FROM THE REAR WHEELS in SECTION 5 of this manual.
12. Ensure the wheelchair is parallel to the floor. Refer to ADJUSTING CASTER HEIGHT in SECTION 5 of the manual.
13. Ensure anti-tippers are adjusted properly. Refer to ANTI-TIPPER ADJUSTMENT/REPLACEMENT in SECTION 7 of this manual.



**FIGURE 9 - REPOSITIONING CAMBER INSERTS
(ADJUSTING REAR WHEEL CAMBER)**

ADJUSTING WHEELBASE LENGTH (ADJUSTING CENTER OF GRAVITY) (FIGURE 10)

WARNING

The position of the footrest, seat angle, back angle, seating system/ upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME** care **MUST** be taken when changing the stability of the wheelchair. Refer to the chart in **STABILITY** in **SECTION I** of this manual.

NOTE: The camber bar is always mounted to the BOTTOM of the wheelchair frame.

1. Perform one (1) of the following:
 - A. **NON-SUSPENSION** - Loosen, but do not remove the hex screw that secures each of the top clamps to the wheelchair frame.
 - B. **SUSPENSION** - Loosen, but do not remove the two (2) hex screws that secure each of the top clamps to the wheelchair frame.
2. Position the camber clamps on the wheelchair frame at the desired position.

LENGTHENING THE WHEELBASE will increase the stability and maintain standard maneuverability of the wheelchair.

SHORTENING THE WHEELBASE will increase the maneuverability, distribute additional weight onto the rear wheels, and make the wheelchair less stable.

NOTE: The performance of the wheelchair will be affected if the camber clamps do not sit flush on the wheelchair frame.

3. Perform one (1) of the following:
 - A. **NON-SUSPENSION** - Securely tighten the hex screw that secures one (1) of the top clamps to the wheelchair frame.
 - B. **SUSPENSION** - Securely tighten the two (2) hex screws that secure one (1) of the top clamps to the wheelchair frame.

NOTE: Securely tightening one (1) socket screw at a time ensures that the camber clamps will sit flush on the wheelchair frame.

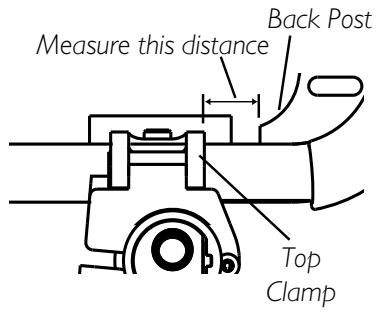
4. Repeat STEP 3 for the opposite side of the wheelchair.

NOTE: The distance between the FRONT of the back post and the BACK of the top clamp on each side of the wheelchair can be measured as an additional check to make sure the camber clamps sit flush on the wheelchair frame (the measurements should be the same) (DETAIL "A").

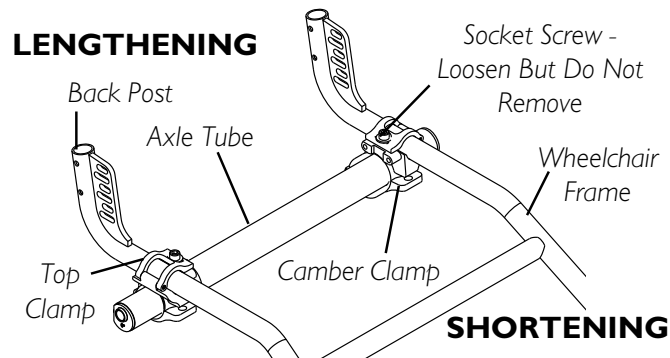
5. Roll the wheelchair before using to make sure there is no excessive drag to either side.

NOTE: If drag to either side occurs, refer to DETERMINING TOE IN/TOE OUT in this section of the manual.

DETAIL "A"



NON-SUSPENSION - TOP VIEW



SUSPENSION - SIDE VIEW

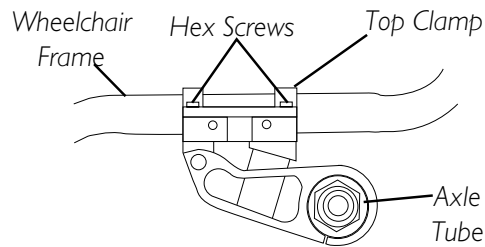


FIGURE 10 - ADJUSTING WHEELBASE LENGTH (ADJUSTING CENTER OF GRAVITY)

ADJUSTING WHEELBASE WIDTH (FIGURE 11)

NOTE: Perform this procedure on one (1) side of the wheelchair at a time for ease of adjustment.

1. Open the camber clamp. Refer to OPENING/CLOSING CAMBER CLAMPS in this procedure of the manual.

WARNING

NEVER position the camber inserts in the axle tube with more than 3-inches (12 indexing marks showing) of the camber insert outside of the axle tube. Otherwise, the camber inserts will not be securely tightened in the axle tube resulting in possible injury to the user or damage to the wheelchair.

2. Position the camber insert to the desired position. Make sure there are no more than 3-inches (12 indexing marks showing) of the camber inserts outside of the axle tube.
3. Slide the indexing ring on the camber insert until it is flush with the camber clamp.

NOTE: Before using the wheelchair, make sure both camber inserts are set at the same indexing mark. This will make sure the distance between the rear wheel and the wheelchair is the same on both sides.

WARNING

QUICK-RELEASE LEVERS - Make sure the quick-release levers are in the CLOSED position BEFORE using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

STANDARD AND SUSPENSION CAMBER CLAMPS - Make sure the hex screws are securely tightened BEFORE using the wheelchair, otherwise personal injury or damage to the wheelchair may occur.

CAUTION

DO NOT close the quick-release levers or tighten the socket screws or hex screws without camber inserts in the axle tube. Damage to the axle tube will occur.

4. Close the camber clamp. Refer to OPENING/CLOSING CAMBER CLAMPS in this procedure of the manual.
5. Repeat STEPS 1-4 for the opposite side of the wheelchair.

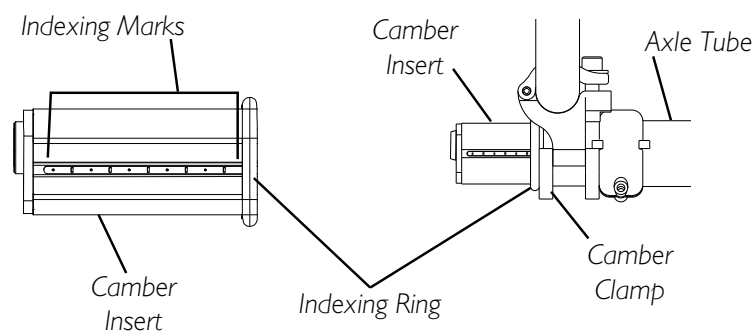


FIGURE 11 - ADJUSTING WHEELBASE WIDTH

REPLACING AXLE TUBE (FIGURE 12)

NOTE: There is no need to remove the two (2) camber clamps when replacing the axle tube.

1. Note the position of the camber inserts so they can be installed to the original position in the new axle tube.
2. Open the camber clamps. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.
3. Remove the two (2) rear wheels and camber inserts positioned in the axle tube.
4. Loosen, but do not remove the two (2) set screws that secure the toe adjustment rings to the axle tube.
5. Pull the existing axle tube through one (1) of the camber clamps.
6. Remove the toe adjustment rings from the existing axle tube.
7. Pull the existing axle tube through the other camber clamp and remove from the wheelchair.
8. Slide the new axle tube through one (1) of the camber clamps. Make sure the notches in the axle tube are towards the rear of the wheelchair and the slots in the axle tube are facing up.
9. Install the toe adjustment rings onto the new axle tube. Make sure the stops on the toe adjustment rings are facing towards the outside of the wheelchair.

NOTE: DO NOT tighten the set screws that secure the toe adjustment rings to the axle tube at this time.

10. Slide the new axle tube through the other camber clamp until the end of the axle tube is flush with the outside of the camber clamp.

NOTE: DO NOT close the quick-release levers or tighten the socket screws that secure the axle tube to the camber clamps at this time.

WARNING

NEVER position the camber inserts in the axle tube with more than 3-inches (12 indexing marks showing) of the camber insert outside of the axle tube. Otherwise, the camber inserts will not be securely tightened in the axle tube resulting in possible injury to the user or damage to the wheelchair.

11. Install the rear wheels and camber inserts into the new axle tube and slide the camber inserts to the position noted in STEP 1. Make sure there are no more than 3-inches (12 indexing marks) of the camber inserts outside of the axle tube.

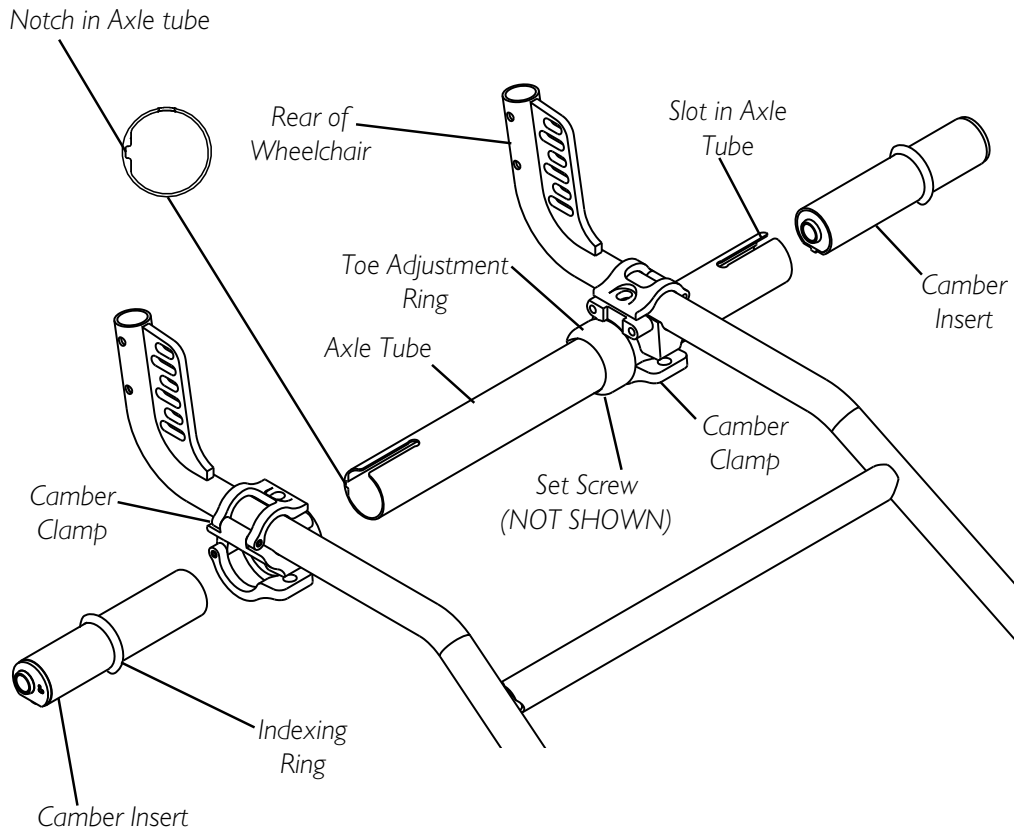
12. Slide the indexing ring on the camber insert until it is flush with the camber clamp

NOTE: To maximize rollability: Before using the wheelchair, make sure both camber inserts are set to the same indexing notch. This will make sure the distance between the rear wheel and the wheelchair is the same on both sides.

13. Adjust the axle tube. Refer to ADJUSTING THE AXLE TUBE in this section of the manual.

NOTE: The performance of the wheelchair will be affected if the axle tube has not been adjusted to correct the toe in/toe out of the wheelchair.

14. Ensure the camber clamps are closed. Refer to OPENING/CLOSING CAMBER CLAMPS in this section of the manual.



FRAME

NOTE: Suspension option not shown for clarity. Axle tube installs in the same manner as shown above.

FIGURE 12 - REPLACING AXLE TUBE

Section 5 - Wheels includes the following:

Removing/Installing Rear Wheels

Adjusting Quick-Release Axle

Installing Quad-Release Axle

Adjusting the Quad-Release Handle In and/or Out

Removing the Play From the Rear Wheels

Handrim Replacement

Repairing/Replacing Rear Wheel Tire/Tube

Wheel Lock Adjustment/Replacement

Replacing/Adjusting Casters

Replacing Forks

Adjusting Caster Height

Adjusting Front Seat-To-Floor Height

WARNING

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

REMOVING/INSTALLING REAR WHEELS (FIGURE 1)

1. Push and hold in the tip of the quick-release axle and pull the axle with rear wheel out of the wheelchair frame.
2. Push in the tip of the quick-release axle again and pull the axle out of the existing rear wheel.
3. Repeat STEPS 1-2 for the opposite rear wheel.
4. To reinstall the existing or install the new rear wheel onto the wheelchair, reverse STEPS 1-3.

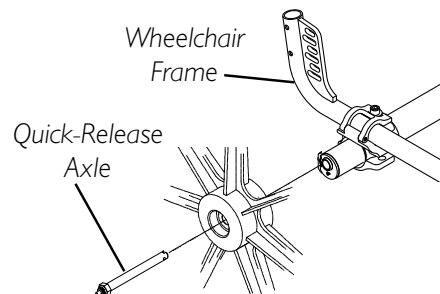


FIGURE 1 - REMOVING/INSTALLING REAR WHEELS

WARNING

Pull the rear wheel to ensure that the detent pin and locking pins of the quick/quad-release axle are fully released **BEFORE** operating the wheelchair.

WARNING

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

Keep locking pins clean.

5. If locking pins are not protruding past the inside of axle bushing or there is too much movement of rear wheel assembly in a back and forth position, refer to **ADJUSTING THE QUICK-RELEASE AXLE** or **REMOVING THE PLAY FROM THE REAR WHEELS** in this section of the manual.

ADJUSTING QUICK-RELEASE AXLE (FIGURE 2)

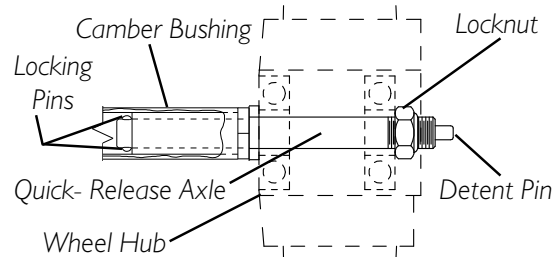
1. Remove rear wheel and quick-release axle from the wheelchair.
2. Depress detent pin in the quick-release axle and slide axle through the wheel hub.
3. Release detent pin ensuring that the locking pins are fully released.
4. Increase or decrease end play by adjusting the locknut on the end of the quick-release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

WARNING

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

Keep locking pins clean.

5. Reinstall rear wheel onto the wheelchair.

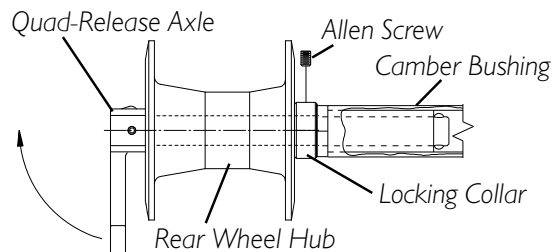


NOTE: End of Quick-Release axle is shown for reference only. It is not visible when inserted into camber bar.

FIGURE 2 - ADJUSTING QUICK-RELEASE AXLE

INSTALLING QUAD-RELEASE AXLE (FIGURE 3)

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



NOTE: End of Quad-Release axle is shown for reference only. It is not visible when inserted into camber bar.

FIGURE 3 - INSTALLING QUAD-RELEASE AXLE

WARNING

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

Keep locking pins clean.

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

ADJUSTING THE QUAD-RELEASE HANDLE IN AND/OR OUT (FIGURE 4)

1. Remove rear wheel and the quad-release axle from the wheelchair.
2. Loosen the locking screw.
3. Make the following adjustments:

If the quad-release handle is **not releasing the locking pins completely**, rotate the **quad-release handle** approximately **one-quarter (1/4) turn CLOCKWISE**.

If the quad-release handle **hits the spokes** of the rear wheel when assembled, rotate the **quad-release handle** approximately **one-quarter (1/4) turn COUNTERCLOCKWISE**.

4. Tighten the locking screw.
5. Reinstall the rear wheel and quad-release axle onto the wheelchair.

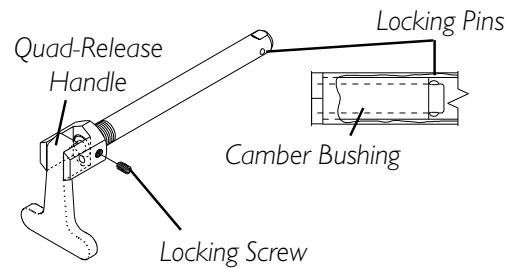


FIGURE 4 - ADJUSTING QUAD-RELEASE HANDLE IN AND/OR OUT

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.

REMOVING THE PLAY FROM THE REAR WHEELS (FIGURE 5)

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, **tighten the length adjusting screw** until there is **no in and out movement** of the **quad-release axle** and **rear wheel**.

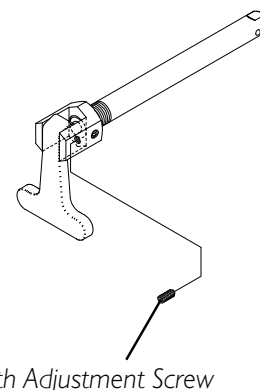


FIGURE 5 - REMOVING THE PLAY FROM THE REAR WHEELS

HANDRIM REPLACEMENT (FIGURE 6)

1. Remove rear wheel from the wheelchair.

WARNING

Tire MUST be deflated before any disassembly procedures are performed.

2. Remove all air from the tire by pressing down on the pin in the center of the valve stem.
3. While carefully holding the tire, bar and rim strip to one side, hold the phillips 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 the above procedures.

WARNING

DO NOT inflate tire until it is completely assembled.

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

WARNING

Make sure detent pin is fully released BEFORE operating the wheelchair.

7. Reinstall rear wheel to the wheelchair.
8. Repeat the procedure for the opposite rear wheel if necessary.

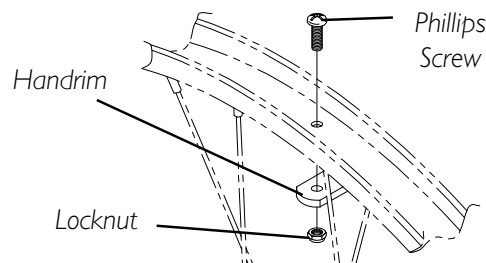


FIGURE 6 - HANDRIM REPLACEMENT

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

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

WHEEL LOCK ADJUSTMENT/REPLACEMENT (FIGURE 7)

NOTE: INVACARE recommends UNDER mount wheels locks when engaging in any contact sport.

NOTE: Before adjusting or replacing the High/Under mount wheel locks, ensure that the tires are inflated to the recommended psi on the sidewall of the tire.

1. Loosen the hex screw(s) that secure the High/Under mount wheel locks to the seat frame.
2. Perform one (1) of the following:
 - A. **REPLACING THE HIGH/UNDER MOUNT WHEEL LOCK:**
 1. Remove the hex screws and remove the existing wheel lock from the wheelchair.
 2. Install the NEW wheel lock.
 - B. **ADJUSTING THE HIGH/UNDER MOUNT WHEEL LOCK:**
 1. Proceed to STEP 3.

3. Adjust position of wheel lock until the 3/16-inch engagement with the tire is obtained.

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

4. Engage the wheel locks and push against the wheelchair and determine if wheel locks engage the rear wheels enough to hold the wheelchair.
5. Repeat the STEPS 3-4 until the wheel locks hold the wheelchair.

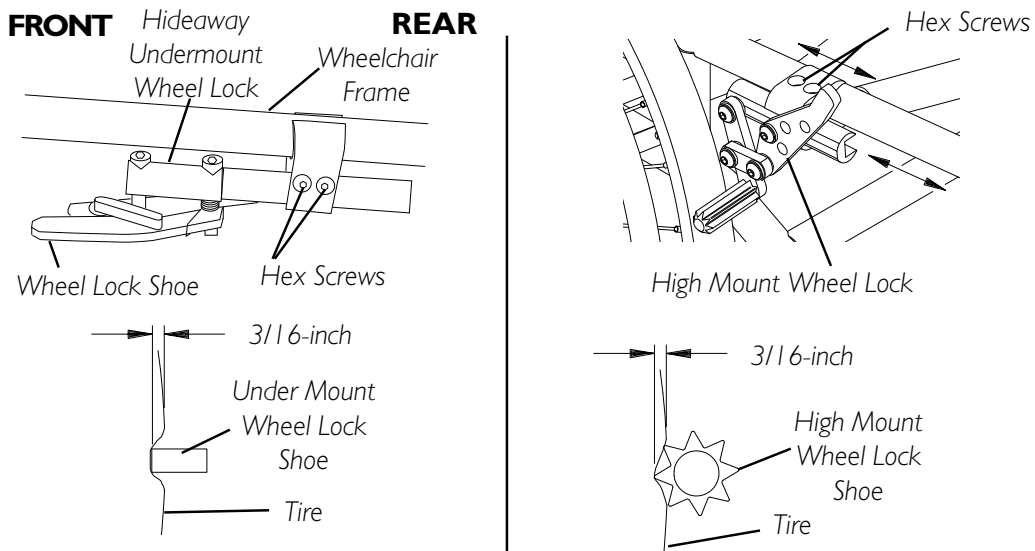


FIGURE 7 - WHEEL LOCK ADJUSTMENT/REPLACEMENT

REPLACING/ADJUSTING CASTERS (FIGURE 8)

NOTE: Both casters should be the same size.

NOTE: Non-suspension casters cannot be adjusted as they mount in one (1) position only.

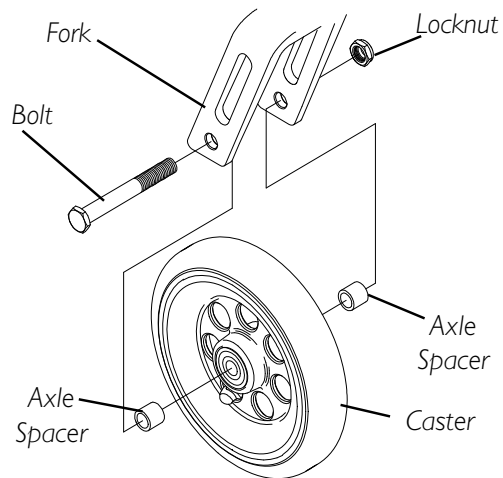
1. Remove the bolt and locknut that secure the front caster to the fork.
2. Remove front caster and axle spacers from fork.
3. Perform one (1) of the following:
 - A. **SHORT FORK** - Install the NEW caster, bolt, locknut and axle spacers onto the fork and securely tighten.
 - B. **LONG FORK** - Perform the following steps:
 1. Determine the desired mounting hole for the caster installation. Refer to DETAIL "A" in FIGURE 8.
 2. Line up the front caster and two (2) spacers with the mounting hole in the fork determined in STEP B-1.
 3. Reinstall the bolt and locknut through the fork, front caster and two (2) spacers.

WARNING

Both front casters MUST be positioned to the same corresponding mounting hole, otherwise injury or damage may occur.

4. Repeat STEPS 1-3 for the opposite caster if necessary.

NOTE: If replacing front casters with a different size than what was originally on the wheelchair, the front caster height MUST be adjusted to keep the wheelchair frame parallel to the floor. Refer to ADJUSTING FRONT CASTER HEIGHT in this section of the manual. The size of the rear wheels may also need adjustment. Refer to REPAIRING/REPLACING REAR WHEEL, TIRE/TUBE in this section of the manual.



NOTE: Only non-suspension short fork style shown for clarity. All fork styles install in the same way.

DETAIL "A" - LONG FORK MOUNTING POSITIONS

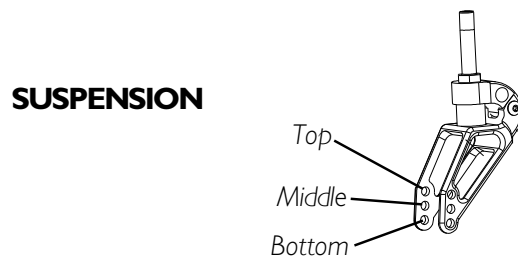
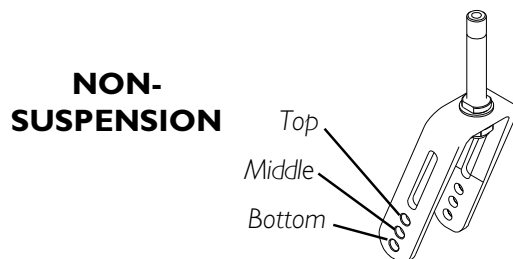


FIGURE 8 - REPLACING/ADJUSTING CASTERS

REPLACING FORKS (FIGURE 9)

1. Remove front casters from wheelchair. Refer to **REPLACING CASTERS** in this section of the manual.
2. Remove the headtube cap.
3. Remove the locknut and washer(s)/spacer(s).

**NOTE: There may be up to four (4) washers/spacers on the fork stem above and/or below the headtube. Note the number and position of these washers for reinstallation.*

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 caster headtube.
7. Install washer(s)/spacer(s) and secure with locknut.

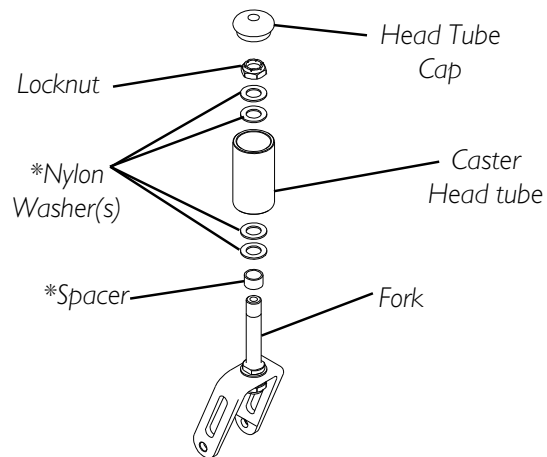


FIGURE 9 - REPLACING FRONT FORKS

WARNING

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

8. Reinstall existing/install new front casters onto the wheelchair. Refer to **REPLACING CASTERS** in this section of the manual.
9. To properly tighten caster journal system and guard against flutter, perform the following check:
 - A. Tip front of wheelchair off floor.
 - B. Pivot forks and casters to top of their arc simultaneously.
 - C. Let casters drop to bottom of arc (wheels should swing once to one-side, then immediately rest in a straight downward position).
 - D. Adjust locknuts according to freedom of caster swing.
 - E. Test wheelchair for maneuverability.

ADJUSTING CASTER HEIGHT (FIGURE 10)

1. Place the wheelchair on a flat surface.
2. Remove the headtube cap.
3. Remove the locknut that secures the fork to the wheelchair frame.
4. Perform one (1) of the following:
 - A. INSTALLING WASHERS/SPACERS** - Perform the following:
 1. Remove washer/spacer from fork stem.
 2. Remove fork stem from caster headtube.
 3. Install the washer/spacer onto the fork stem.
 4. Install the fork stem through the headtube.
 5. Loosely secure the fork stem with the locknut.
 - B. REMOVING WASHERS/SPACERS** - Perform the following:
 1. Remove fork stem from caster headtube.
 2. Remove the washer/spacer from the fork stem.
 3. Install the fork stem through the headtube.
 4. Install the washer/spacer onto the fork stem.
 5. Loosely secure the fork stem with the locknut.
 - C. NO SPACER ADJUSTMENT NECESSARY** - Proceed to STEP 5.
5. Position a large right triangle or "L" square on the flat surface and against the caster headtube that is welded to the wheelchair frame.
6. Adjust the height of the casters by either adding or removing washers/spacers on top of the fork stem until the wheelchair frame is parallel with the floor.
7. Reinstall the locknut and head tube cap onto the wheelchair.
8. Repeat this procedure for the opposite front caster.

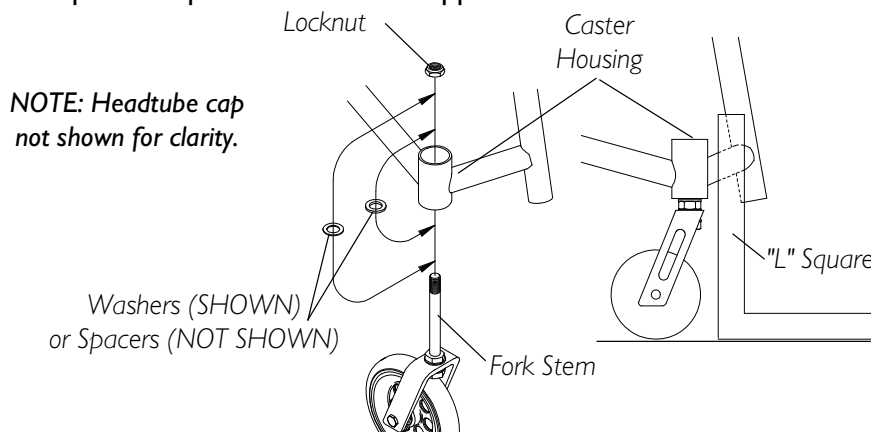


FIGURE 10 - ADJUSTING CASTER HEIGHT

ADJUSTING FRONT SEAT-TO-FLOOR HEIGHT

WARNING

The position of the footrest, seat angle, back angle, seating system/upholstery, caster size and position, rear wheel size and position, anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. **EXTREME** care **MUST** be taken when changing the stability of the wheelchair. Refer to the chart in **STABILITY** in SECTION I of this manual.

DETERMINING FRAME SIZE (FIGURE 11)

- To determine frame size, measure from the bottom of the caster headtube to the top of the seat rail at the edge of the seat upholstery.
- Refer to the chart to determine the frame size.

LENGTH (INCHES)	FRAME SIZE
11	17
12	18
13	19
14	20
15	21

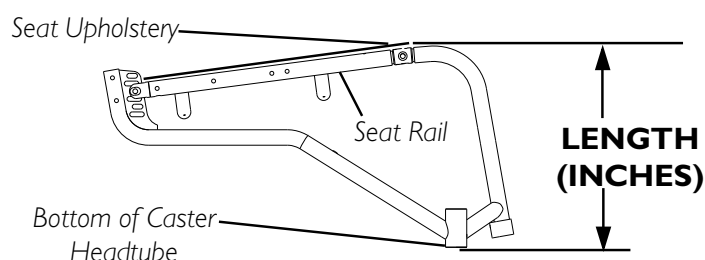


FIGURE 11 - DETERMINING FRAME SIZE

FRONT SEAT-TO-FLOOR HEIGHT ADJUSTMENT (FIGURE 12)

NOTE: Refer to STABILITY in SECTION I for warnings concerning wheelchair stability.

Seat-to-floor height is determined by measuring from the top of the seat rail to the ground/floor.

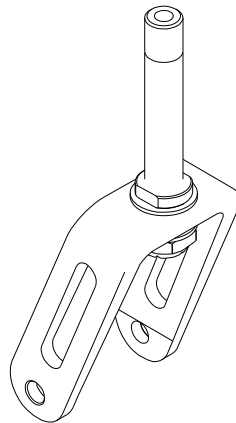
The different seat-to-floor heights are possible by using different combinations of caster size, caster position, and rear wheel size.

- Refer to FIGURE 12 and the charts on the following pages to determine available front seat-to-floor heights for each wheelchair frame size.
- Determine the changes needed to the casters, forks and rear wheels by reading across the chart for the seat-to-floor height determined in STEP 1.
- After determining the rear wheel size, refer to REMOVING/INSTALLING REAR WHEELS in this section of the manual to replace the rear wheels.
- After determining the caster size, refer to REPLACING CASTERS and/or REPLACING FORKS in this section of the manual to replace the casters and/or forks.

5. After replacing or adjusting the caster size, refer to ADJUSTING CASTER HEIGHT in this section of the manual to add/remove fork spacers and add/remove washers to ensure caster headtubes are perpendicular to the ground.
6. Anti-tipper height (if applicable) must be adjusted to maintain 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the floor. Refer to ADJUSTING ANTI-TIPPER HEIGHT in SECTION 7 of this manual.
7. Ensure wheel locks engage properly. Refer to WHEEL LOCK ADJUSTMENT/REPLACEMENT in this section of the manual.

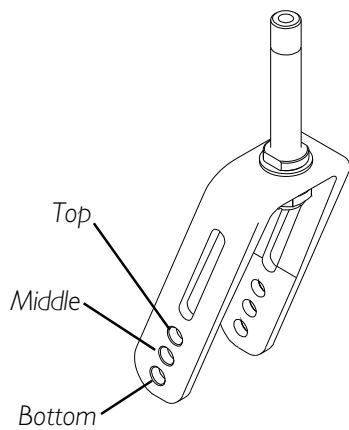
WHEELS

FORK STYLE INFORMATION
SHORT FORK - NON-SUSPENSION ONLY



LONG FORK

NON-SUSPENSION FORK



SUSPENSION FORK

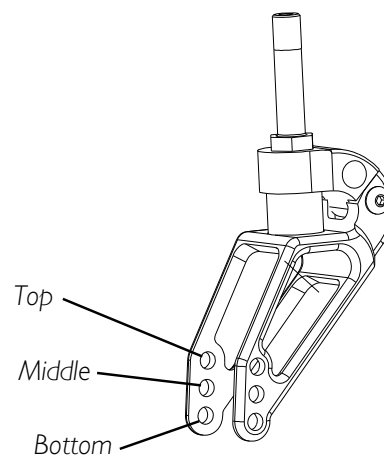


FIGURE 12 - FRONT SEAT-TO-FLOOR HEIGHT ADJUSTMENT

17-INCH FRAME FRONT SEAT-TO-FLOOR HEIGHT

NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are measured with properly inflated new tires. These heights can vary $\pm 1/4$ -inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

NOTE: The entries in the black box in the chart below indicate factory settings for this frame size. All other entries are adjustments which can be made after purchase.

FRONT SEAT-TO-FLOOR HEIGHT	REAR WHEEL SIZE	FRONT CASTER SIZE	FORK SIZE - CASTER POSITION	FORK SPACER NEEDED	
16-INCHES	22-INCH	3-INCH	SHORT - N/A	NO	
16-INCHES	22-INCH	4-INCH	SHORT - N/A	NO	
FACTORY SETTINGS	17-INCHES*	22-INCH	3-INCH	SHORT - N/A	YES
	17-INCHES*	24-INCH	3-INCH	SHORT - N/A	YES
	17-INCHES*	22-INCH	4-INCH	SHORT - N/A	YES
	17-INCHES*	24-INCH	4-INCH	SHORT - N/A	YES
	17-INCHES*	26-INCH	4-INCH	SHORT - N/A	YES
	17-INCHES*	22-INCH	5-INCH	SHORT - N/A	NO
	17-INCHES*	24-INCH	5-INCH	SHORT - N/A	NO
	17-INCHES*	26-INCH	5-INCH	SHORT - N/A	NO
	17-INCHES*	24-INCH	6-INCH	LONG - TOP	NO
18-INCHES	24-INCH	3-INCH	LONG - MIDDLE	YES	
18-INCHES	26-INCH	3-INCH	LONG - MIDDLE	YES	
18-INCHES	24-INCH	4-INCH	LONG - BOTTOM	YES	
18-INCHES	26-INCH	4-INCH	LONG - BOTTOM	YES	
18-INCHES	24-INCH	5-INCH	SHORT - N/A	YES	
18-INCHES	24-INCH	5-INCH	LONG - MIDDLE	NO	
18-INCHES	26-INCH	5-INCH	SHORT - N/A	YES	
18-INCHES	26-INCH	5-INCH	LONG - MIDDLE	NO	
18-INCHES	26-INCH	6-INCH	LONG - BOTTOM	NO	

** NOTE: A 17-inch front seat-to-floor height is not available for wheelchairs with the suspension option.*

18-INCH FRAME FRONT SEAT-TO-FLOOR HEIGHT

NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are measured with properly inflated new tires. These heights can vary ±1/4-inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

NOTE: The entries in the black box in the chart below indicate factory settings for this frame size. All other entries are adjustments which can be made after purchase.

FRONT SEAT-TO-FLOOR HEIGHT	REAR WHEEL SIZE	FRONT CASTER SIZE	FORK SIZE - CASTER POSITION	FORK SPACER NEEDED	
17-INCHES*	22-INCH	3-INCH	SHORT - N/A	NO	
17-INCHES*	22-INCH	4-INCH	SHORT - N/A	NO	
17-INCHES*	24-INCH	3-INCH	SHORT - N/A	NO	
17-INCHES*	24-INCH	4-INCH	SHORT - N/A	NO	
FACTORY SETTINGS	18-INCHES	22-INCH	3-INCH	SHORT - N/A	YES
	18-INCHES	24-INCH	3-INCH	SHORT - N/A	YES
	18-INCHES	22-INCH	4-INCH	SHORT - N/A	YES
	18-INCHES	24-INCH	4-INCH	SHORT - N/A	YES
	18-INCHES	26-INCH	4-INCH	SHORT - N/A	YES
	18-INCHES	22-INCH	5-INCH	SHORT - N/A	NO
	18-INCHES	24-INCH	5-INCH	SHORT - N/A	NO
	18-INCHES	26-INCH	5-INCH	SHORT - N/A	NO
	18-INCHES	24-INCH	6-INCH	LONG - TOP	NO
19-INCHES	24-INCH	3-INCH	LONG - MIDDLE	YES	
19-INCHES	26-INCH	3-INCH	LONG - MIDDLE	YES	
19-INCHES	24-INCH	4-INCH	LONG - BOTTOM	YES	
19-INCHES	26-INCH	4-INCH	LONG - BOTTOM	YES	
19-INCHES	24-INCH	5-INCH	SHORT - N/A	YES	
19-INCHES	24-INCH	5-INCH	LONG - MIDDLE	NO	
19-INCHES	26-INCH	5-INCH	SHORT - N/A	YES	
19-INCHES	26-INCH	5-INCH	LONG - MIDDLE	NO	
19-INCHES	26-INCH	6-INCH	LONG - BOTTOM	NO	

** NOTE: A 17-inch front seat-to-floor height is not available for wheelchairs with the suspension option.*

WHEELS

19-INCH FRAME FRONT SEAT-TO-FLOOR HEIGHT

NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are measured with properly inflated new tires. These heights can vary $\pm 1/4$ -inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

NOTE: The entries in the black box in the chart below indicate factory settings for this frame size. All other entries are adjustments which can be made after purchase.

FRONT SEAT-TO-FLOOR HEIGHT	REAR WHEEL SIZE	FRONT CASTER SIZE	FORK SIZE - CASTER POSITION	FORK SPACER NEEDED	
18-INCHES	22-INCH	3-INCH	SHORT - N/A	NO	
18-INCHES	22-INCH	4-INCH	SHORT - N/A	NO	
18-INCHES	24-INCH	3-INCH	SHORT - N/A	NO	
18-INCHES	24-INCH	4-INCH	SHORT - N/A	NO	
FACTORY SETTINGS	19-INCHES	22-INCH	3-INCH	SHORT - N/A	YES
	19-INCHES	24-INCH	3-INCH	SHORT - N/A	YES
	19-INCHES	22-INCH	4-INCH	SHORT - N/A	YES
	19-INCHES	24-INCH	4-INCH	SHORT - N/A	YES
	19-INCHES	26-INCH	4-INCH	SHORT - N/A	YES
	19-INCHES	22-INCH	5-INCH	SHORT - N/A	NO
	19-INCHES	24-INCH	5-INCH	SHORT - N/A	NO
	19-INCHES	26-INCH	5-INCH	SHORT - N/A	NO
	19-INCHES	24-INCH	6-INCH	LONG - TOP	NO
20-INCHES	24-INCH	3-INCH	LONG - MIDDLE	YES	
20-INCHES	26-INCH	3-INCH	LONG - MIDDLE	YES	
20-INCHES	24-INCH	4-INCH	LONG - BOTTOM	YES	
20-INCHES	26-INCH	4-INCH	LONG - BOTTOM	YES	
20-INCHES	24-INCH	5-INCH	SHORT - N/A	YES	
20-INCHES	24-INCH	5-INCH	LONG - MIDDLE	NO	
20-INCHES	26-INCH	5-INCH	SHORT - N/A	YES	
20-INCHES	26-INCH	5-INCH	LONG - MIDDLE	NO	
20-INCHES	26-INCH	6-INCH	LONG - BOTTOM	NO	

20-INCH FRAME FRONT SEAT-TO-FLOOR HEIGHT

NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are measured with properly inflated new tires. These heights can vary ±1/4-inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

NOTE: The entries in the black box in the chart below indicate factory settings for this frame size. All other entries are adjustments which can be made after purchase.

FRONT SEAT-TO-FLOOR HEIGHT	REAR WHEEL SIZE	FRONT CASTER SIZE	FORK SIZE - CASTER POSITION	FORK SPACER NEEDED	
19-INCHES	22-INCH	3-INCH	SHORT - N/A	NO	
19-INCHES	22-INCH	4-INCH	SHORT - N/A	NO	
19-INCHES	24-INCH	3-INCH	SHORT - N/A	NO	
19-INCHES	24-INCH	4-INCH	SHORT - N/A	NO	
FACTORY SETTINGS	20-INCHES	22-INCH	3-INCH	SHORT - N/A	YES
	20-INCHES	24-INCH	3-INCH	SHORT - N/A	YES
	20-INCHES	22-INCH	4-INCH	SHORT - N/A	YES
	20-INCHES	24-INCH	4-INCH	SHORT - N/A	YES
	20-INCHES	26-INCH	4-INCH	SHORT - N/A	YES
	20-INCHES	22-INCH	5-INCH	SHORT - N/A	NO
	20-INCHES	24-INCH	5-INCH	SHORT - N/A	NO
	20-INCHES	26-INCH	5-INCH	SHORT - N/A	NO
	20-INCHES	24-INCH	6-INCH	LONG - TOP	NO
21-INCHES	24-INCH	3-INCH	LONG - MIDDLE	YES	
21-INCHES	26-INCH	3-INCH	LONG - MIDDLE	YES	
21-INCHES	24-INCH	4-INCH	LONG - BOTTOM	YES	
21-INCHES	26-INCH	4-INCH	LONG - BOTTOM	YES	
21-INCHES	24-INCH	5-INCH	SHORT - N/A	YES	
21-INCHES	24-INCH	5-INCH	LONG - MIDDLE	NO	
21-INCHES	26-INCH	5-INCH	SHORT - N/A	YES	
21-INCHES	26-INCH	5-INCH	LONG - MIDDLE	NO	
21-INCHES	26-INCH	6-INCH	LONG - BOTTOM	NO	

WHEELS

21-INCH FRAME FRONT SEAT-TO-FLOOR HEIGHT

NOTE: The seat-to-floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are measured with properly inflated new tires. These heights can vary $\pm 1/4$ -inch due to tire wear. Add one (1) inch for wheelchairs with the suspension option.

NOTE: The entries in the black box in the chart below indicate factory settings for this frame size. All other entries are adjustments which can be made after purchase.

	FRONT SEAT-TO-FLOOR HEIGHT	REAR WHEEL SIZE	FRONT CASTER SIZE	FORK SIZE - CASTER POSITION	FORK SPACER NEEDED
	20-INCHES	22-INCH	3-INCH	SHORT - N/A	NO
	20-INCHES	22-INCH	4-INCH	SHORT - N/A	NO
	20-INCHES	24-INCH	3-INCH	SHORT - N/A	NO
	20-INCHES	24-INCH	4-INCH	SHORT - N/A	NO
FACTORY SETTINGS	21-INCHES	22-INCH	3-INCH	SHORT - N/A	YES
	21-INCHES	24-INCH	3-INCH	SHORT - N/A	YES
	21-INCHES	22-INCH	4-INCH	SHORT - N/A	YES
	21-INCHES	24-INCH	4-INCH	SHORT - N/A	YES
	21-INCHES	26-INCH	4-INCH	SHORT - N/A	YES
	21-INCHES	22-INCH	5-INCH	SHORT - N/A	NO
	21-INCHES	24-INCH	5-INCH	SHORT - N/A	NO
	21-INCHES	26-INCH	5-INCH	SHORT - N/A	NO
	21-INCHES	24-INCH	6-INCH	LONG - TOP	NO
	22-INCHES	24-INCH	3-INCH	LONG - MIDDLE	YES
	22-INCHES	26-INCH	3-INCH	LONG - MIDDLE	YES
	22-INCHES	24-INCH	4-INCH	LONG - BOTTOM	YES
	22-INCHES	26-INCH	4-INCH	LONG - BOTTOM	YES
	22-INCHES	24-INCH	5-INCH	SHORT - N/A	YES
	22-INCHES	24-INCH	5-INCH	LONG - MIDDLE	NO
	22-INCHES	26-INCH	5-INCH	SHORT - N/A	YES
	22-INCHES	26-INCH	5-INCH	LONG - MIDDLE	NO
	22-INCHES	26-INCH	6-INCH	LONG - BOTTOM	NO

Section 6 - Footrest includes the following:

Footrest Replacement/Adjustment

WARNING

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

FOOTREST REPLACEMENT/ADJUSTMENT (FIGURE 1)

WARNING

The position of the footrest, seat angle, back angle, seating system/ upholstery, caster size and position, rear wheel size and position, use of anti-tippers, as well as the user condition directly relate to the stability of the wheelchair. Any change to one (1) or any combination of the ten (10) may cause the wheelchair to decrease in stability. EXTREME care MUST be taken when changing the stability of the wheelchair.

The footrest assembly MUST be at least 1-3/4-inches above the ground/ floor to avoid hitting protruding objects when using this wheelchair.

REPLACING THE FOOTREST

1. Loosen, but do not remove the two (2) allen screws that secure the footrest to the wheelchair frame.
2. Slide the existing footrest tubes out of the wheelchair frame and install new footrest by reversing this step.
3. Position the NEW footrest to the desired height.
4. Tighten the two (2) allen screws that secure the footrest to the wheelchair frame.
5. Adjust the footplate to the desired position. Refer to FOOTPLATE ANGLE ADJUSTMENT and/or FOOTPLATE DEPTH ADJUSTMENT in this section of the manual.

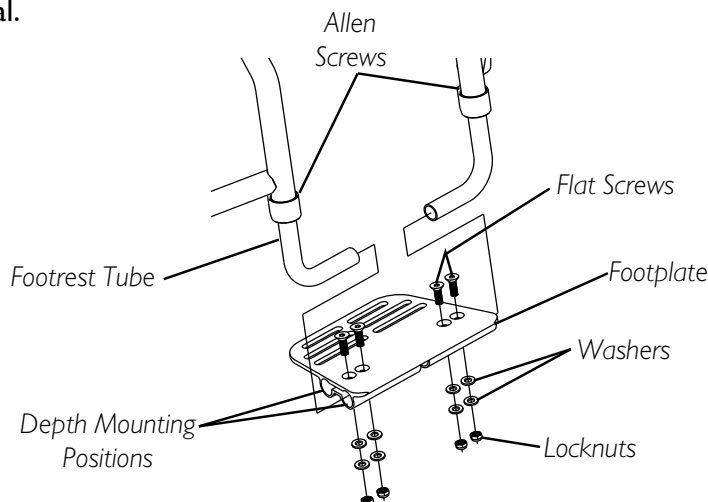


FIGURE 1 - FOOTREST REPLACEMENT/ADJUSTMENT

FOOTPLATE ANGLE ADJUSTMENT

1. Loosen, but do not remove the four (4) locknuts that secure the footplate to the two (2) footrest tubes.
2. Position the footplate to the necessary angle to accommodate the user.
3. Retighten the four (4) locknuts.

FOOTPLATE DEPTH ADJUSTMENT

1. Note the height of the footrest and the angle of the footplate for reinstallation.
2. Loosen, but do not remove the two (2) allen screws securing the footrest tubes to the wheelchair frame.
3. Remove the two (2) footrest tubes from the wheelchair frame.
4. Loosen, but do not remove the four (4) locknuts that secure the footplate to the footrest tubes.
5. Remove the footrest tubes from the footrest.
6. Insert the footrest tubes into one (1) of two (2) depth mounting positions to accommodate the user.
7. Adjust the angle of the footrest plate to the position noted in STEP 1.
8. Tighten the four (4) locknuts that secure the footplate to the footrest tubes.
9. Insert the footrest tubes into the wheelchair frame.
10. Adjust the footrest tubes to the height noted in STEP 1.
11. Tighten the two (2) allen screws to secure the footrest tubes to the wheelchair frame.

Section 7 - Anti-tippers includes the following:
Anti-tipper Adjustment/Replacement

WARNING

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

ANTI-TIPPER ADJUSTMENT/REPLACEMENT (FIGURE 1)**WARNING**

Anti-tippers **MUST BE** attached at all times. Inasmuch as the ANTI-TIPPERS are an option on this wheelchair (You may order it with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as an additional safeguard for the wheelchair user.

Anti-tippers **MUST** be fully engaged. Ensure the the release button of the anti-tipper fully protrudes out of the hole in the anti-tipper socket.

Ensure both anti-tippers are adjusted to the same height.

NOTE: To ensure the correct model anti-tipper is used refer to FIGURE 1. Measurements for anti-tippers are approximate and are taken using the TOP adjustment hole on the anti-tipper (DETAIL "A").

ANTI-TIPPER ADJUSTMENT**WARNING**

When anti-tippers are used, anti-tippers **MUST** be adjusted to maintain a 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor. This spacing should always be checked whenever adjustments/changes are made to the wheelchair. Failure to maintain proper spacing may result in the chair tipping over backward causing serious injury or property damage.

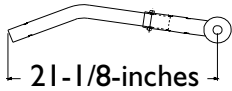
1. Press in the release button that secures the anti-tipper wheels to the anti-tipper bar.
2. Adjust the height of the anti-tipper wheels to between 1-1/2 and 2-inches of the ground/floor.
3. Repeat STEPS 1-2 for the opposite anti-tipper.

ANTI-TIPPER REPLACEMENT

WARNING

When anti-tippers are used, anti-tippers **MUST** be adjusted to maintain a 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the ground/floor. This spacing should always be checked whenever adjustments/changes are made to the wheelchair. Failure to maintain proper spacing may result in the chair tipping over backward causing serious injury or property damage.

1. Press in the release button that secures the existing anti-tipper to the anti-tipper socket and remove the anti-tipper from the anti-tipper socket.
2. Insert the new anti-tipper into the anti-tipper socket until release button engages.
3. Press in the release button on the anti-tipper bar and install the anti-tipper wheels onto the new anti-tipper bar.
4. Repeat STEPS 1-3 for the opposite anti-tipper.
5. Measure the distance between the bottom of the anti-tipper wheels and the ground floor.
6. If necessary, adjust the height of the anti-tippers. Refer to ANTI-TIPPER ADJUSTMENT in this section of the manual.

PART NUMBER	MEASUREMENT
1112178	

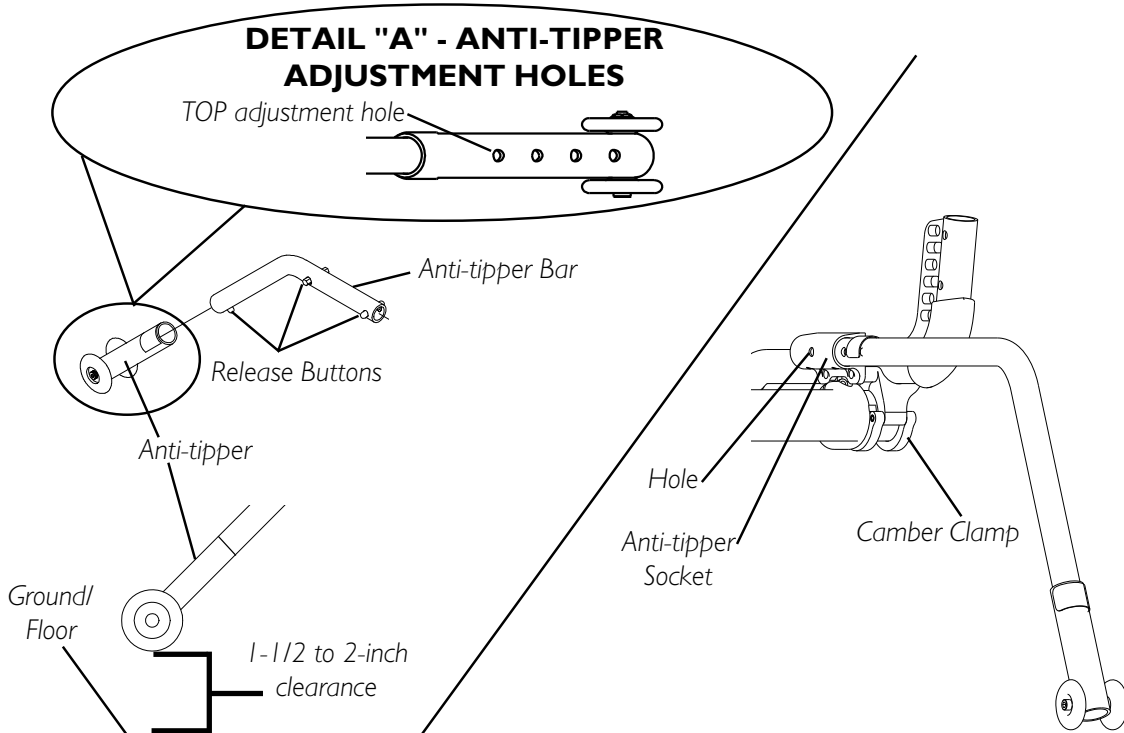


FIGURE 1 - ANTI-TIPPER ADJUSTMENT/REPLACEMENT

Section 8 - Arms includes the following:

Installing the T-Arm Sockets

Installing/Removing the T-Arms

Adjusting the T-Arms

Adjusting the T-Arm Transfer Assists and/or Side Guards

Replacing the T-Arm Locking Lever

Installing the Half Arm Socket

Adjusting Half Arm Height

WARNING

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

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

INSTALLING THE T-ARM SOCKETS (FIGURE 1)

1. Remove the rear wheels from the wheelchair. Refer to REMOVING/INSTALLING REAR WHEELS in SECTION 5 of this manual.
2. Position the inner T-arm bracket on the wheelchair frame as shown in FIGURE 1.
NOTE: The inner T-arm bracket must be positioned on the outside of the wheelchair frame.
3. Install the hex screws and washers through the inner T-arm bracket and loosely tighten.
4. Tighten the hex screws and washers that secure the inner T-arm bracket to the wheelchair frame.
5. Position T-arm bracket inserts between inner and outer T-arm brackets as shown in FIGURE 1.
6. Secure the outer T-arm bracket to the inner T-arm bracket with the socket screws and washers.
7. Repeat STEPS 2-6 for the opposite side of the wheelchair.
8. Install the T-arms into the T-arm sockets. Refer to INSTALLING/REMOVING THE T-ARMS in this section of the manual.

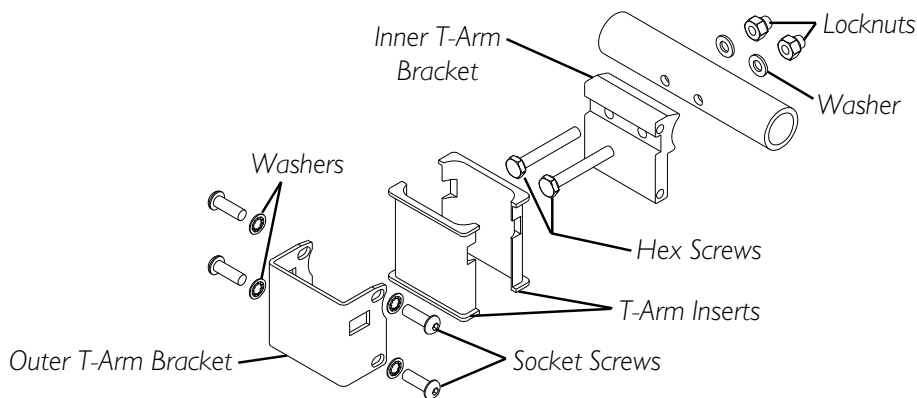


FIGURE 1 - INSTALLING THE T-ARM SOCKETS

INSTALLING/REMOVING T-ARMS (FIGURE 2)

INSTALLING T-ARMS

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 THE T-ARMS in this section of the manual.

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

REMOVING T-ARMS

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

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

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

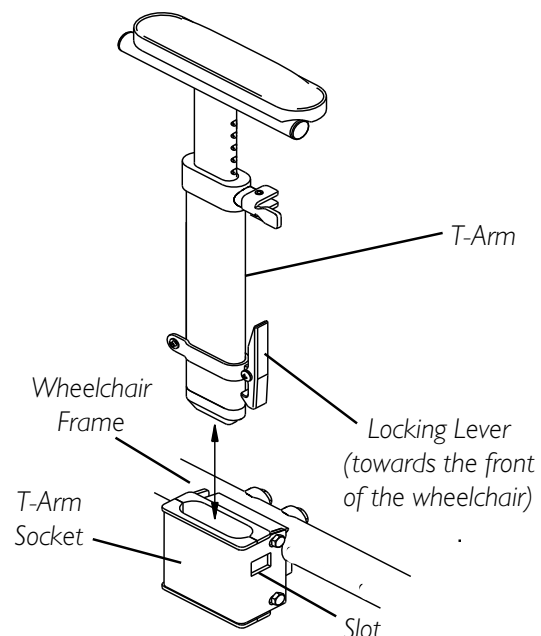


FIGURE 2 - INSTALLING/REMOVING T- ARMS

ADJUSTING THE T-ARMS

ADJUSTING T-ARM HEIGHT (FIGURE 3)

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

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

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

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

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

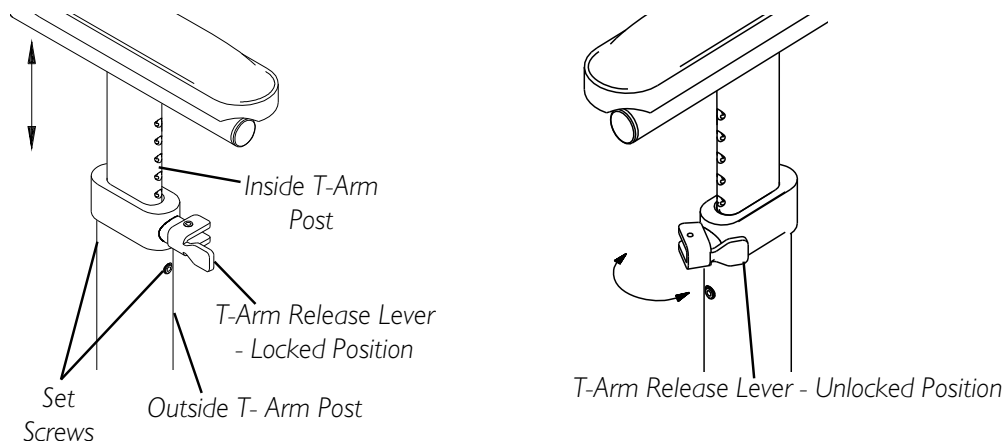
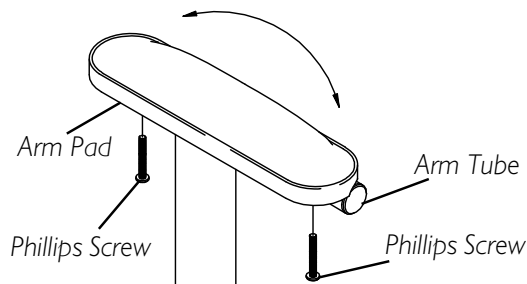


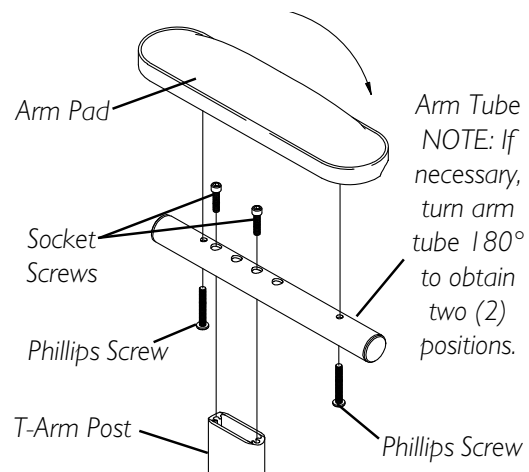
FIGURE 3 - ADJUSTING T-ARM HEIGHT

ADJUSTING T-ARM WIDTH (FIGURE 4)

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

**FIGURE 4 - ADJUSTING T-ARM WIDTH****ADJUSTING T-ARM DEPTH (FIGURE 5)**

1. Remove the two (2) phillips screws that secure the arm pad to the arm tube.
2. Remove the two (2) socket screws that secure the arm tube to the T-arm post.
3. Reposition the arm tube on the T-arm post:
 - A. **Desk Length Arms** - to one (1) of three (3) positions depending on the desired arm pad depth.
 - B. **Full Length Arms** - to one (1) of five (5) positions depending on the desired arm pad depth.

**FIGURE 5 - ADJUSTING T-ARM DEPTH**

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

4. Re-secure the arm tube to the T-arm post with the two (2) socket screws. Torque to 60-70 in./lbs.
5. Reattach the arm pad to the arm tube with the two (2) phillips screws. Tighten securely.
6. Repeat for the opposite side, if necessary.

ADJUSTING T-ARM SOCKETS (FIGURE 6)

NOTE: Perform this procedure if the T-arm is too loose in the socket or does not easily slide up and down in the socket.

1. Remove the rear wheels from the wheelchair, if necessary. Refer to **REMOVING/INSTALLING REAR WHEELS** in SECTION 5 of this manual.
2. Loosen, but do not remove the four (4) socket screws and washers that secure outer T-arm bracket to the inner T-arm bracket.

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

3. Slide the T-arm into the T-arm socket until the locking lever is in the slot in the T-arm socket and an audible "click" is heard.
4. Squeeze the outer T-arm bracket and the inner T-arm bracket together until the socket is flush with the T-arm.
5. While holding the outer and the inner T-arm brackets together, tighten the four (4) socket screws and washers. Tighten securely.
6. Press in on the locking lever and lift the T-arm straight up and out of the T-arm socket.
7. Repeat STEPS 3-6, if necessary until the T-arm slides in the T-arm socket as desired.
8. If necessary, install rear wheels. Refer to **REMOVING/INSTALLING REAR WHEELS** in SECTION 5 of this manual.

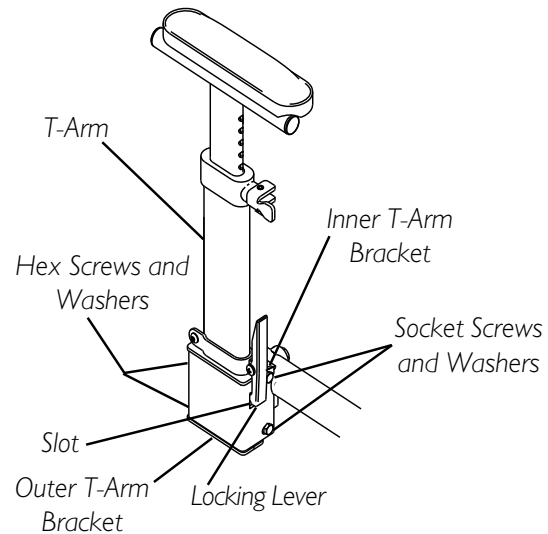


FIGURE 6 - ADJUSTING T-ARM SOCKETS

ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS (FIGURE 7)

1. Remove the T-arm from the wheelchair. Refer to INSTALLING/REMOVING T-ARMS in this section of the manual.
2. Remove the two (2) socket screws that secure the side guard to the bottom clamp.

NOTE: Adjusting the side guards will directly affect the position of the transfer assist.

3. Perform one (1) of the following:

- Small Side Guards - Move the bottom clamp up one (1) of two (2) mounting positions in the side guard.
- Large Side Guards - Move the bottom clamp up one (1) of three (3) mounting positions in the side guard.

4. Re-secure the side guard to the bottom clamp with the two (2) socket screws.
5. Install the T-arm onto the wheelchair. Refer to INSTALLING/REMOVING T-ARMS in this section of the manual.

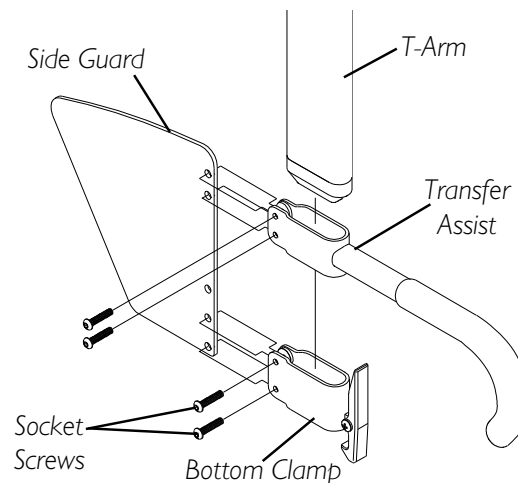


FIGURE 7 - ADJUSTING T-ARM TRANSFER ASSISTS AND/OR SIDE GUARDS

REPLACING THE T-ARM LOCKING LEVER (FIGURE 8)

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

WARNING

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, otherwise parts may be lost or injury may occur.

3. Remove EXISTING locking lever and spring from bottom bracket.

NOTE: Inspect the spring for damage and replace if necessary.

4. Position spring on bottom bracket as shown in FIGURE 5.
5. Position NEW locking lever onto spring and bottom bracket (DETAIL "A").

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

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

WARNING

DO NOT overtighten locknut that secures locking lever to bottom bracket. Overtightening this locknut will prevent locking lever from operating properly, possibly causing injury.

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

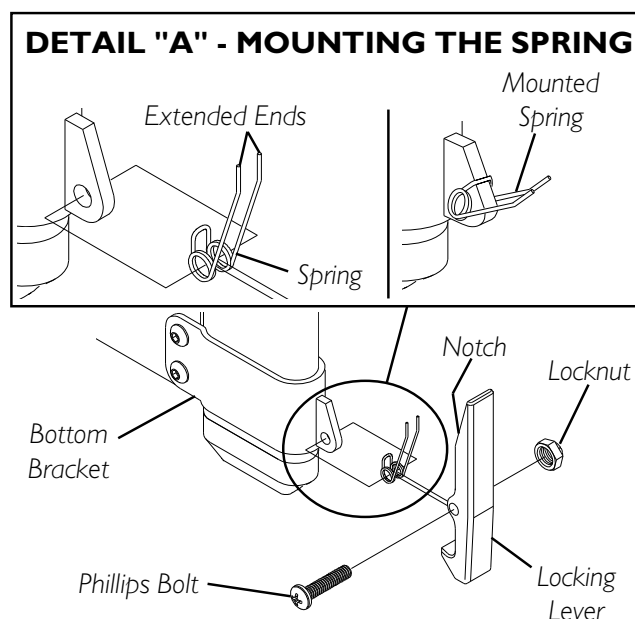


FIGURE 8 - REPLACING THE T-ARM LOCKING LEVER

INSTALLING THE HALF ARM SOCKET (FIGURE 9)

1. Position arm socket in line with mounting holes on the wheelchair frame making sure the arm socket is towards the inside of the wheelchair frame.
2. Position the top covered washer between the arm socket and the wheelchair frame.

NOTE: The slot in the arm socket is used with either the top or the bottom mounting holes in the arm socket depending on the half arm height desired.

3. Install top hex screw through the slot in the arm socket, top covered washer, wheelchair frame, and washer and loosely tighten with locknut.
4. Slide the arm socket up and/or down until the bottom mounting hole in the arm socket is in line with the mounting hole in the wheelchair frame.
5. Position the bottom covered washer between the arm socket and the wheelchair frame.
6. Install bottom hex screw through the mounting hole in the arm socket, bottom covered washer, wheelchair frame and washer and securely tighten with locknut.
7. Securely tighten the top hex screw that secures the arm socket to the wheelchair frame.
8. Repeat STEPS 1-7 for the opposite arm socket.

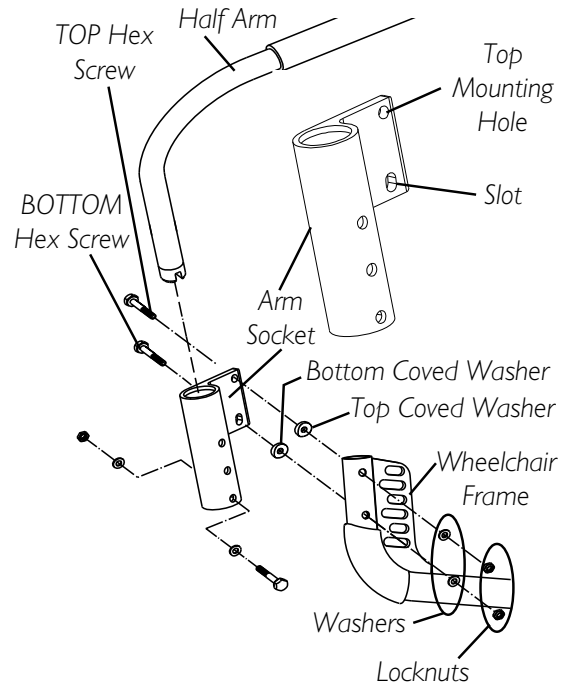


FIGURE 9 - INSTALLING THE HALF ARM SOCKET

ADJUSTING HALF ARM HEIGHT (FIGURE 10)

1. Remove the half arm from the arm socket.
2. Remove the hex screw, two (2) washers and locknut mounted in the arm socket that determine the half arm height.
3. Reposition hex screw and one (1) washer to one (1) of three (3) positions depending on the desired height.
4. Retighten the hex screw and washer to the arm socket with the remaining washer and locknut.
5. Reinstall the half arm into the arm socket.
6. Repeat STEPS 1-5 for the opposite side, if necessary.

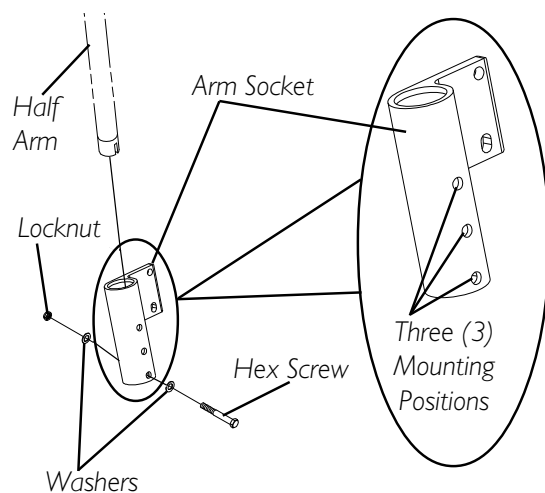


FIGURE 10 - ADJUSTING HALF ARM HEIGHT

Section 9 - Suspension - includes the following:

Elastomers and Suspension

Replacing Rear Elastomers

Replacing Front Elastomers

WARNING

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

NOTE: The following procedures are for wheelchairs with the suspension option ONLY.

ELASTOMERS AND SUSPENSION

NOTE: The performance of the wheelchair will be affected if elastomers ARE NOT the same on BOTH SIDES of the wheelchair.

REPLACING REAR ELASTOMERS (FIGURE 1)

1. Use an allen wrench to hold the outer allen screw.
2. While holding the outer allen screw in position, remove the inner allen screw from the pivot pin.
3. Use the allen wrench to push the pivot pin with outer allen screw out of the mounting hole.
4. Remove the existing elastomer.
5. Position the new elastomer between the recess in the axle bracket and the recess in the suspension base.
6. Compress and hold the elastomer between the axle bracket and the suspension base.
7. Insert the pivot pin into the mounting hole.
8. Install the outer allen screw into the pivot pin.
9. Use an allen wrench to hold the outer allen screw in position.
10. While holding the outer allen screw, install the inner allen screw into the pivot pin. Tighten securely.

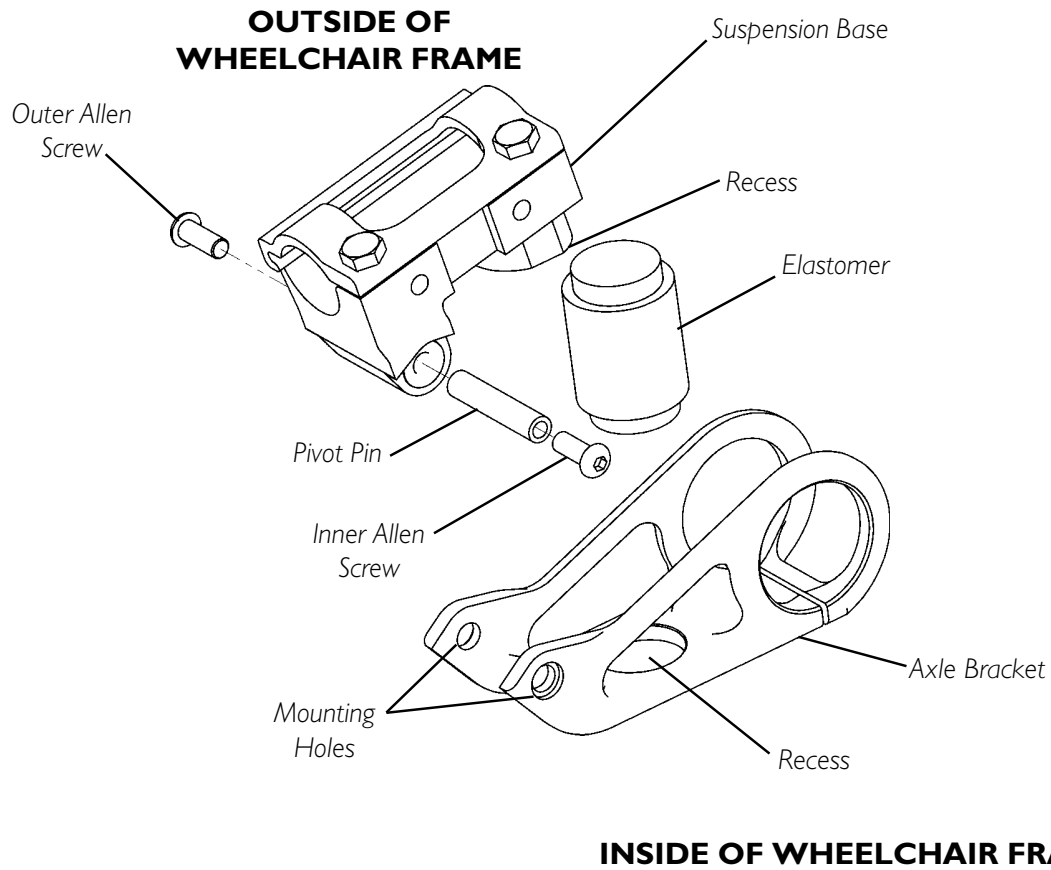


FIGURE 1 - REPLACING REAR ELASTOMERS

REPLACING FRONT ELASTOMERS (FIGURE 2)**CAUTION**

DO NOT use excessive force when removing/installing the threaded sleeve from/onto the fork. Damage to the threaded sleeve may occur.

1. Using two (2) allen wrenches, turn mounting screws in opposite directions and remove one (1) mounting screw from fork.

NOTE: One (1) mounting screw will not turn.

2. Remove the threaded sleeve and mounting screw assembly from the fork. **DO NOT** use excessive force.
3. Remove the **EXISTING** elastomer from the fork.
4. Install **NEW** elastomer into fork.

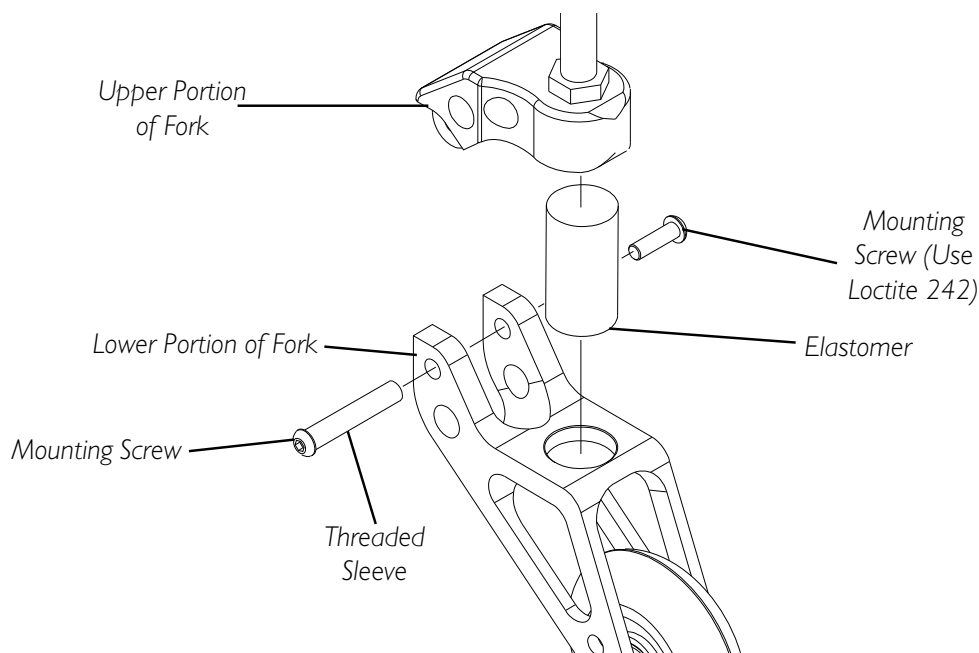
NOTE: Make sure the elastomer sits in the two (2) recessed areas on the fork.

5. Align the mounting holes in the upper and lower portion of the fork.
6. Reinstall threaded sleeve and mounting screw assembly. **DO NOT** use excessive force.

WARNING

Use Loctite 242™ when reinstalling the mounting screw into the threaded sleeve, otherwise the fork can become disassembled. Possible injury or damage could result.

7. Apply Loctite 242 to the mounting screw.
8. Reinstall the mounting screw into the threaded sleeve and tighten securely.

**FIGURE 2 - REPLACING FRONT ELASTOMERS**

LIMITED WARRANTY

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

This warranty is extended only to the original purchaser/user of our products.

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

Invacare warrants the frame to be free from defects in materials and workmanship for a lifetime from date of purchase; all remaining components for one (1) year from date of purchase except upholstered materials, padded materials and tires/wheels. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address below, provide dealer's name, address, and the date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

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