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WARNING

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

SAVE THESE INSTRUCTIONS

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SPECIAL NOTES

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

NOTICE

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

WHEELCHAIR USER

As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her health care 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 RESTRAINTS - POSITIONING STRAPS - IT IS THE OBLIGATION OF THE DME DEALER, THERAPISTS AND OTHER HEALTH CARE PROFESSIONALS TO DETERMINE IF A SEATING RESTRAINT IS REQUIRED TO ENSURE THE SAFE OPERATION OF THIS EQUIPMENT BY THE USER. SERIOUS INJURY CAN OCCUR IN THE EVENT OF A FALL FROM A WHEELCHAIR.

SAFETY SUMMARY

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 healthcare professional BEFORE attempting active use of the wheelchair.

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

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

DO NOT lean over the top of the back upholstery. 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 tilt the wheelchair without assistance.

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

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

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. Turn both casters toward the object you are transferring onto. When transferring to and from the wheelchair, ALWAYS ENGAGE BOTH WHEEL LOCKS.

DO NOT operate on roads, streets or highways.

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

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

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

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

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

DO NOT stand on the frame of the wheelchair.

Anti-tippers MUST BE attached at all times if the wheelchair is equipped with anti-tippers.

SAFETY SUMMARY (CONTINUED)

WARNING

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.

TIRE PRESSURE

DO NOT use your wheelchair unless it has the proper tire pressure (p.s.i.). The recommended tire pressure (p.s.i.) is listed on the sidewall of the tire. **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 an authorized Invacare Dealer or Qualified Technician.

WEIGHT TRAINING

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

WEIGHT LIMITATION

The Pro Series wheelchairs have a weight limitation of 250 lbs. The Pro Series wheelchairs with the heavy duty option have a weight limitation of 300 lbs.

SAFETY/HANDLING OF WHEELCHAIRS

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

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

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

STABILITY AND BALANCE

WARNING

ALWAYS wear your seat 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.

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

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

COPING WITH EVERYDAY OBSTACLES

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

A NOTE TO WHEELCHAIR ASSISTANTS

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

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. These must NEVER be used for hand-hold or lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).

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

TILTING

WARNING

DO NOT tilt the wheelchair without assistance.

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

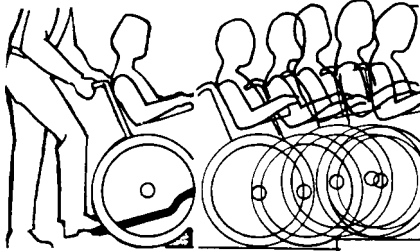
TILTING - CURBS

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

Method 1

Apply a continuous downward motion until the balance point is achieved and the front casters clear the curb. At this point, the assistant will feel a difference in the weight distribution.

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

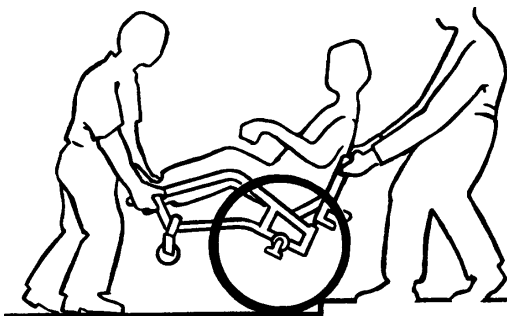


METHOD 1

Method 2

This method requires two (2) assistants. The second assistant should be positioned at the front of the wheelchair lifting upward on a non-removable (non-detachable) part of the wheelchair frame when lifting the wheelchair and stabilizing the wheelchair when the wheelchair is being lowered to the ground.

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



METHOD 2

STAIRWAYS

WARNING

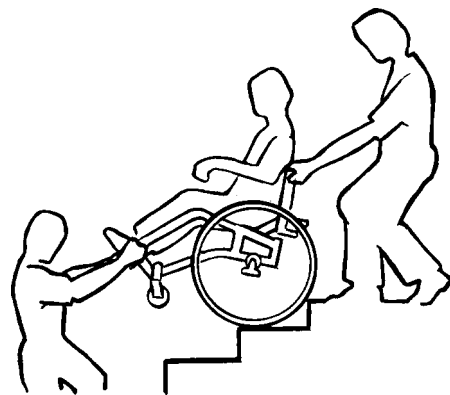
DO NOT attempt to lift a wheelchair by lifting on any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.

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

Always wear your seat positioning strap.

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

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



ESCALATORS? SORRY!

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

TRANSFERRING TO AND FROM OTHER SEATS

WARNING

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

CAUTION

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

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



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

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

PERCENTAGE OF WEIGHT DISTRIBUTION

WARNING

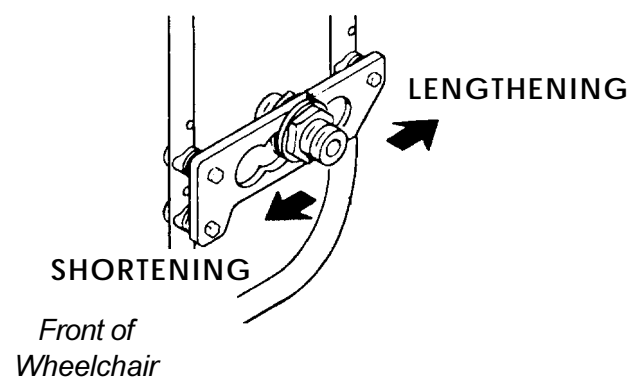
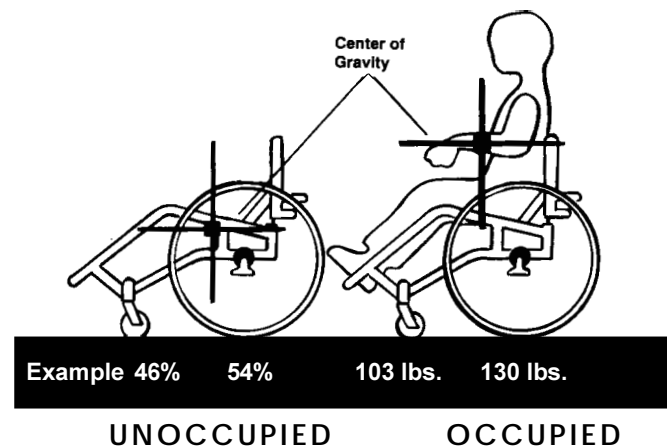
DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

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

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

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

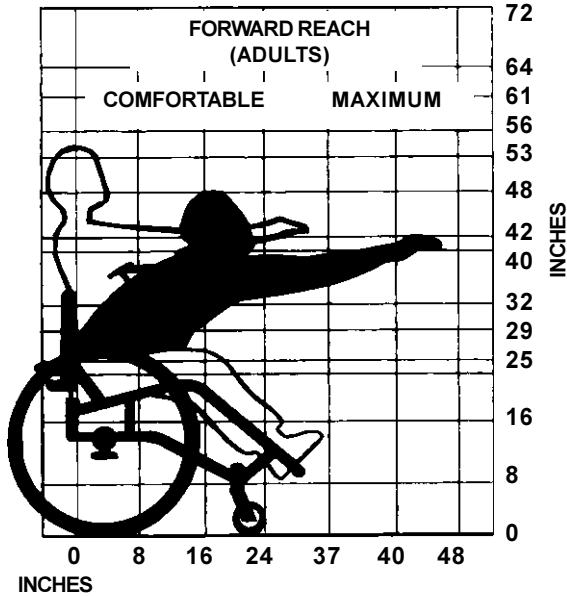
SHORTENING THE WHEELBASE will increase the maneuverability and distribute additional weight onto the rear wheels.



FUNCTIONAL REACH FROM A WHEELCHAIR

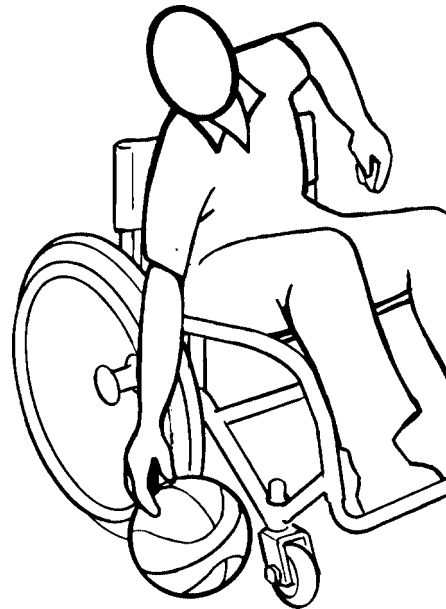
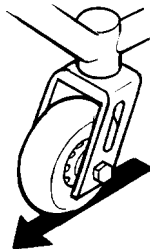
The approximate reach-limit values shown in the accompanying graphs were derived on the basis of a sample of 91 male and 36 female subject wheelchair users. Note the difference between the maximum and the comfortable reach limits, a subjective but important consideration in design.

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REACHING, LEANING, BENDING AND BENDING - FORWARD

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



REACHING, BENDING - 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.

SPECIFICATIONS

INVACARE PRO SERIES			
Seat Width:	14 to 22-inches		
Seat Depth:	14 to 22-inches		
**REAR Seat-to-Floor Range			
	PRO, PRO-T, PRO-SA	SUPER PRO, SUPER PRO-T	
22-inch rear wheels:	15-1/2 to 19-inches	13 to 21-inches	
24-inch rear wheels, 559:	16-1/2 to 20-inches	13 to 21-inches	
26-inch rear wheels:	16-3/4 to 20-1/4-inches	13 to 21-inches	
700C:	17 to 20-1/2-inches	13 to 21-inches	
**FRONT Seat-to-Floor Range			
	PRO, PRO-T	PRO-SA	SUPER PRO, SUPER PRO-T
3-inch Front Casters:	17 to 19-1/2-inches	16-1/4 to 20-inches	17 to 21-inches
5-inch Front Casters:	18 to 20-1/2-inches	17-1/4 to 21-inches	17 to 21-inches
6-inch Front Casters:	19 to 21-inches	18-1/4 to 21-1/2-inches	17 to 21-inches
8-inch Front Casters:	20-3/4 to 22-inches	20 to 22-1/2-inches	17 to 21-inches
Back Height (in inches):	FOLD DOWN BACK (in 1-inch increments) Adjustable Height w/o Push Handles - 8 to 11, 10 to 14, 12 to 16, 14 to 18, 16 to 20 Straight Back w/Push Handles - 10 to 14, 12 to 16, 14 to 18, 16 to 20 FIXED BACK (Super Pro, Super Pro-T Only) Fixed Height w/o Push Handles 8, 9, 10, 11, 12, 13 or 14		
Footrest:	PRO-SA - 60°, 70°, 90° - Swingaway, Tapered, Non-Tapered, Elevating Legrest PRO, PRO-SA - Adjustable Angle Flip-up Footplates, Composite Footplates Individual Tubular Footplates		
Rear Axle:	Quick-Release, Quad-Release		
Rear Wheels:	22, 24-inch Composite Wheels 22, 24, 26-inch Spoke Wheels 24, 26-inch Hi-Performance Spoke Wheels 27-inch 700C Spoke Wheel 559 High Performance/Turbo Tire OPTIONAL - 24, 26-inch Continental Tires, 22, 26-inch Pneumatic Tires, Flat Free Inserts		
Handrims:	Aluminum Anodized, Plastic Coated, Black Plastic Coated, Vertical/Oblique Projection Plastic Coated, Spoke Guards		
Wheel Locks:	Undermount Wheel Lock (Standard), High Mount Push to Lock, Wheel Lock Extensions, Hill Holder		
Caster Size:	3, 5, 6 and 8-inch (Urethane or Pneumatic), Precision Sealed Bearings Flat Free Inserts		
Seat Cushion:	2 or 3-inch (Optional)		
Back Upholstery:	Black Nylon (Optional), Adjustable Tension Back Upholstery (Standard)		
Weight:	22.5 lbs. - with Rear Wheels 16 lbs. - without Rear Wheels		
Shipping Weight (approx.):*	26 lbs. - 32.5 lbs.		

***14-inch Seat Frame with complete package.**

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

SAFETY INSPECTION CHECKLIST

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

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

ITEM	INITIALLY	INSPECT/ ADJUST WEEKLY	INSPECT/ ADJUST MONTHLY	INSPECT/ ADJUST PERIODICALLY
GENERAL - TROUBLESHOOTING Wheelchair rolls straight (no excessive drag or pull to one side).	X			X
SEAT AND BACK UPHOLSTERY - PROCEDURE 2 Inspect for rips or sagging. Inspect fastening flaps to ensure they securely latch.	X X		X	X
WHEEL LOCKS - PROCEDURE 6 Do not interfere with tires when rolling. Pivot points free of wear and looseness. Wheel locks easy to engage.	X X X		X X	X
REAR WHEELS - PROCEDURE 6 Quick/Quad-release axles lock properly. No excessive side movement or binding when lifted and spun.	X X	X		X
HANDRIMS - PROCEDURE 6 Inspect for signs of rough edges or peeling.	X			X
SPOKES Inspect for bent or broken spokes. All spokes uniformly tight.	X X	X X		
FRONT CASTERS - PROCEDURE 5 Inspect wheel/fork assembly for proper tension by spinning caster; caster should come to a gradual stop. Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop. Wheel bearings are clean and free of moisture. CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.	X X X	X	X X	X
TIRES - PROCEDURES 5 and 6 Inspect for flat spots and wear. If pneumatic tires check for proper inflation. CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.	X X	X X		
CLEANING Clean upholstery and armrests.	X			X

TROUBLESHOOTING

CHAIR VEERS RIGHT	CHAIR VEERS LEFT	SLUGGISH TURN OR PERFORMANCE	CASTER FLUTTERS	SQUEAKS AND RATTLES	LOOSENESS IN CHAIR	CHAIR 3 WHEELS	SOLUTIONS
X	X	X	X			X	Check tires for correct and equal pressure.
		X	X	X	X		Check for loose stem nuts.
				X	X		Check spokes/nipples.
X	X		X			X	Check caster headtube angle (Procedure 5).
X	X					X	Check that rear wheels are equally spaced away from seat frame (Procedure 6).

TROUBLESHOOTING

MAINTENANCE

MAINTENANCE SAFETY PRECAUTIONS

WARNING

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

CAUTION

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

WARNING

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

CAUTION

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

Suggested Maintenance Procedures

1. Before using your Invacare Pro Series 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/quad-release axles free of dirt and lint to ensure positive locking and proper operation. Refer to **ADJUSTING THE QUICK-RELEASE AXLE** or **ADJUSTING THE QUAD-RELEASE AXLE** in **PROCEDURE 6** of this manual.
3. Oil quick-release axles at least once (1) a month (3-in-1 oil® or equivalent).

3-in-1 oil - Registered trademark of American Home Products Corporation.

5. The wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary by an authorized dealer or qualified technician.
6. Regularly check for loose spokes in the rear wheels. If loose, have them adjusted by an authorized dealer or qualified technician.
7. Periodically check handrims to ensure they are secured to the rear wheels. Refer to **HANDRIMS** in **PROCEDURE 6** of this manual.
8. Periodically adjust wheel locks in correlation to tire wear. Refer to **REPLACING/ADJUSTING THE WHEEL LOCK** in **PROCEDURE 6** of this manual.
9. Periodically check caster wheel bearings to make sure they are clean and free from moisture. Use a Teflon lubricant if necessary.
10. Check Upholstery for sagging, rips or tears.

MAINTENANCE

- This Procedure includes the following:**
- Installing/Removing Footrest(s)**
 - Adjusting Footrest Height**
 - Installing Adjustable Flip-Up Footplate Hinge**
 - Installing/Adjusting Adjustable Angle Flip-Up Footplates**
 - Impact Guards/Calf Strap**
 - Replacing Heel Loops**
 - Installing/Removing Elevating Legrests**
 - Raising/Lowering Elevating Legrests and/or Adjusting Calfpads**
 - Installing Basketball Roller**

WARNING

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

NOTE: The following procedures are for Pro-SA Model Wheelchairs only, except where specified.

INSTALLING/REMOVING FOOTREST(S) (FIGURE 1)

NOTE: Remove the footrests from the wheelchair by reversing this procedure.

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

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

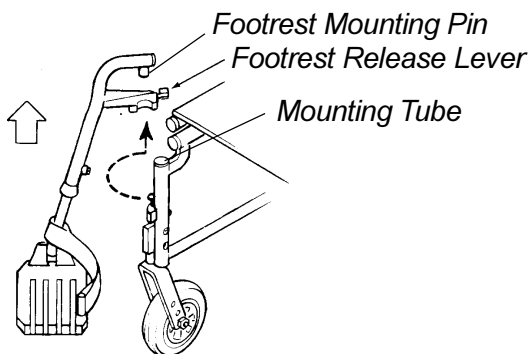


FIGURE 1 - INSTALLING/REMOVING FOOTREST(S)

4. Repeat this procedure for other footrest assembly.
5. To release the footrest, push the footrest release lever inward, rotate footrest outward.

ADJUSTING FOOTREST HEIGHT (FIGURE 2)

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

NOTE: Make sure to note the position of the washers before disassembly.

1. Remove impact guards and/or calf strap, if necessary.
2. Remove the hex screw and coved washer and position the footrest assembly to a determined height.
3. Lineup the mounting hole in the footrest frame, reinsert the hex screw and coved washer; hand-tighten.
4. Securely tighten the hex screw and coved washer.
5. Repeat this procedure for the other footrest, if necessary.
6. Replace impact guards and/or calf strap, if necessary.

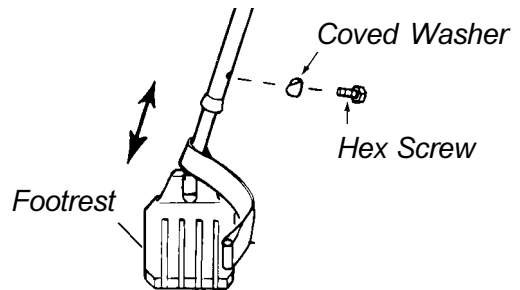


FIGURE 2 - ADJUSTING FOOTREST HEIGHT

INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE (FIGURE 3)

NOTE: This procedure is for individual adjustable angle footrests only.

1. Position the adjustable angle flip-up footplate (**footplate**) hinge on the footrest support tube at the desired height.
2. Position the hardware on the footrest support as shown in **FIGURE 3**.

3. Flip the footplate hinge to the UP position.

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

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

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

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

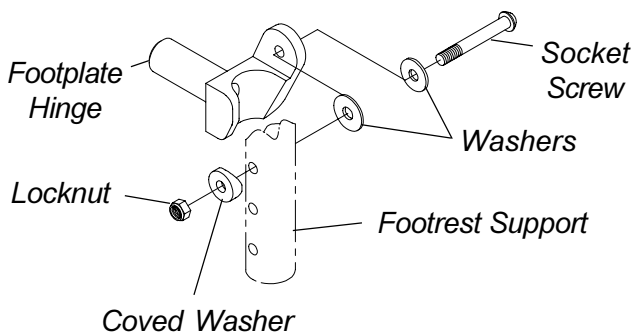


FIGURE 3 - INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE

INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES (FIGURE 4)

WARNING

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

Installing Adjustable Angle Flip-up Footplate

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

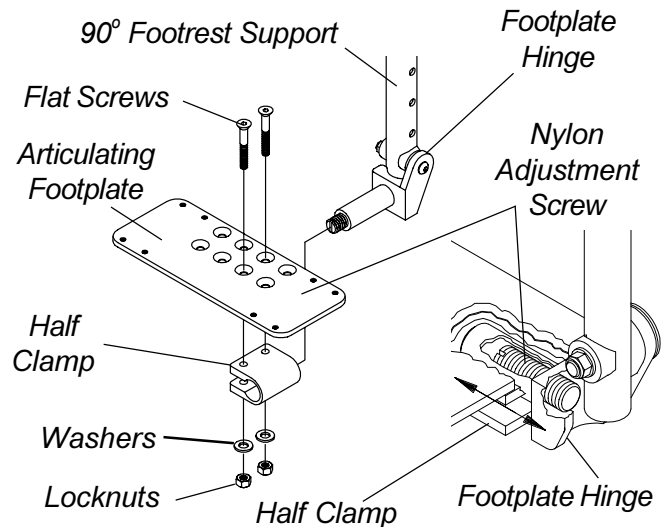


FIGURE 4 - INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES

Adjustable Angle Flip-up Footplate Depth Adjustment

1. Remove the two (2) flat screws, washers and locknuts that secure articulating footplate to the footplate hinge.

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

2. Move the articulating footplate to one (1) of four (4) mounting positions.

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

3. Retighten the two (2) flat screws, washers and locknuts.

NOTE: The settings for positioning the articulating footplates on the half-clamps may vary for each footplate.

Adjustable Angle Flip-up Footplate Angle Adjustment (FIGURES 4 AND 5)

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

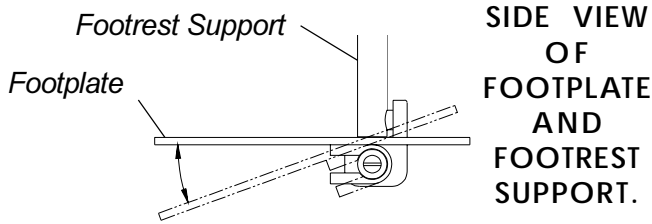


FIGURE 5 - ADJUSTABLE ANGLE FLIP-UP FOOTPLATE ANGLE ADJUSTMENT

Adjustable Angle Flip-up Footplate Perpendicular and/or Inversion/Eversion Adjustment (FIGURES 4 AND 6)

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

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

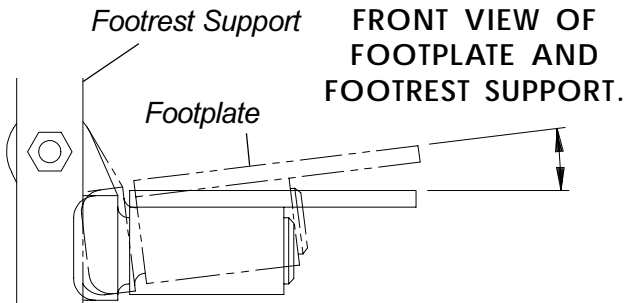


FIGURE 6 - ADJUSTABLE ANGLE FLIP-UP FOOTPLATE PERPENDICULAR AND/OR INVERSION/EVERSION ADJUSTMENT

IMPACT GUARDS/CALF STRAP (FIGURE 7)

NOTE: The following procedure is for all Pro Series Wheelchairs.

1. Remove impact guard/calf strap from packaged container if not already secured to the footrest.
2. Secure the impact guards to the footrest frame as shown in **FIGURE 7**.
3. Secure the optional calf strap around the footrest frame (with the impact guards attached).

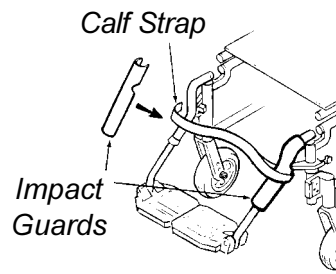
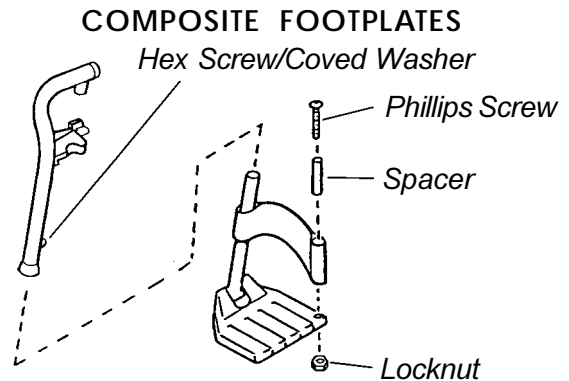


FIGURE 7 - IMPACT GUARDS/OPTIONAL CALF STRAP

REPLACING HEEL LOOPS (FIGURE 8)

Composite Footplates

1. Remove the hex screw and covered washer that secures the lower half of the footrest to the swingaway footrest assembly.
2. Remove the lower footrest assembly.
3. Remove the phillips screw and locknut that secure the heel loop to the footrest.
4. Slide heel loop over slide tube of footrest assembly.
5. Replace heel loop.



ADJUSTABLE FOOTPLATES

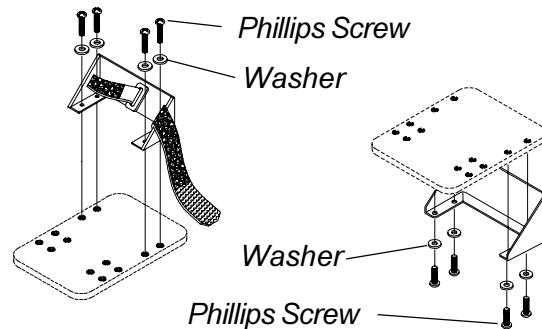


FIGURE 8 - REPLACING HEEL LOOPS

6. Reverse preceding steps to reassemble.

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

Adjustable Footplate

1. Remove the four (4) phillips screws and washers that secure the existing heel loop to the footplate.
2. Position the mounting holes of the new heel loop with the mounting holes in the adjustable footplate.
3. Secure the new heel loop to the footplate with the four (4) phillips screws and washers.

INSTALLING/REMOVING ELEVATING LEGRESTS (FIGURE 9)

NOTE: Remove the legrests from the wheelchair by reversing this procedure.

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

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

4. Repeat **STEPS 1-3** for the opposite legrest.
5. After seated in wheelchair, adjust footrest to correct height by loosening nut and sliding the pivot tube up or down until desired height is obtained.

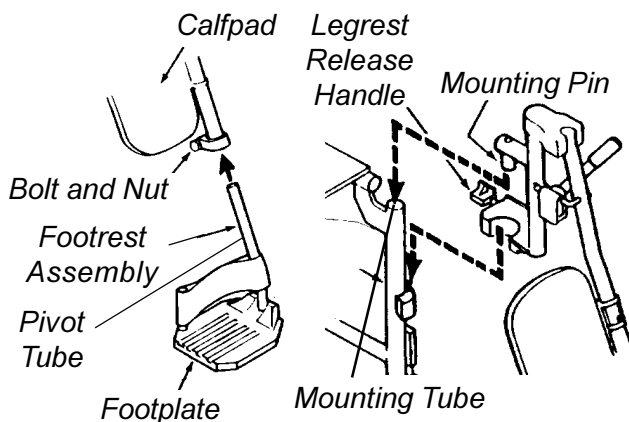


FIGURE 9 - INSTALLING ELEVATING LEGRESTS

NOTE: Remove the footrests from the wheelchair by reversing this procedure.

RAISING/LOWERING ELEVATING LEGRESTS AND/OR ADJUSTING CALFPADS (FIGURE 10)

Raising/Lowering Elevating Legrests

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

Adjusting Calfpads

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

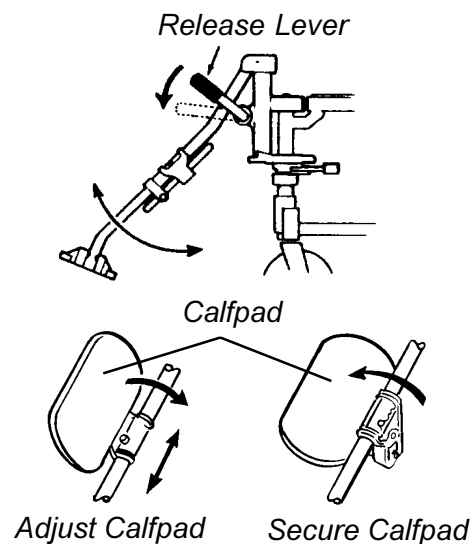


FIGURE 10 - RAISING/LOWERING ELEVATING LEGRESTS AND/OR ADJUSTING CALFPADS

INSTALLING BASKETBALL ROLLER (FIGURE 11)

NOTE: The following procedure is for all Pro series wheelchairs except Pro-SA.

1. Install one (1) of the saddle bolts through one (1) of the mounting holes in the footrest.
2. Install two (2) of the covered washers onto the saddle bolt as shown in **FIGURE 11**.
3. Install the basketball roller tube onto the saddle bolt.
4. Install the washer and locknut onto the saddle bolt and loosely tighten.
5. Install the basketball roller onto the basketball roller tube.
6. Position the remaining covered washers between the basketball roller tube and footrest as shown in **FIGURE 11**.
7. Line up the mounting holes in the footrest, two (2) covered washers and basketball roller tube.
8. Install the remaining saddle bolt through the mounting holes in the footrest, two (2) covered washers and basketball roller tube.
9. Install the washer and locknut onto the saddle bolt.
10. Tighten the two (2) locknuts securely.

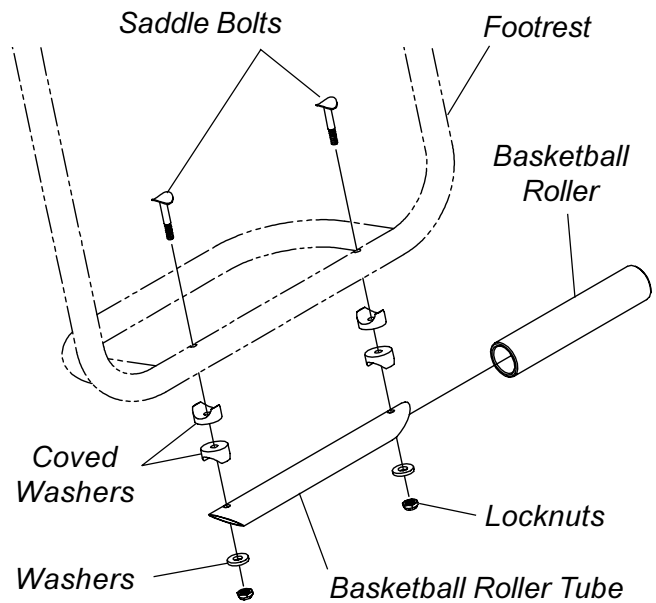


FIGURE 11 - INSTALLING BASKETBALL ROLLER

This Procedure includes the following:
Replacing Seat Upholstery
Back Upholstery
Installing Fabric Clothing Guards

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

REPLACING SEAT UPHOLSTERY (FIGURE 1)

1. Remove the seat cushion, if necessary, from the wheelchair.
2. Remove the twelve (12) phillips screws that secure the existing seat upholstery to the seat frame.
3. Remove the existing seat upholstery.
4. Install the new seat upholstery by reversing **STEPS 1-3**.
5. If necessary, reinstall the seat cushion onto the wheelchair.

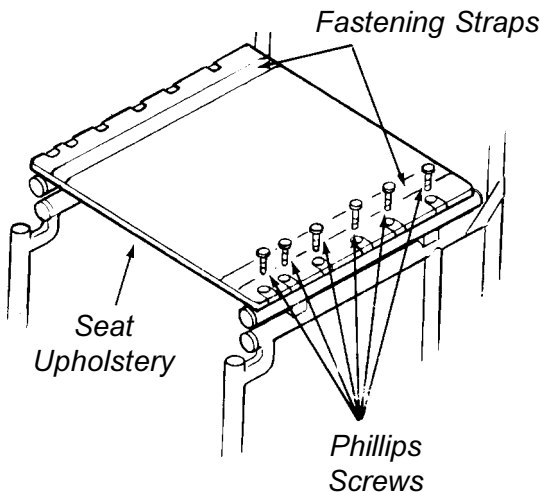


FIGURE 1 - REPLACING SEAT UPHOLSTERY

BACK UPHOLSTERY

Removing/Installing Optional Back Upholstery - Back Canes with Push Handles (FIGURE 2)

REMOVING.

1. Cut the tie-wraps that secure the bottom of the existing back upholstery to the wheelchair frame.
2. Remove the two (2) phillips screws and washers that secure the existing back upholstery to the back canes.
3. Remove the allen screw and locknut that secure one (1) back cane to the wheelchair frame.

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

4. Pull the loose back cane out of the existing back upholstery.
5. Pull the existing back upholstery up and over the mounted back cane.
6. Install the new upholstery onto the wheelchair. Refer to the following procedure.

INSTALLING.

1. Position the new back upholstery over the mounted back cane.
2. Slide the new back upholstery over the mounted back cane.
3. Slide the loose back cane through the new back upholstery.
4. Using the mounted back cane as a guide, reinstall the loose back cane to the wheelchair frame with the existing allen screw and locknut.

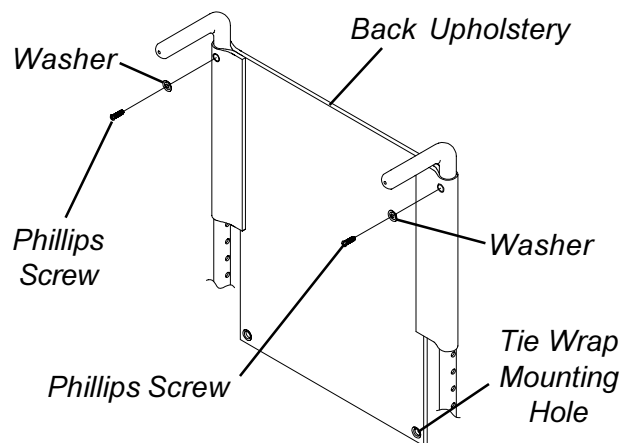


FIGURE 2 - BACK UPHOLSTERY - REMOVING/INSTALLING OPTIONAL BACK UPHOLSTERY - BACK CANES WITH PUSH HANDLES

NOTE: The back canes must be mounted in the same height adjustment hole.

- Securely tighten the new/existing back upholstery to the back canes with the two (2) phillips screws and washers.
- Secure the bottom of the new/existing back upholstery to the wheelchair frame with tie-wraps.

Removing/Installing Optional Back Upholstery - Back Canes Without Push Handles (FIGURE 3)

REMOVING.

- Unlatch the two (2) fastening flaps that secure the bottom of the existing back upholstery to the back canes.
- Lift up on the top of the existing back upholstery to unlatch.
- Lift up on the existing back upholstery and remove from the wheelchair.
- Install the new/existing back upholstery onto the wheelchair. Refer to the following procedure.

INSTALLING.

- Position the new/existing back upholstery over the two (2) back canes.
- Securely latch the fastening flaps on the bottom of the new back upholstery to the back canes.
- Adjust the NEW back upholstery to the desired height. Refer to the following procedure.

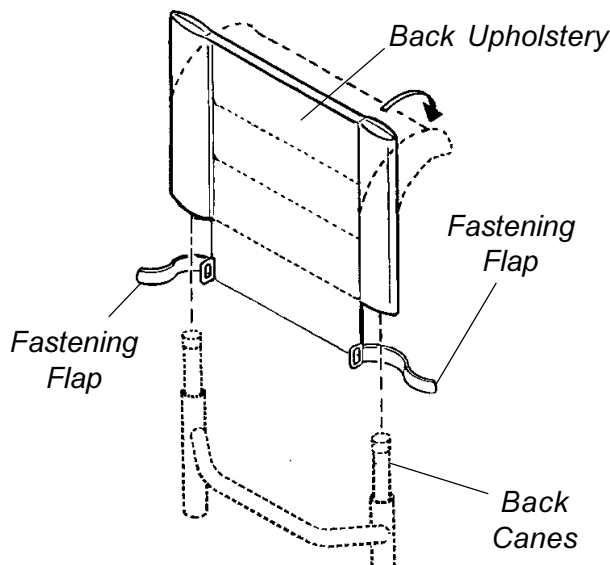


FIGURE 3 - BACK UPHOLSTERY - REMOVING/INSTALLING ADJUSTING OPTIONAL BACK UPHOLSTERY - BACK CANES WITHOUT PUSH HANDLES

ADJUSTING.

- Unfold the top of the back upholstery.
- Adjust the back upholstery to the desired height.
- Resecure the top of the back upholstery.

Adjustable Tension Back Upholstery

INSTALLING ADJUSTABLE TENSION BACK UPHOLSTERY (FIGURE 4).

- Remove the existing back upholstery from the wheelchair. Refer to **REMOVING/INSTALLING OPTIONAL BACK UPHOLSTERY - BACK CANES WITH PUSH HANDLES, REMOVING/INSTALLING OPTIONAL BACK UPHOLSTERY - BACK CANES WITHOUT PUSH HANDLES** or **REPLACING ADJUSTABLE TENSION BACK UPHOLSTERY** in this procedure of the manual.
- Slide each section (anchor loop/adjuster strap) of the adjustable tension back upholstery onto the two (2) back canes with the grommet hole facing the rear of the wheelchair.
- Secure the adjustable tension back upholstery to the back canes with the mounting screws and washers.

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

Fastening Strap

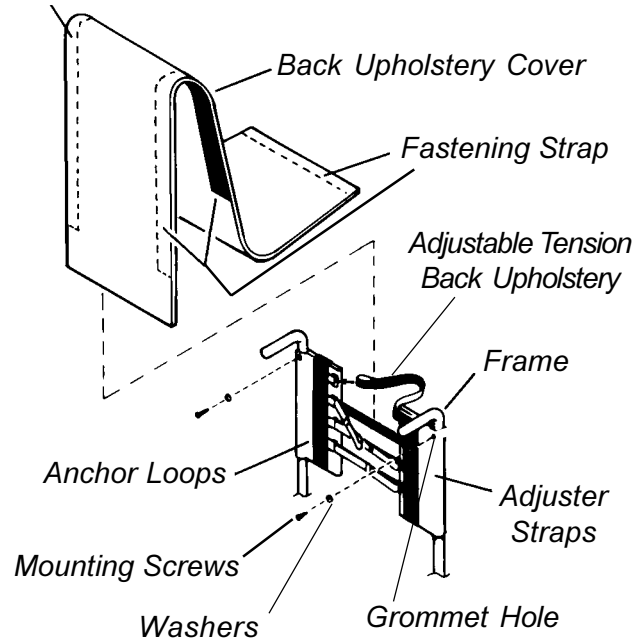


FIGURE 4 - ADJUSTABLE TENSION BACK UPHOLSTERY - INSTALLING/REPLACING ADJUSTABLE TENSION BACK UPHOLSTERY

WARNING

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

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

REPLACING ADJUSTABLE TENSION BACK UPHOLSTERY (FIGURE 4).

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

WARNING

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

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

THE ADJUSTABLE TENSION STRAPS.

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

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

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

THE BACK UPHOLSTERY COVER.

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

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

WHY USE ADJUSTABLE TENSION BACK UPHOLSTERY: A CLINICAL DISCUSSION.

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

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

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

The wheelchair backrest should be able to follow the natural anatomical contours of the back. When viewing a person from the side, the thoracic portion of the back will extend posteriorly to the pelvis and buttocks (FIGURE 5).

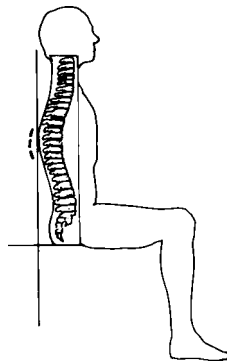


FIGURE 5

When using a nonadjustable flat backrest, the top portion of the upholstery will usually push the trunk forward of the center of gravity over the pelvis. To maintain the trunk in the upright posture, the user must have and use the back extensor musculature, or add tilt or recline to backrest (FIGURE 6).

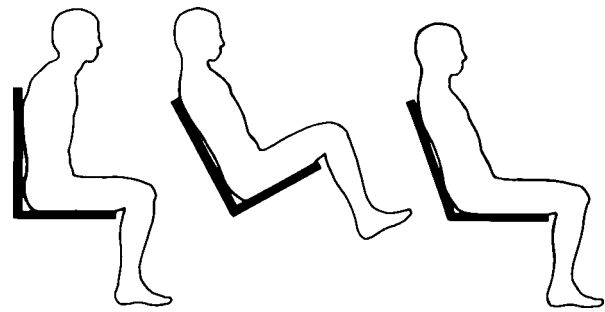


FIGURE 6

When using adjustable upholstery, it is possible to tighten the lower portion of the backrest which assists in maintaining a neutral pelvis. The upper portion can then be adjusted to follow the natural curvature of the spine bringing the back over the pelvis in a position of balance relative to the center of gravity (FIGURE 7).

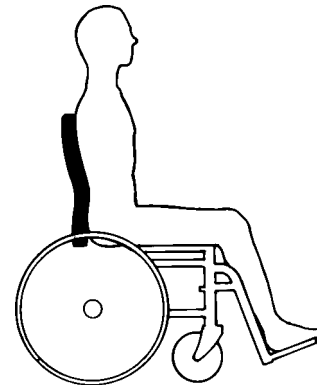


FIGURE 7

The best point of control for the pelvis is near the Posterior Superior, Iliac Spine (P.S.I.S.). The upper trunk should be relined until a balanced posture is achieved, approximately 10 to 15 degrees (FIGURE 8).

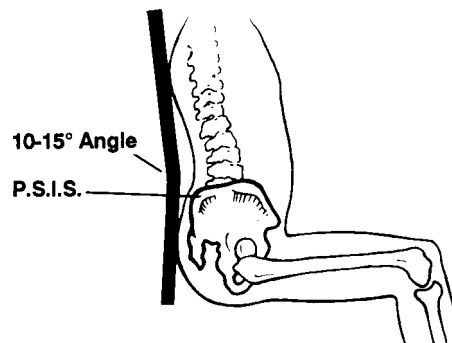


FIGURE 8

For individuals who have fixed kyphotic spine, the backrest can be adjusted to allow for an increased recline while providing increased contact and support of the back (FIGURE 9).

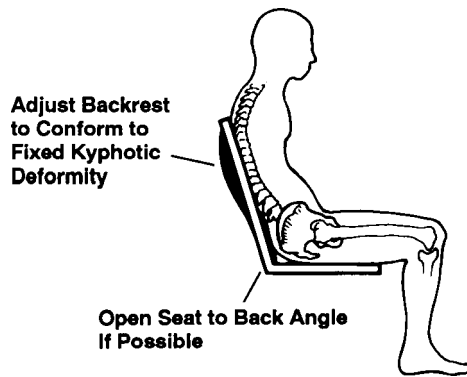


FIGURE 9

The height of the backrest and the amount of control provided by the adjustable tension upholstery will vary depending on the abilities of the user. An active paraplegic (SCI) may require minimal back height which adds posterior stability to the pelvis and lets the trunk assume a natural balance over the top edge of the wheelchair upholstery. A less active para (with a higher level of injury) or a quadriplegic may require a higher backrest with an increased level of recline (FIGURE 10).

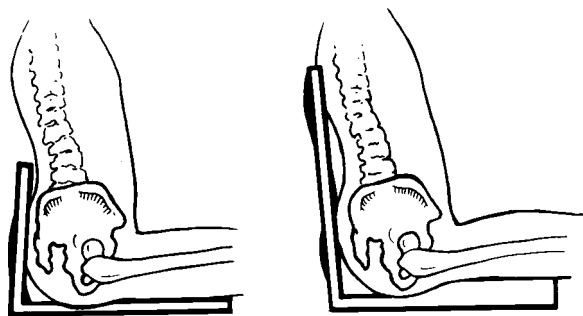


FIGURE 10

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

INSTALLING FABRIC CLOTHING GUARDS (FIGURE 11)

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

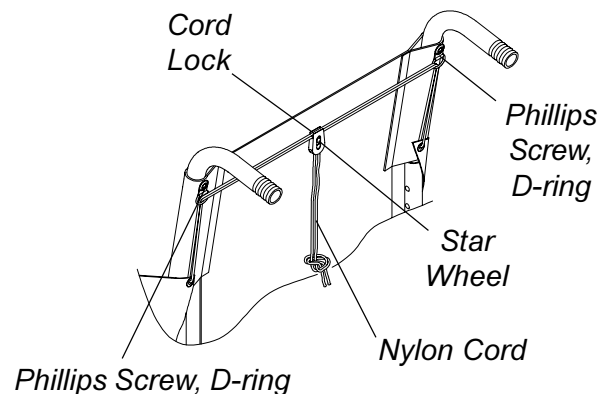
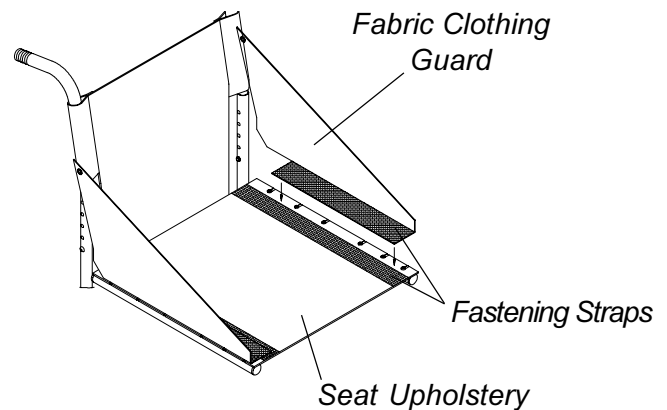


FIGURE 11 - INSTALLING FABRIC CLOTHING GUARDS

This Procedure includes the following:
Folding/Unfolding Back - Folding Back Wheelchairs Only
Adjusting Back Height
Adjusting Rear Seat Height
Adjusting Back Angle - Folding Back Wheelchairs Only

WARNING

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

FOLDING/UNFOLDING BACK - FOLDING BACK WHEELCHAIRS ONLY (FIGURE 1)

WARNING

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

- Perform one (1) of the following:
 - FOLDING** - Pull up on the black nylon cord and push the back forward towards the front of the wheelchair.
 - UNFOLDING** - Lift up on the back and pull towards the rear of the wheelchair until it locks into place.

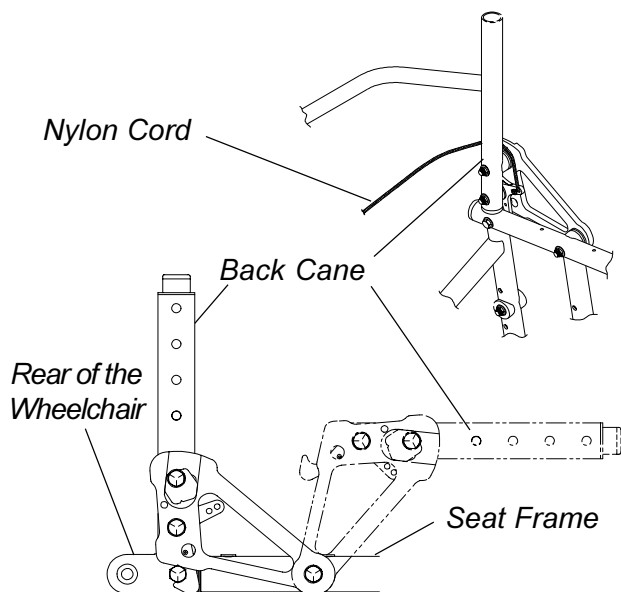


FIGURE 1 - FOLDING/UNFOLDING BACK - FOLDING BACK WHEELCHAIRS ONLY

ADJUSTING BACK HEIGHT (FIGURE 2)

Back Canes Without Push Handles

NOTE: Observe the tautness of the back upholstery for reinstallation.

- If necessary, remove the back upholstery from the wheelchair. Refer to **BACK UPHOLSTERY** in **PROCEDURE 2** of this manual.

WARNING

The push pin of the back cane insert bar MUST be protruding through hole in back cane.
 Ensure that both back cane insert bars are at same height BEFORE reassembling the wheelchair.

- Press the push pin on the back cane insert bar in and reposition the back cane to one (1) of five (5) height adjustment holes:

		Original Back Height (in inches)				
☺	HOLE #	8-11	10-14	12-16	14-18	16-20
1		8	10	12	14	16
2		9	11	13	15	17
3		10	12	14	16	18
4		11	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.)

- Repeat **STEP 2** for the opposite back cane.
- NOTE: Make sure the two (2) back cane insert bars are at the same height.*
- If necessary, reinstall the back upholstery. Refer to **BACK UPHOLSTERY** in **PROCEDURE 2** of this manual.

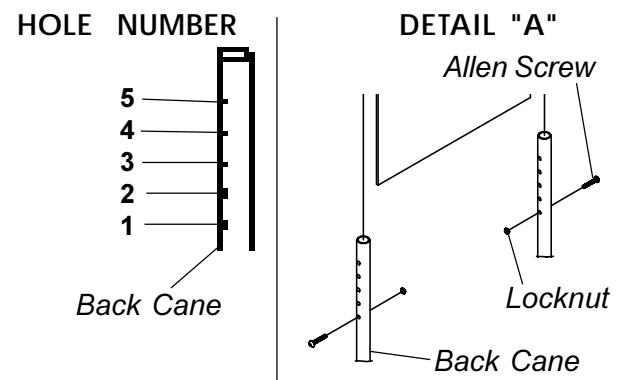


FIGURE 2 - ADJUSTING BACK HEIGHT

Back Canes With Push Handles

1. Remove the two (2) allen screws and locknuts that secure the two (2) back canes to the wheelchair frame. Refer to **DETAIL "A"** in **FIGURE 2**.
2. Reposition the back canes to one (1) of five (5) height adjustment holes:

Original Back Height (in inches)				
☺ HOLE#	10-14	12-16	14-18	16-20
1	10	12	14	16
2	11	13	15	17
3	12	14	16	18
4	13	15	17	19
5	14	16	18	20

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

NOTE: Make sure the two (2) back canes are at the same height.

3. Reinstall the two (2) allen screws and locknuts that secure the back canes to the wheelchair frame. Tighten securely. Refer to **DETAIL "A"** in **FIGURE 2**.

ADJUSTING REAR SEAT HEIGHT (FIGURE 3)

WARNING

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

1. Determine the desired rear seat to floor height. Refer to **SEAT TO FLOOR HEIGHT DETERMINATION** in **PROCEDURE 7** of this manual.
2. Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
3. Remove the hex screws, washers, coved washers and locknuts that secure the axle mounting plate to the wheelchair frame.

NOTE: Observe the position of the washers and coved washers for reassembly.

4. Reposition the axle mounting plate to the position determined in **STEP 1**.

NOTE: Make sure the two (2) axle mounting plates are mounted in the corresponding mounting holes, otherwise a three (3) wheel situation will occur.

5. Re-secure the axle mounting plate to the wheelchair frame with the hex screws, washers, coved washers and locknuts.
6. Repeat **STEPS 2-5** for the opposite side of the wheelchair.
7. Reinstall the rear wheels onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
8. Adjust the front casters. Refer to **ADJUSTING FRONT CASTER HEADTUBES** in **PROCEDURE 5** of this manual.

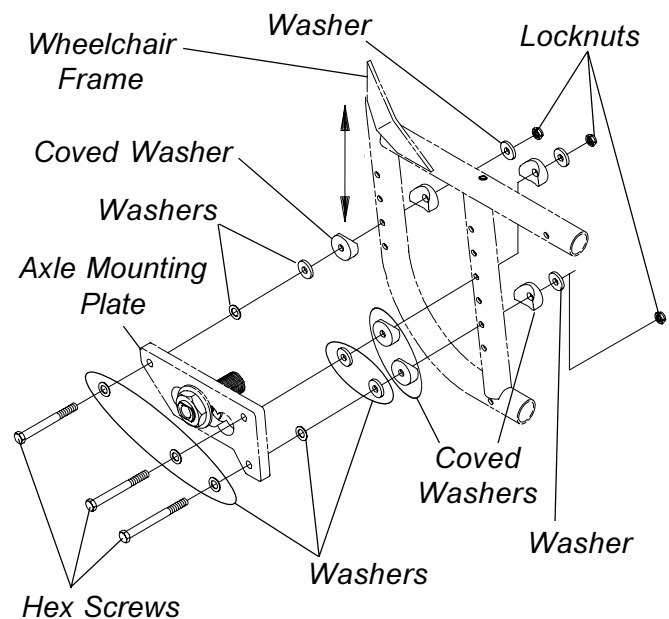


FIGURE 3 - ADJUSTING REAR SEAT HEIGHT

ADJUSTING BACK ANGLE - FOLDING BACK WHEELCHAIRS ONLY (FIGURE 4)

NOTE: DO NOT remove the hex screws that secure the back angle bracket to the chair frame and back cane.

NOTE: Perform this procedure to both sides at the same time.

1. Loosen the locknuts and hex screws that secure the back angle bracket to the chair frame and the back cane.
2. Loosen the TOP hex screw locknut and slide the TOP hex screw away from the back angle mounting bracket to adjust the cam.
3. Adjust the back canes to the approximate back angle required.
4. Adjust cam to achieve desired position.

FRAME

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

5. Reassemble and torque hex screws to 480-720 inch pounds (40-60 foot pounds).

*NOTE: As shown in **FIGURE 4**, the adjustment cam can be rotated to several different positions thus changing the overall back angle relative to the seat rail.*

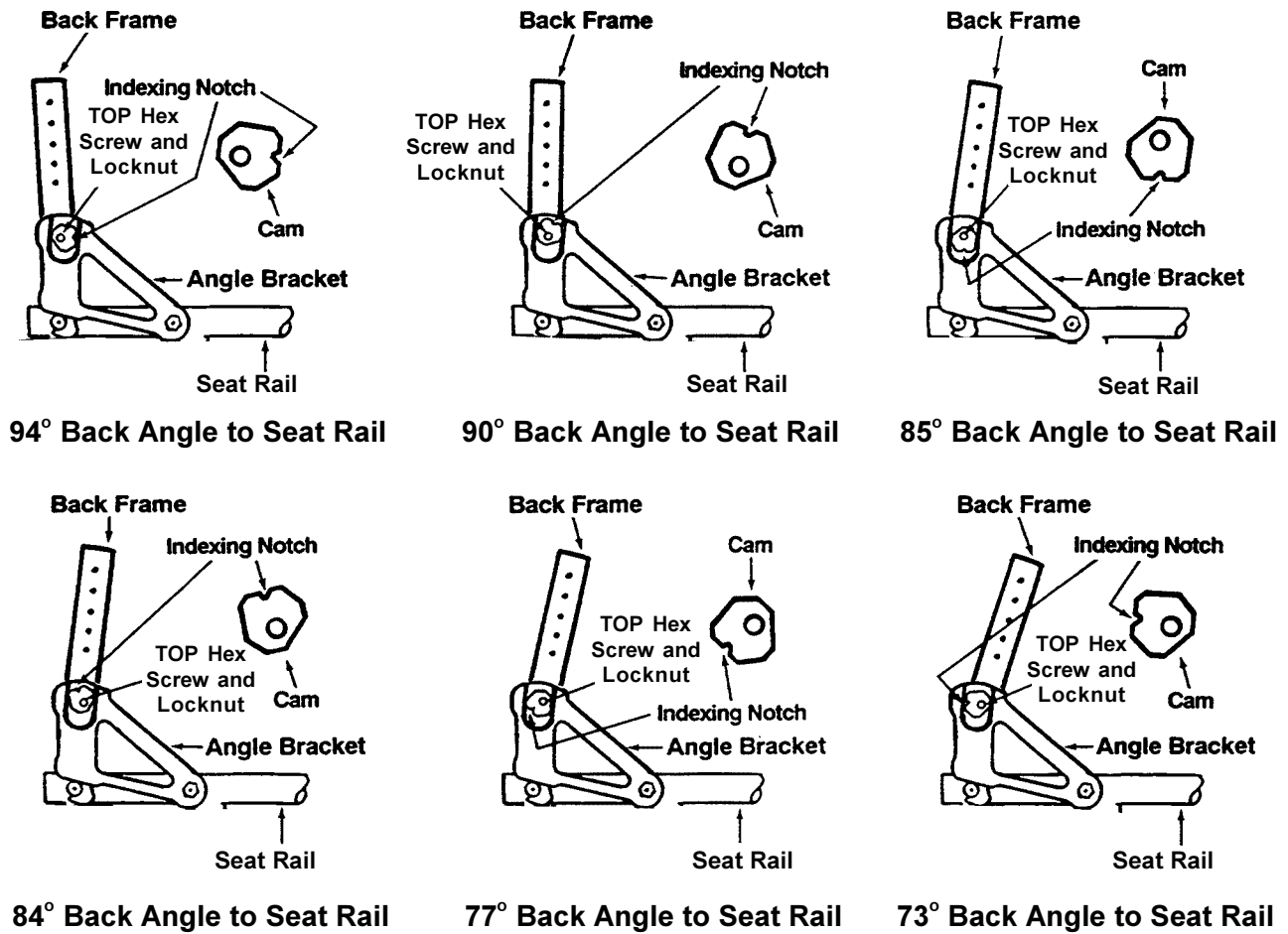


FIGURE 4 - ADJUSTING BACK ANGLE - FOLDING BACK WHEELCHAIRS ONLY

This Procedure includes the following:***Installing Half Arm******Adjusting Half Arm Height******Installing the T-arm Sockets******Installing/Removing the T-arms******Adjusting the T-arms******Adjusting the Transfer Assists and/or Side Guards - T-arms******Replacing the Locking Lever - T-arms******Installing Flip Back Arms******Adjusting Flip Back Arms******Installing Rigid Clothing Guards*****WARNING**

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

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

**INSTALLING HALF ARM
(FIGURE 1)**

1. Remove the locknut and washer that secure the rear of the axle mounting plate to the wheelchair frame.
2. Position the bottom covered washer between the arm socket and the wheelchair frame.
3. Position arm socket in line with the hex screw and mounting holes on the wheelchair frame making sure the arm socket is towards the inside of the wheelchair frame.

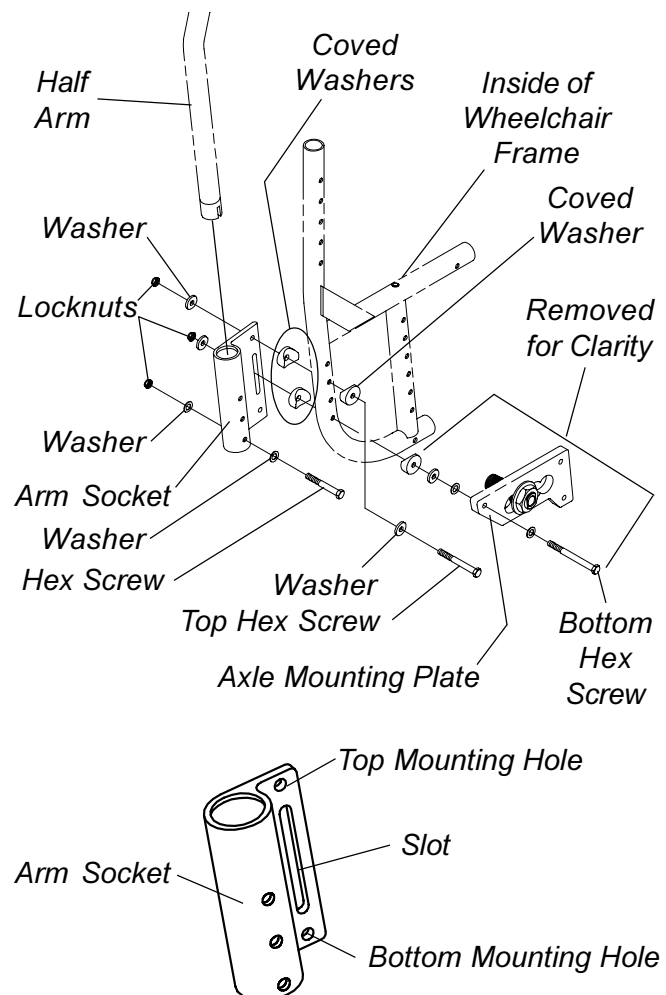
NOTE: The slot in the arm socket is used with either the top or the bottom mounting holes in the arm socket depending on the half arm height desired.

4. Loosely tighten the bottom washer and locknut.
5. Slide the arm socket up and/or down until the top mounting hole in the arm socket is in line with the desired mounting hole in the wheelchair frame.
6. Position the top covered washer between the arm socket and the wheelchair frame.
7. Install top hex screw through the washer, covered washer, wheelchair frame, covered washer, arm socket, washer and securely tighten with locknut.

8. Reinstall the washer and locknut onto the bottom hex screw.
9. Securely tighten the bottom hex screw that secures the arm socket and axle mounting plate to the wheelchair frame with the washer and locknut.
10. Repeat **STEPS 1-8** for the opposite arm socket.

**ADJUSTING HALF ARM HEIGHT
(FIGURE 1)**

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.



**FIGURE 1 - INSTALLING HALF ARM/
ADJUSTING HALF ARM HEIGHT**

5. Reinstall the half arm into the arm socket.
6. Repeat **STEPS 1-5** for the opposite side, if necessary.

*NOTE: If desired height is still not obtainable, reposition the arm socket on the wheelchair with the top hex screw in the top mounting hole of the arm socket and the bottom hex screw in the slot of the arm socket. Refer to **INSTALLING HALF ARM** in this procedure of the manual if needing to perform this procedure.*

INSTALLING THE T-ARM SOCKETS (FIGURE 2)

1. Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
2. Position the T-arm socket and T-arm clamp on the wheelchair frame as shown in **FIGURE 2**.

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

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

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

*NOTE: If desired, optional locking pins can be installed to secure the T-arm brackets to the wheelchair frame, as shown in **FIGURE 2**.*

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

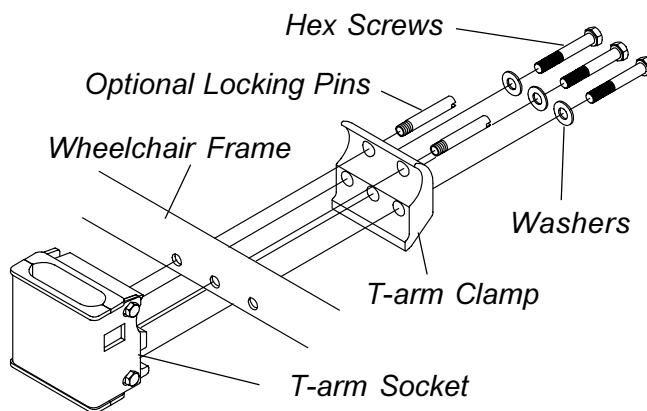


FIGURE 2 - INSTALLING THE T-ARM SOCKETS

INSTALLING/REMOVING THE T-ARMS (FIGURE 3)

Installing

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

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

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

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

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

Removing

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

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

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

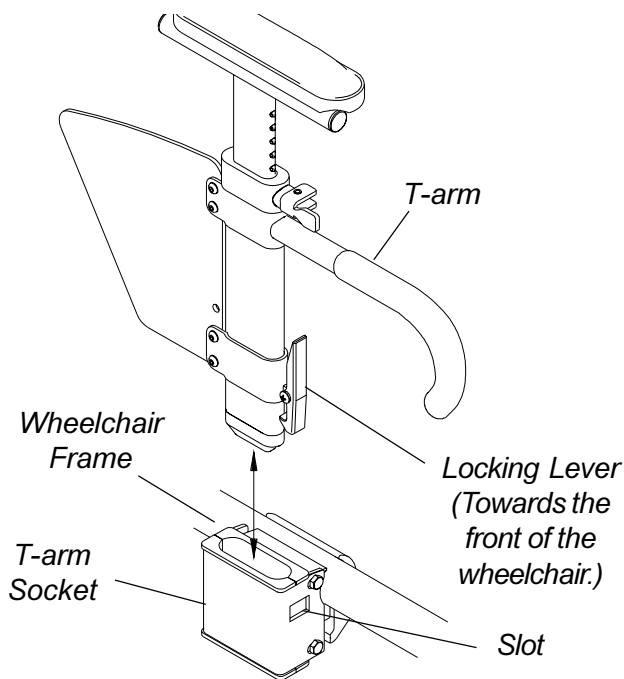


FIGURE 3 - INSTALLING/REMOVING THE T-ARMS

ADJUSTING THE T-ARMS

Height (FIGURE 4)

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

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

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

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

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

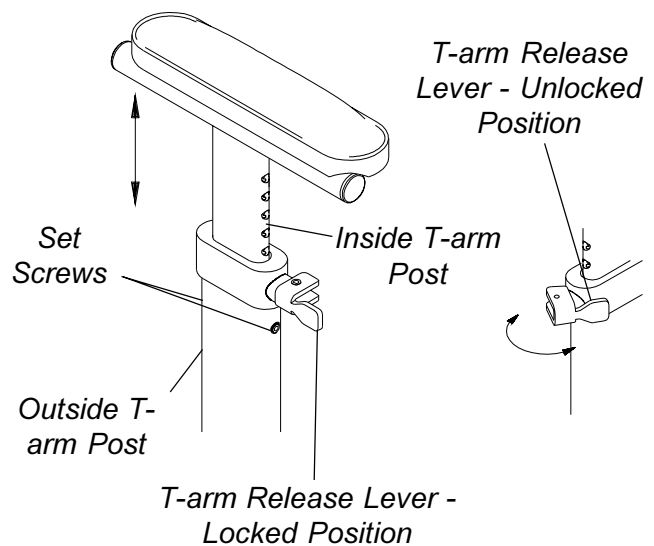


FIGURE 4 - ADJUSTING THE T-ARMS - HEIGHT

Width (FIGURE 5)

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.

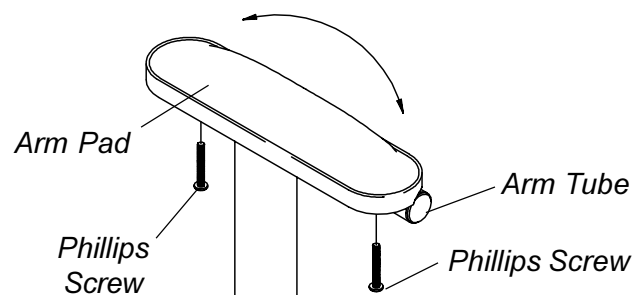


FIGURE 5 - ADJUSTING THE T-ARMS - WIDTH

Depth (FIGURE 6)

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

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

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

4. Re-secure the arm tube to the T-arm post with the two (2) socket screws. Tighten securely.
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.

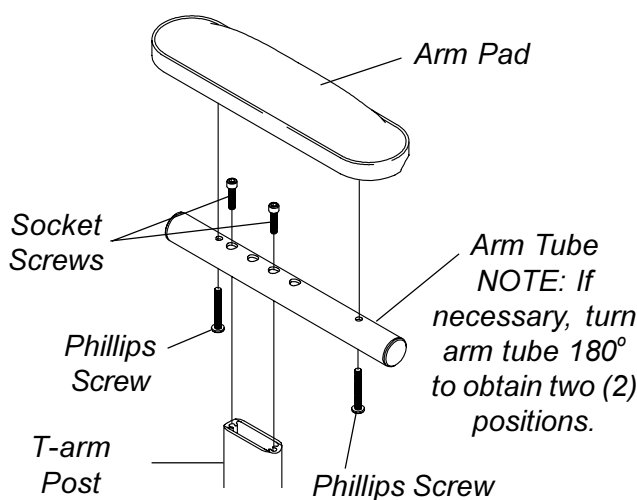


FIGURE 6 - ADJUSTING THE T-ARMS - DEPTH

T-arm Sockets (FIGURE 7)

1. Remove the rear wheels from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in **PROCEDURE 6** of this manual.
2. Remove the three (3) hex screws and washers that secure the T-arm socket and T-arm clamp to the wheelchair frame and remove the T-arm socket from the wheelchair.
3. If equipped with optional locking pins, remove the locking pins that secure the T-arm socket to the wheelchair frame.
4. Loosen, but do not remove the four (4) hex screws and washers that secure the T-arm socket together.

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

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

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

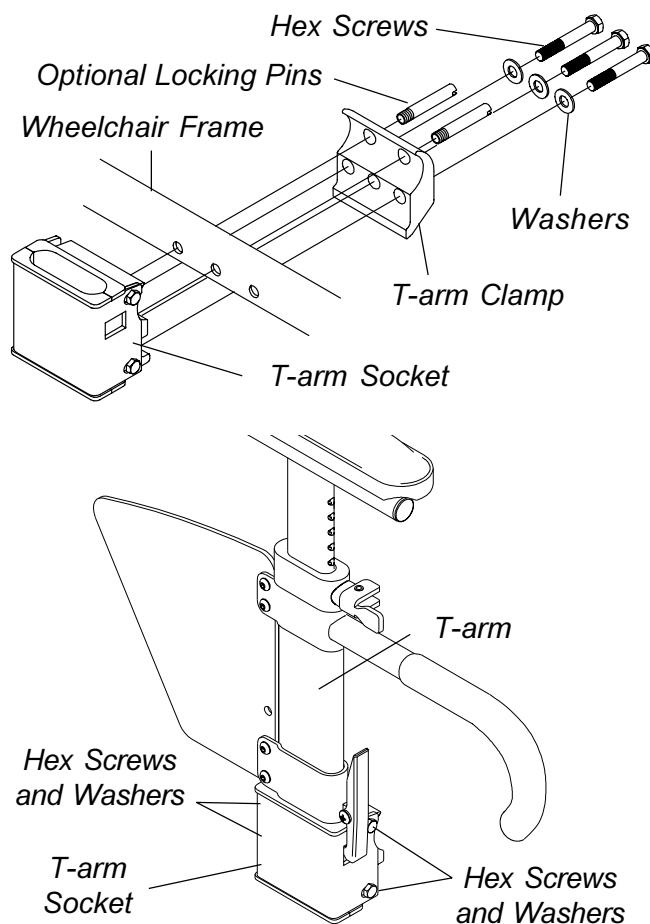


FIGURE 7 - ADJUSTING THE T-ARMS - T-ARM SOCKETS

ADJUSTING THE TRANSFER ASSISTS AND/OR SIDE GUARDS - T-ARMS (FIGURE 8)

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

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 bottom (2) socket screws.
5. Install the T-arm onto the wheelchair. Refer to **INSTALLING/REMOVING THE T-ARMS** in this procedure of the manual.

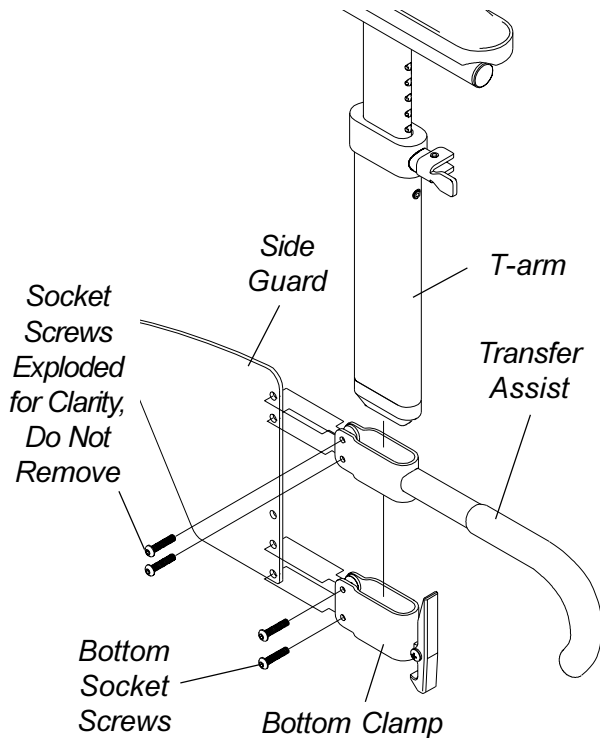


FIGURE 8 - ADJUSTING THE TRANSFER ASSISTS AND/OR SIDE GUARDS - T-ARMS

REPLACING THE LOCKING LEVER - T-ARMS (FIGURE 9)

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

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

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

NOTE: Inspect the spring and replace if necessary.

4. Position the spring on the bottom bracket as shown in **FIGURE 9**.
5. Position the new locking lever onto the spring and the bottom bracket.

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

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

WARNING

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

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

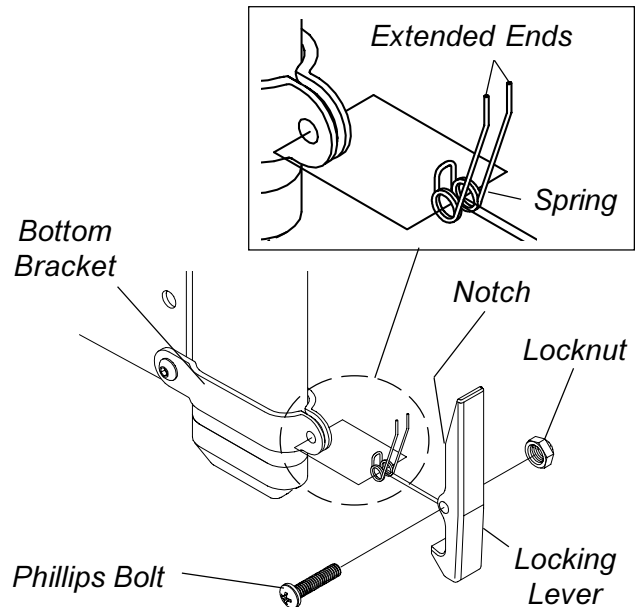


FIGURE 9 - REPLACING THE LOCKING LEVER - T-ARMS

INSTALLING FLIP BACK ARMS (FIGURE 10)

NOTE: This option is not available for wheelchairs equipped with amputee attachments or fixed backs.

1. Position the armrest bracket on the wheelchair frame. Refer to **FIGURE 10** for correct orientation.
2. Install the two (2) hex bolts and four (4) washers through the armrest bracket and wheelchair frame as shown in **FIGURE 10**.
3. Install locknuts onto the two (2) hex bolts and tighten securely.
4. Install the armrest snap into the wheelchair frame.
5. Line up the mounting holes armrest snap and wheelchair frame.
6. Install the hex bolt, washer and spacer as shown in **FIGURE 10**.
7. Install a locknut onto the hex bolt and tighten securely.
8. Install the flip back arm onto the mounting pin on the armrest bracket.

NOTE: The armrest pad should be towards the outside of the wheelchair.

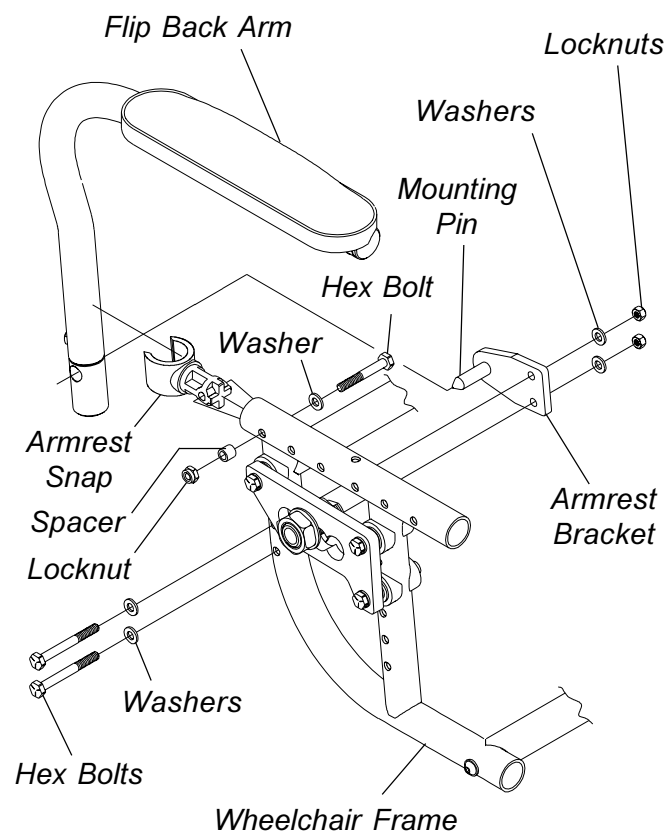


FIGURE 10 - INSTALLING FLIP BACK ARMS

9. Rotate the arm upward and lock into the armrest snap.
10. Repeat **STEPS 1-9** for the opposite side of the wheelchair.

ADJUSTING FLIP BACK ARMS (FIGURE 11)

Length

1. Remove the rear phillips screw that secures the armrest pad to the flip back arm tube.
2. Move the armrest pad to one (1) of four (4) positions.
3. Reinstall the phillips screw that secures the armrest pad to the flip back arm tube and tighten securely.
4. Repeat **STEPS 1-3** for the opposite flip back arm, if necessary.

Height

1. Remove the hex screw that secures the flip back arm tube to the flip back arm tube plug.
2. Move the flip back arm tube to one (1) of six (6) positions.
3. Reinstall the hex screw that secures the flip back arm tube to the flip back arm tube plug and tighten securely.
4. Repeat **STEPS 1-3** for the opposite flip back arm, if necessary.

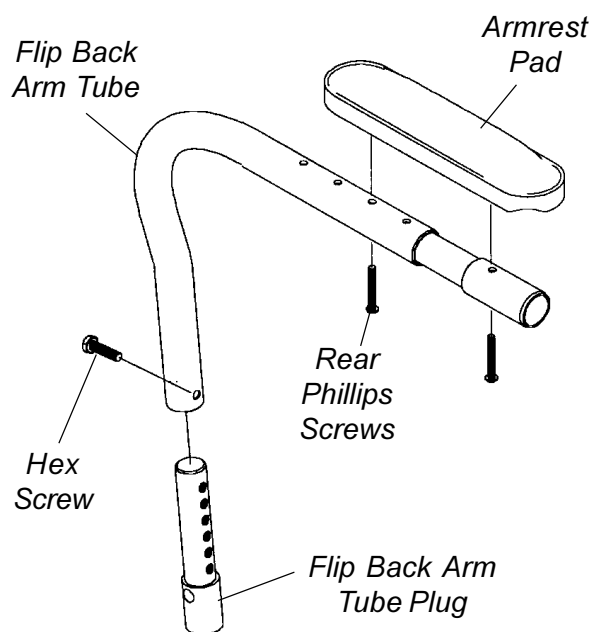


FIGURE 11 - ADJUSTING FLIP BACK ARMS

INSTALLING RIGID CLOTHING GUARDS (FIGURE 12)

1. Position the threaded and unthreaded half clamps on inside and outside of the wheelchair frame.

NOTE: Make sure the threaded half clamp is on the outside of the wheelchair frame.

2. Loosely install the washer and socket screw into the unthreaded and threaded half clamps.
3. Determine the desired rigid clothing guard position and securely tighten the two (2) half clamps together with the socket screw.
4. Insert the rigid clothing guard into the slot on the threaded half clamp as shown in **FIGURE 12**.
5. Repeat **STEPS 1-4** for the opposite rigid side guard.

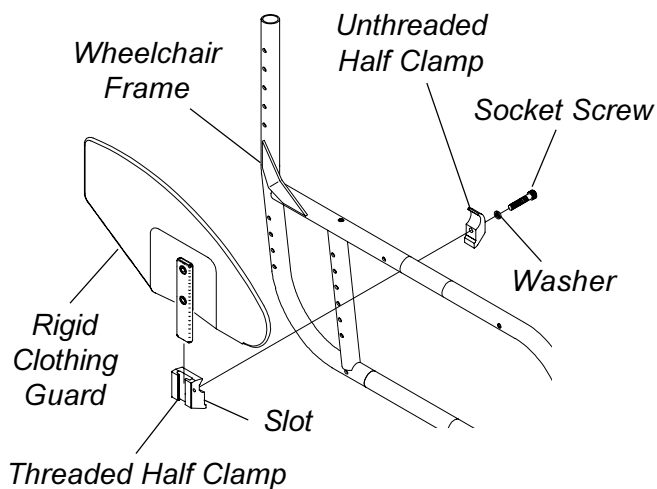


FIGURE 12 - INSTALLING RIGID CLOTHING GUARDS

- This Procedure includes the following:**
- Repairing/Replacing Pneumatic Caster Tire/Tube**
 - Replacing/Repositioning/Installing Front Caster Assemblies**
 - Installing/Replacing Front Caster Forks**
 - Adjusting Front Caster Headtubes**
 - Repositioning Caster Headtubes on Wheelchair Frame**
 - Installing Quick-Release Casters**

WARNING

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

REPAIRING/REPLACING PNEUMATIC CASTER TIRE/TUBE

WARNING

Replacement of a pneumatic tire or tube MUST be performed by an authorized Invacare dealer or qualified technician.

CAUTION

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

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

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

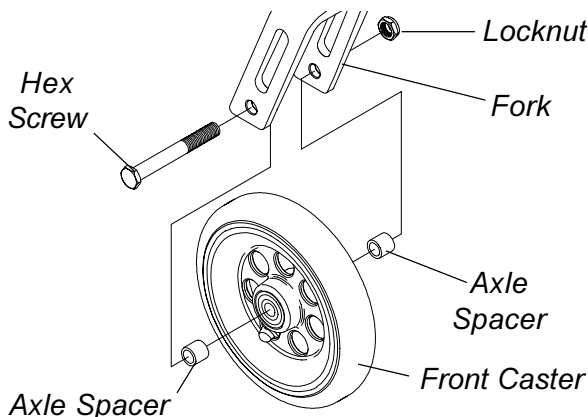


FIGURE 1 - REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES

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

*NOTE: If repositioning front casters on a six or eight inch front fork, refer to **CHANGING SEAT TO FLOOR HEIGHT** in **PROCEDURE 7** of this manual to determine the front caster position needed for the required front seat-to-floor height.*

*NOTE: If replacing casters with a different size than what was originally on the wheelchair, the caster height MUST be adjusted to keep the wheelchair frame parallel to the floor. Refer to **ADJUSTING FRONT CASTER HEADTUBES** in this procedure of the manual.*

3. Install new front caster and reverse **STEP 1**.

INSTALLING/REPLACING FRONT CASTER FORKS (FIGURE 2)

1. Remove the existing caster from the wheelchair. Refer to **REPLACING/REPOSITIONING/INSTALLING FRONT CASTER ASSEMBLIES** in this procedure of the manual.
2. Remove the dust cover.
3. Remove locknut and washer.
4. Drop the front caster and fork out of the caster headtube.
5. Slide in the new caster fork.
6. Reassemble, except dust cover by reversing **STEPS 1-5**.
7. Repeat **STEPS 1-6** for the opposite front caster, if necessary.

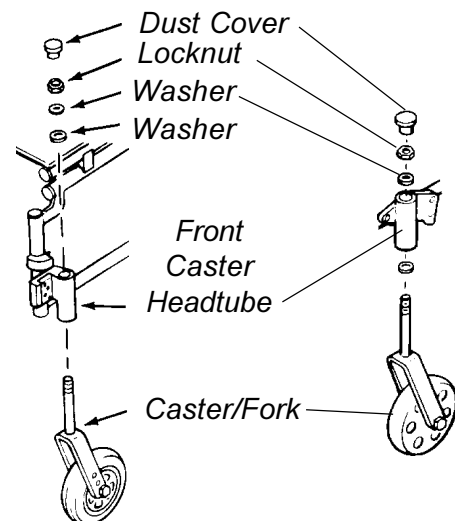
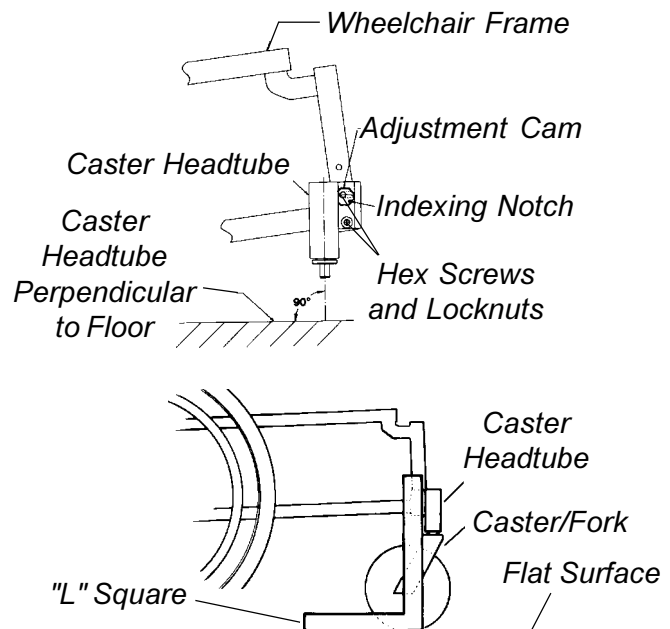


FIGURE 2 - INSTALLING/REPLACING FRONT CASTER FORKS

8. To properly tighten front caster forks and guard against flutter, perform the following check:
 - a. Tip back of wheelchair to floor.
 - b. Pivot both forks and casters to top of their arc simultaneously.
 - c. Let casters drop to bottom of arc (wheels should swing once to one-side, then immediately rest in a straight downward position).
 - d. Adjust locknuts according to freedom of caster swing.
9. Test wheelchair for maneuverability.
10. Readjust locknuts if necessary and repeat **STEPS 8-9** until correct.
11. Snap dust cover over the locknut and stem.

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

8. Reinstall the locknut onto the top hex screw and securely tighten the two (2) hex screws and locknuts.



ADJUSTING FRONT CASTER HEADTUBES

WARNING

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

A NOTE ABOUT CASTER HEADTUBE ADJUSTMENTS

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

Pro-SA Model Wheelchairs (FIGURE 3)

1. Place the wheelchair on a flat surface.
2. Loosen, but do not remove, the two (2) hex screws and locknuts that secure the caster headtube to the wheelchair frame.
3. Remove the TOP locknut and adjustment cam from the caster headtube.
4. Position a large right triangle or "L" square on the flat surface and against the caster headtube.
5. Position the caster headtube flat against the right triangle or "L" square.
6. Reinstall adjustment cam onto the top hex screw.
7. With the caster headtube flat against the right triangle or "L" square, rotate and position the adjustment cam until the adjustment cam sits flush in the grooves of the caster headtube.

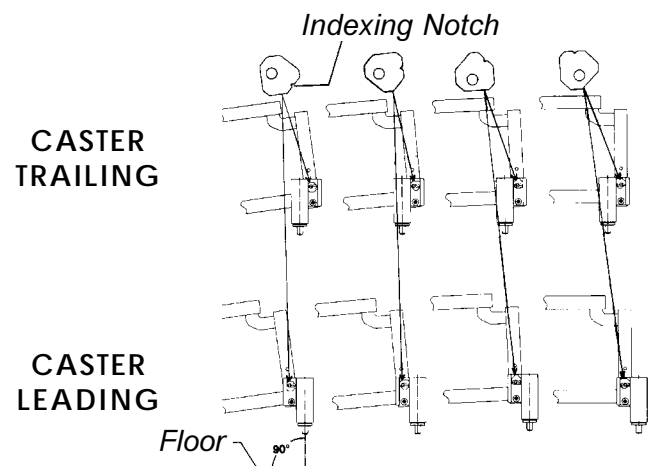


FIGURE 3 - ADJUSTING FRONT CASTER HEADTUBES - PRO-SA MODEL WHEELCHAIRS

- Repeat **STEPS 1-8** for the opposite side of the wheelchair.

*NOTE: As shown in **FIGURE 3**, the adjustment cam can be rotated to several different positions thus changing the overall caster headtube angle relative to the seat frame angle.*

ALL Pro Series Wheelchairs EXCEPT Pro-SA (FIGURE 4)

- Place the wheelchair on a flat surface.
- Loosen, but do not remove the two (2) locknuts and hex screws that secure the caster headtube to the wheelchair frame.
- Position a large right triangle or "L" square on the flat surface and against the caster headtube.
- Using two (2) wrenches, adjust the caster headtube by turning **CLOCKWISE** or **COUNTERCLOCKWISE** until the caster headtube is parallel and square to the large right triangle or "L" square.

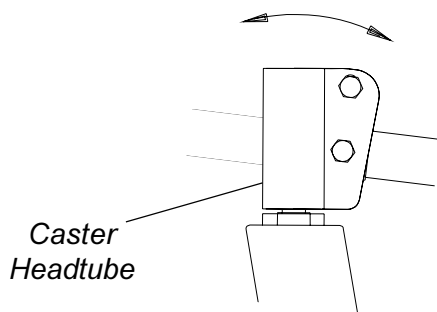
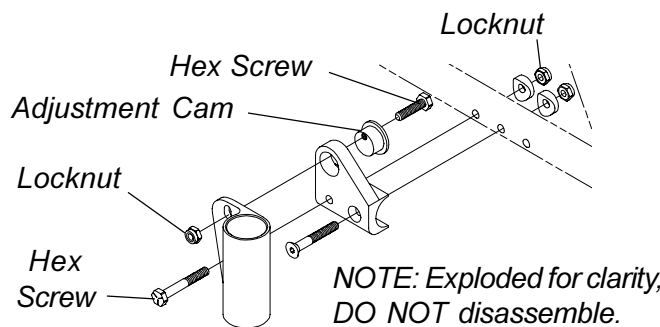
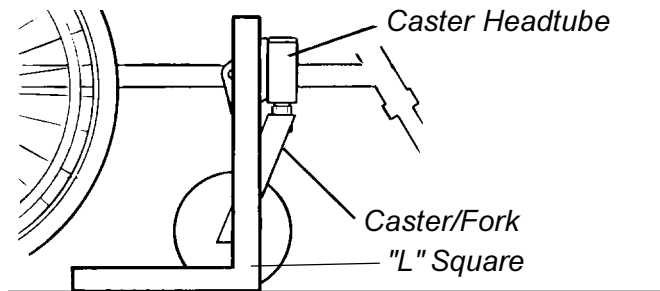


FIGURE 4 - ADJUSTING FRONT CASTER HEADTUBES - ALL PRO SERIES WHEELCHAIRS EXCEPT PRO-SA

- Retighten the two (2) hex screws and locknuts that secure the caster headtube to the wheelchair frame.
- Repeat **STEPS 1-5** for the opposite side of the wheelchair.

REPOSITIONING CASTER HEADTUBES ON WHEELCHAIR FRAME (FIGURE 5)

Mounting Caster Headtubes on the Inside of the Wheelchair Frame

WARNING

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

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

Adjusting Caster Headtube Height - Pro-SA Wheelchairs Only

Refer to **CHANGING SEAT TO FLOOR HEIGHT** in **PROCEDURE 7** of this manual for corresponding caster headtube mounting position for the desired seat to floor height.

Leading/Trailing Caster Headtube Positioning - Pro-SA Wheelchairs Only

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

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

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

Adjusting Turning Radius - ALL Pro Series Wheelchairs EXCEPT Pro-SA

WARNING

Mounting casters towards the rear of the wheelchair frame WILL reduce the stability of the wheelchair. Try various caster positions to find the safest caster position for your needs.

There are two (2) mounting positions for the caster headtubes on the fixed front frame.

Moving the caster headtubes towards the **front** of the wheelchair will **increase the stability** and **maintain standard maneuverability** of the wheelchair.

Moving the caster headtubes towards the **rear** of the wheelchair will **increase the maneuverability** and **distribute additional weight** onto the rear wheels.

Procedure For Repositioning the Front Caster Headtubes

PRO-SA.

1. Determine the new mounting position of the caster headtubes.
2. Remove the two (2) hex screws, coved washers and locknuts that secure the caster headtube to the wheelchair frame.

NOTE: Observe the position of the adjustment cam for reinstallation.

3. Secure the caster headtube to the wheelchair frame in the new position with the existing two (2) hex screws, coved washers and locknuts.

NOTE: Make sure the coved washers are positioned between the hex screws and the caster headtube.

4. Repeat **STEPS 1-3** for the opposite side of the wheelchair.

NOTE: Make sure both casters are mounted in the same position.

5. Check the caster headtube angle. Refer to **ADJUSTING FRONT CASTER HEADTUBES** in this procedure of the manual.

ALL PRO SERIES WHEELCHAIRS EXCEPT PRO-SA.

1. Loosen, but do not remove, the hex screw and locknut that secure the caster headtube to the headtube adjustment bracket.
2. Remove the hex screw, counter sunk screw, two (2) coved washers and locknuts that secure the headtube adjustment bracket to the wheelchair frame.

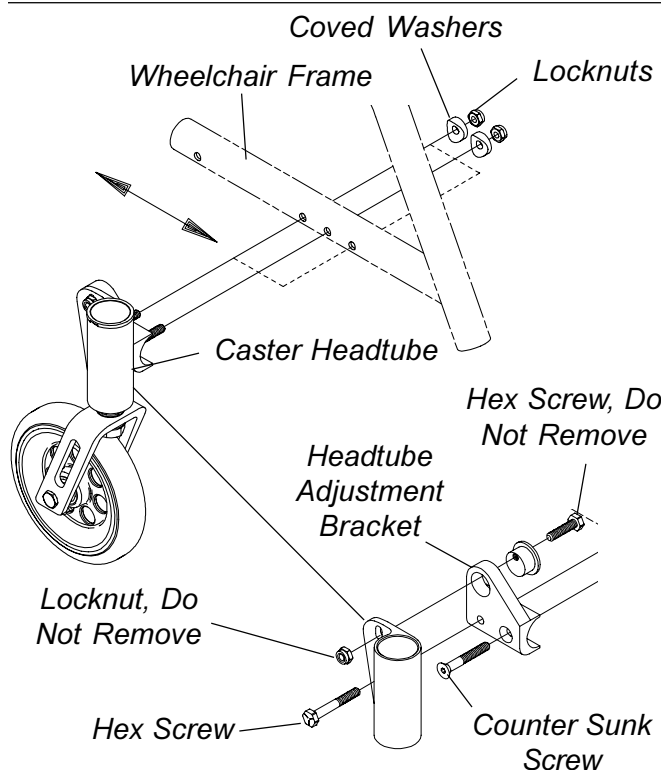
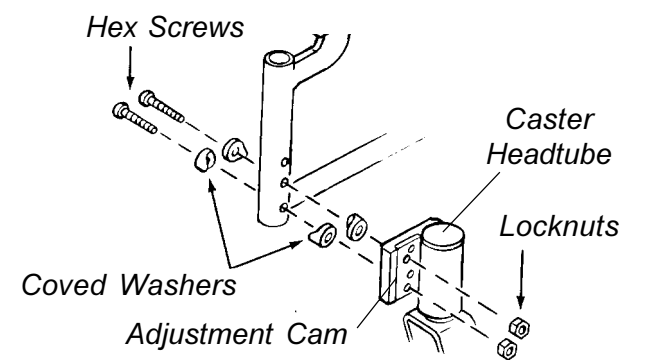
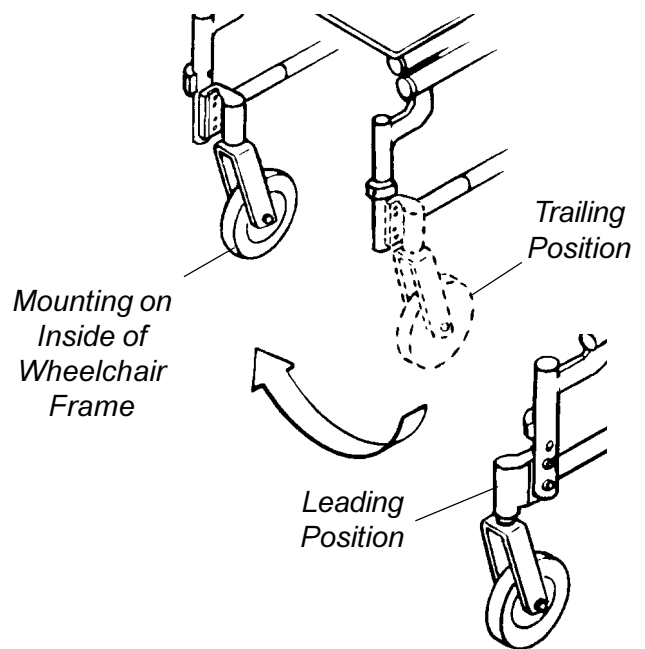


FIGURE 5 - REPOSITIONING CASTER HEADTUBES ON WHEELCHAIR FRAME

3. Secure the headtube adjustment bracket to the wheelchair frame in the new position with the existing counter sunk screw, covered washers and locknut.
4. Reposition the caster headtube on the headtube adjustment bracket and securely tighten with hex screw, covered washer and locknut.

NOTE: Make sure the covered washers are positioned between the locknuts and the caster headtube.

5. Repeat **STEPS 1-4** for the opposite side of the wheelchair.

NOTE: Make sure both casters are mounted in the same position.

6. Check the caster headtube angle. Refer to **ADJUSTING FRONT CASTER HEADTUBES** in this procedure of the manual.

INSTALLING QUICK-RELEASE CASTERS (FIGURE 6)

WARNING

Pull on quick-release casters each time **BEFORE** using the wheelchair to make sure they are securely locked onto the wheelchair frame.

There are several configurations of the quick-release caster. If caster fork stem **DOES NOT** look like **DETAIL "A"** in **FIGURE 6** when installed, **DO NOT USE**. Contact Account Services, 1-(800)-333-6900.

A NOTE ABOUT QUICK-RELEASE CASTERS

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

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

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

4. Remove the existing fork and install the quick release caster fork through the caster headtube of the wheelchair making sure the fork stem is approximately 1/4-inch above the caster head tube. Refer to **DETAIL "A"**.

WARNING

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

5. Depress the detent pin of the quick-release caster headtube cap and install over the top of the quick-release caster fork stem.
6. Release the detent pin of the quick-release caster headtube cap and pull on the fork to make sure the fork is securely attached to the wheelchair.
7. Reinstall the two (2) spacers, caster, bolt and locknut onto the quick-release caster fork. Tighten securely.
8. Repeat **STEP 1-7** for the opposite side of wheelchair.

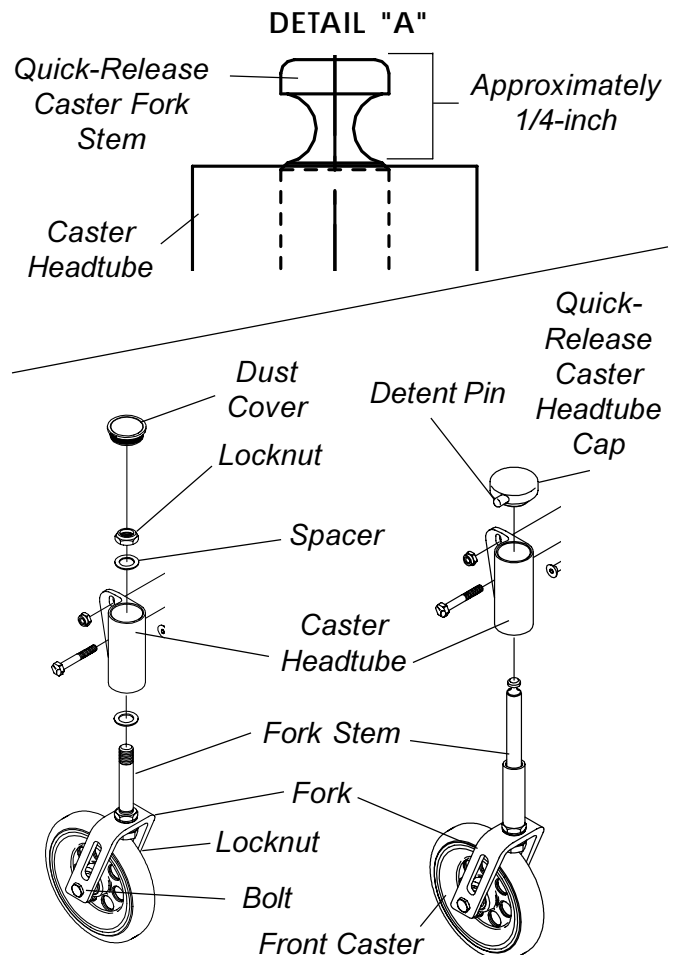


FIGURE 6 - INSTALLING QUICK-RELEASE CASTERS

- This Procedure includes the following:**
- Removing/Installing Rear Wheels**
 - Adjusting Quick-Release Axles**
 - Installing Quad-Release Axles**
 - Adjusting Quad-Release Handles**
 - Repairing/Replacing Pneumatic Rear Wheel Tire/Tube**
 - Adjusting Wheelbase Length**
 - Adjusting Wheelbase Width**
 - Adjusting Rear Wheel Camber**
 - Toe-in/Toe-out Alignment**
 - Correcting Toe-in/Toe-out Condition**
 - Replacing/Adjusting the Wheel Lock**
 - Wheel Lock Extension Handle Installation**
 - Installing/Adjusting the Anti-tippers Handrims**

WARNING

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

REMOVING/INSTALLING REAR WHEELS (FIGURE 1)

1. Perform one (1) of the following:
 - A. Push in the tip of the quick-release axle and pull the axle and wheel out of the axle mounting plate.
 - B. Pull UP on the quad-release axle handle and pull the axle and wheel out of the axle mounting plate.
2. Repeat **STEP 1** for the opposite rear wheel.
3. To reinstall the rear wheel onto the axle mounting plate, reverse **STEPS 1-2**.

WARNING

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

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

Keep locking pins clean.

4. If the locking pins are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth motion, refer to **ADJUSTING QUICK-RELEASE AXLES** or **ADJUSTING QUAD-RELEASE HANDLES** in this procedure of the manual.

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

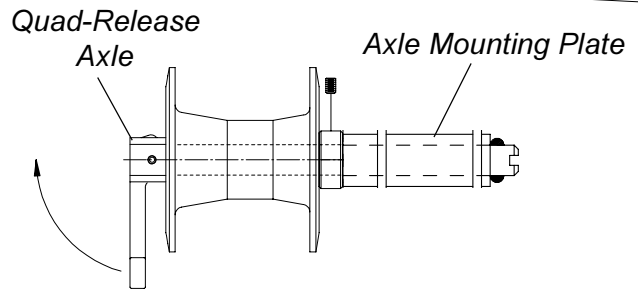
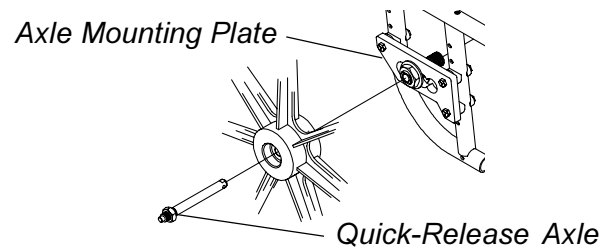


FIGURE 1 - REMOVING/INSTALLING REAR WHEELS

ADJUSTING QUICK-RELEASE AXLES (FIGURE 2)

1. Remove rear wheel and quick/quad-release axle from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
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 wheelchair.

Keep locking pins clean.

5. Reinstall rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.

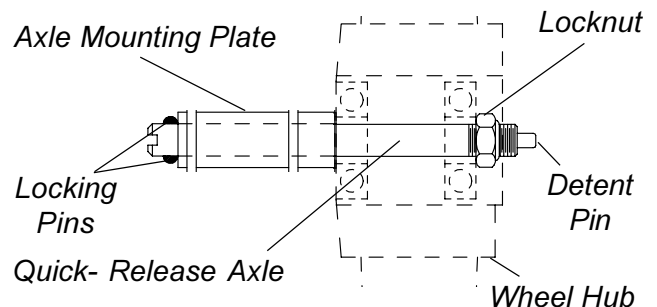


FIGURE 2- ADJUSTING QUICK-RELEASE AXLES

REAR WHEELS

INSTALLING QUAD-RELEASE AXLES (FIGURE 3)

1. Remove rear wheel and the existing quick-release axle from the wheelchair. Refer to **REMOVING INSTALLING REAR WHEELS** in this procedure of the manual.
2. Remove the existing quick-release axle from the rear wheel hub.
3. Insert the new quad-release axle through the rear wheel hub.
4. Slide the locking collar onto the quad-release axle until it is snug against the rear wheel and tighten securely with the allen screw.
5. Reinstall rear wheel and the quad-release axle onto the wheelchair.

WARNING

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

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

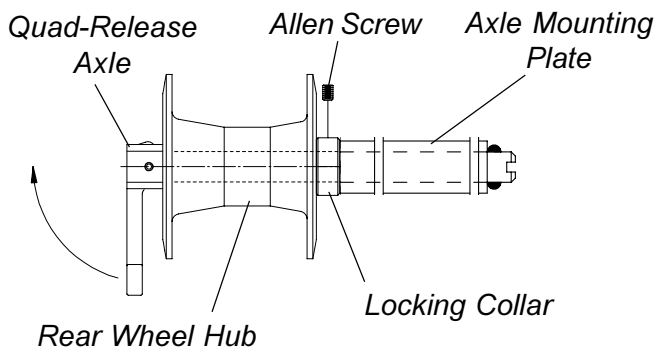


FIGURE 3 - INSTALLING QUAD-RELEASE AXLES

ADJUSTING QUAD-RELEASE HANDLES (FIGURE 4)

In and/or Out

1. Remove rear wheel and the quad-release axle from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.

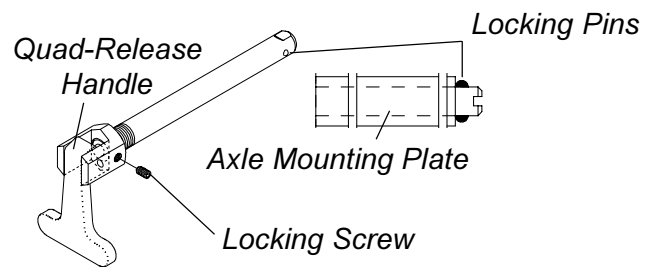
2. Loosen the locking screw.
3. Perform one (1) of the following:
 - A. If the quad-release handle is **not releasing the locking pins completely**, rotate the **quad-release handle** approximately **one-quarter (1/4) turn CLOCKWISE**.
 - B. If the quad-release handle **hits the spokes** of the rear wheel when assembled, rotate the **quad-release handle** approximately **one-quarter (1/4) turn COUNTERCLOCKWISE**.
4. Tighten the locking screw securely.
5. Reinstall the rear wheel and quad-release axle onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.

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.

ADJUSTING QUAD-RELEASE HANDLE IN/ AND OR OUT



REMOVING PLAY FROM THE REAR WHEELS

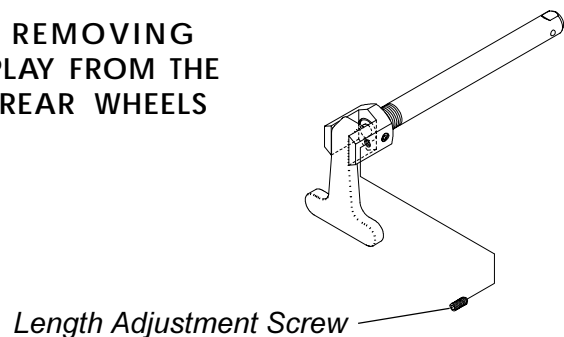


FIGURE 4 - ADJUSTING QUAD-RELEASE HANDLES

Removing the Play From the Rear Wheels

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

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

REPAIRING/REPLACING PNEUMATIC REAR WHEEL TIRE/TUBE

WARNING

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

ADJUSTING WHEELBASE LENGTH (FIGURE 5)

WARNING

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

Mounting rear wheels towards the front of the wheelchair **WILL** reduce the stability of the wheelchair. Try various rear wheel positions to find the safest rear wheel position for the users needs.

Wheel locks **MUST** be adjusted **BEFORE** using the wheelchair.

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

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

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

1. Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
2. Loosen the two (2) jam nuts that secure the axle bushing to the axle mounting plate.

3. Move the axle bushing forward or rearward to the desired position.
4. Securely tighten the jam nuts that secure the axle bushing to the axle mounting plate.
5. Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
6. Repeat **STEPS 1-5** for the opposite side of the wheelchair.

NOTE: Make sure the axle bushings are mounted in the same position. This will help avoid a "3-wheeling" situation.

7. Adjust the wheel locks. Refer to **REPLACING/ ADJUSTING THE WHEEL LOCK** in this procedure of the manual.
8. If wheel chair is equipped with anti-tippers, adjust to maintain proper clearance. Refer to **INSTALLING/ ADJUSTING THE ANTI-TIPPERS** in this procedure of the manual.

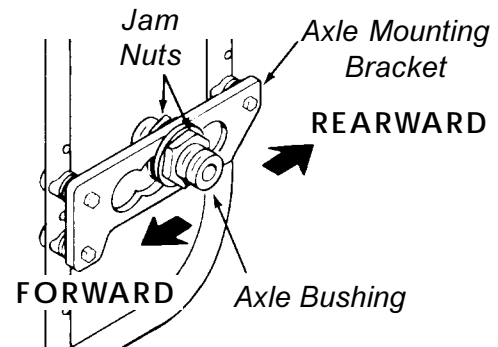


FIGURE 5 - ADJUSTING WHEELBASE LENGTH

ADJUSTING WHEELBASE WIDTH (FIGURE 6)

WARNING

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

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

1. Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
2. Loosen the two (2) jam nuts that secure the axle bushing to the axle mounting plate.

3. Move the axle bushing in or out to the desired position.
4. Securely tighten the jam nuts that secure the axle bushing to the axle mounting plate.
5. Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
6. Repeat **STEPS 1-5** for the opposite side of the wheelchair.

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

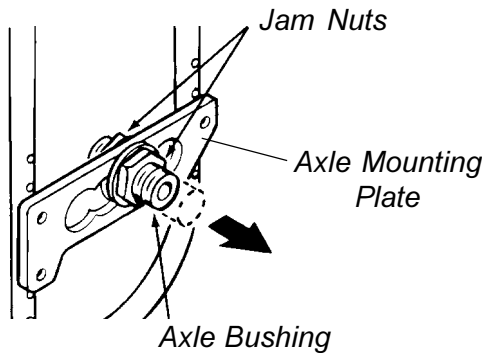


FIGURE 6 - ADJUSTING WHEELBASE WIDTH

ADJUSTING REAR WHEEL CAMBER (FIGURE 7)

WARNING

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

CAUTION

DO NOT overtighten hex screws that secure the axle mounting plates to the wheelchair frame. Damage to the wheelchair frame can occur.

NOTE: The maximum degree of camber the wheelchair will allow is 9°. Using more than five (5) total camber washers will directly affect the performance of the wheelchair.

1. Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
2. Loosen, but do not remove the two (2) TOP hex screws that secure the axle mounting plate to the wheelchair.

3. Remove the BOTTOM hex screw, locknut, two (2) washers, two (2) coved washers and camber washers that secure the axle mounting plate to the wheelchair frame.

NOTE: Observe the attaching hardware for reinstallation, or refer to FIGURE 7.

4. Install or remove the number of camber washers to achieve the desired camber angle:

CAMBER ANGLE:	3°	6°	7.5°	9.0°
NUMBER OF CAMBER WASHERS:	2	3	4	5

5. Reinstall the BOTTOM hex screw, locknut, two (2) washers, two (2) coved washers and camber washers that secure the axle mounting plate to the wheelchair frame. Tighten securely.
6. Securely tighten the two (2) TOP hex screws that secure the axle mounting plate to the wheelchair frame.
7. Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
8. Repeat **STEPS 1-7** for the opposite side of the wheelchair.

NOTE: Make sure the number of camber washers is the same for both rear wheels. This will help avoid a "3-wheeling" situation.

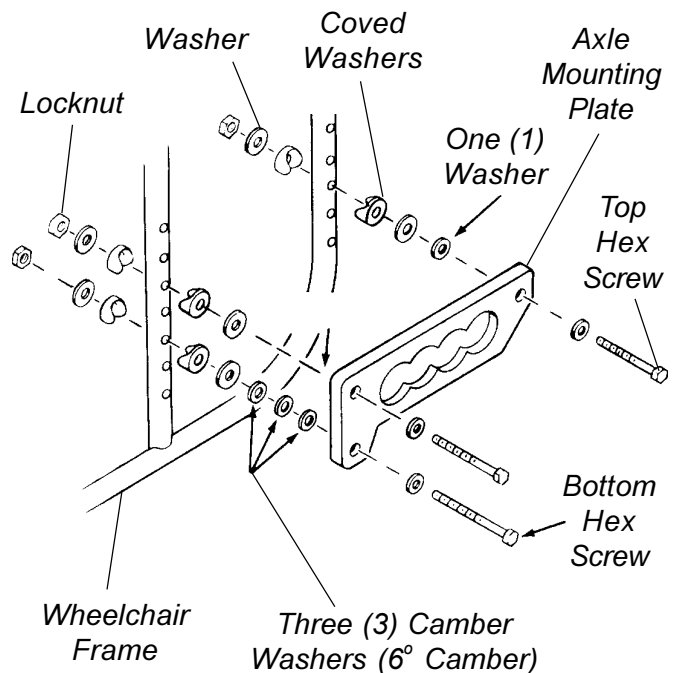


FIGURE 7 - ADJUSTING REAR WHEEL CAMBER

- Roll the rear wheels. If rear wheels rub the wheelchair at any point, adjust the wheelbase width. Refer to **ADJUSTING WHEELBASE WIDTH** in this procedure of the manual.

TOE-IN/TOE-OUT ALIGNMENT (FIGURES 8 AND 9)

- Inflate all pneumatic tires to recommended tire pressures (listed on the sidewall of the tire).
- Measure the distance between the center lines at the rear and front of the rear wheels at approximately 12-inches from the ground/floor (**FIGURE 8**).

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

- Determine the difference between the two (2) measurements. If the **difference** between the **two (2) measurements** is **GREATER** than 1/4-inch ($0 \pm 1/8$ -inch for maximum rollability), one (1) of two (2) conditions exists:
 - 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 9**).
 - 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 9**).
- If the difference is greater than 1/4-inch, correct the toe-in/toe-out condition. Refer to **CORRECTING TOE-IN/TOE-OUT CONDITION** in this procedure of the manual.

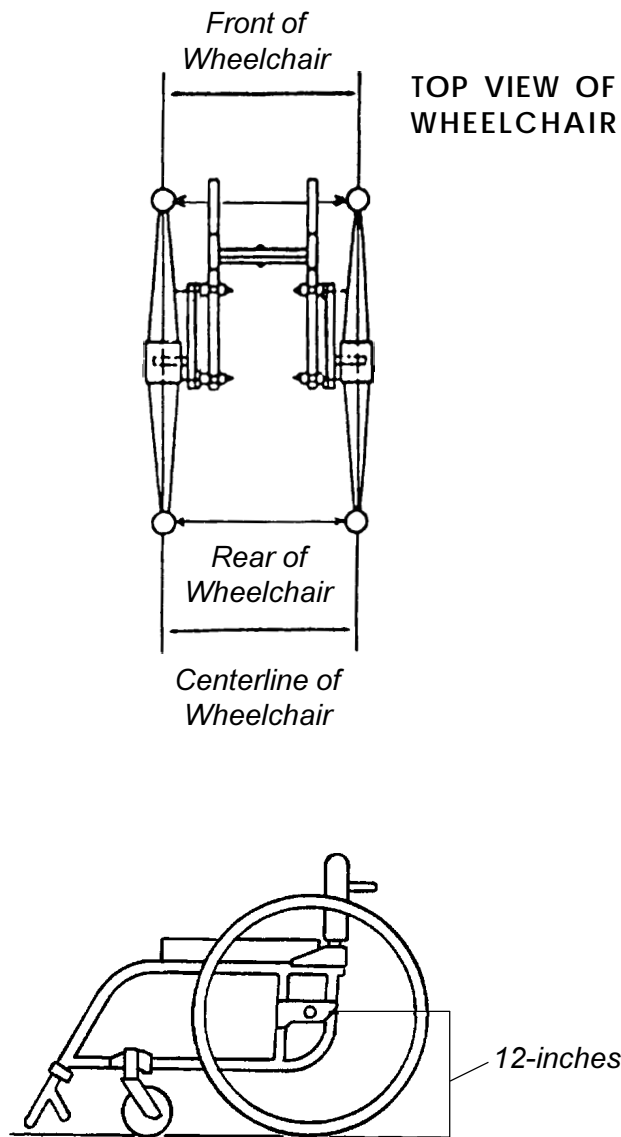


FIGURE 8 - MEASURING FRONT AND REAR OF REAR WHEELS

FRONT OF WHEELCHAIR

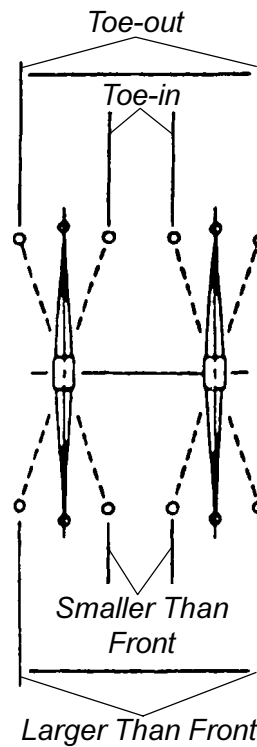


FIGURE 9 - TOE-IN/TOE-OUT CONDITION

CORRECTING TOE-IN/TOE-OUT CONDITION (FIGURE 10)

WARNING

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

NOTE: The rear wheels of the wheelchair are aligned at the factory to provide optimum rollability. Should alignment become necessary, follow instructions carefully. Make adjustments only to an UNOCCUPIED wheelchair.

- Loosen, but do not remove, the two (2) front hex screws that secure the axle mounting plate to the wheelchair frame.
- Remove the rear hex screw, two (2) covered washers, two (2) metal washers and locknut that secure the axle mounting plate to the wheelchair.

NOTE: Observe the attaching hardware for reinstallation, or refer to FIGURE 10.

- Refer to the following chart to determine if alignment washers need to be added or removed:

CONDITION	ALIGNMENT WASHERS
Toe-in	Remove
Toe-out	*Add

**NOTE: DO NOT use more than six (6) camber washers.*

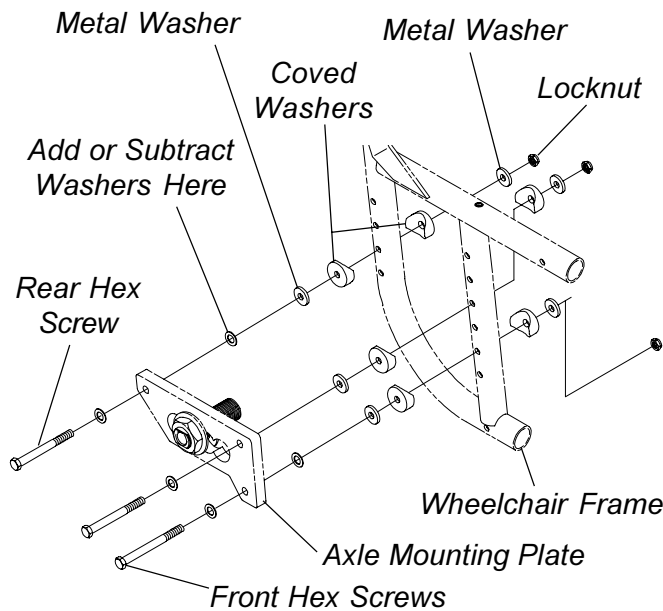


FIGURE 10 - CORRECTING TOE-IN/TOE-OUT CONDITION

- Reinstall the rear hex screw, two (2) coved washers, two (2) metal washers and locknut that secure the axle mounting plate to the wheelchair. Tighten securely.
- Securely tighten the two (2) front hex screws that secure the axle mounting plate to the wheelchair frame.
- Repeat **TOE-IN/TOE-OUT ALIGNMENTS** in this procedure of the manual and **STEPS 1-5** of this procedure until the centerline measurement is approximately 1/4-inch ($0 \pm 1/8$ -inch for maximum rollability).

REPLACING/ADJUSTING THE WHEEL LOCK (FIGURE 11)

NOTE: Undermount wheel locks are for all Pro Series wheelchairs EXCEPT Pro-SA.

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

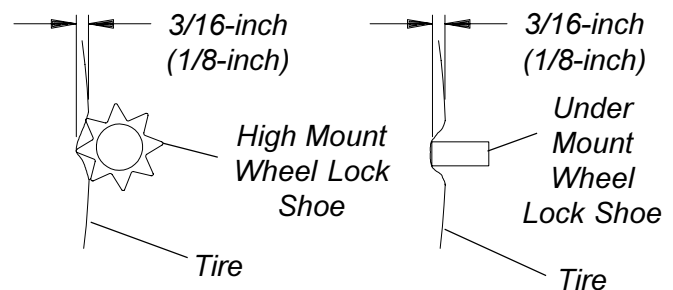
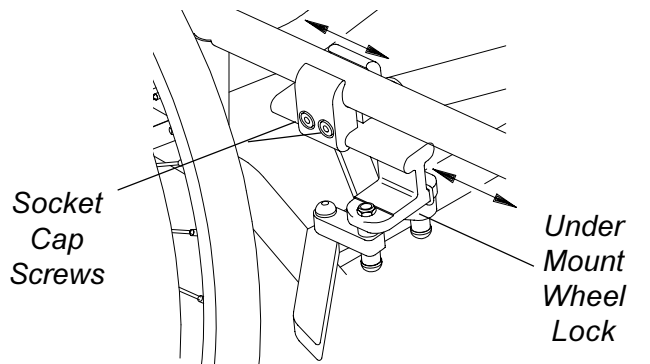
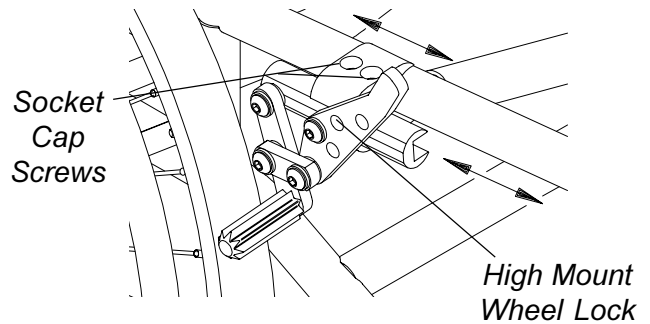


FIGURE 11 - REPLACING/ADJUSTING THE WHEEL LOCK

Replacing the High/Undermount Wheel Lock

1. Remove the socket cap screws and remove the existing wheel lock from the wheelchair.
2. Install the new wheel lock and secure with the existing socket cap screws.
3. Adjust the high/undermount wheel lock Refer to the following procedure.

Adjusting the High/Undermount Wheel Lock

1. Engage the wheel locks.

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

2. If necessary, loosen the socket cap screw(s) that secure the High/Undermount wheel locks to the wheelchair frame and adjust position of the wheel lock until the 3/16-inch (1/8-inch for urethane wheels) measurement is obtained for correct wheel lock adjustment.
3. Securely tighten the socket capscrew(s).
4. Engage the wheel locks and push against the wheelchair and determine if the wheel locks engage the wheel locks enough to hold the wheelchair.
5. Repeat the above procedures until the wheel locks hold the wheelchair.

WHEEL LOCK EXTENSION HANDLE INSTALLATION (FIGURE 12)

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

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

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

5. Remove the black tip of the wheel lock extension handle.
6. Push the opposite end of the elastic cord up and through the slotted hole in the wheel lock extension handle.
7. Run the elastic cord through the washer and tie a knot in the elastic cord above the washer.
8. Pull the elastic cord back down into the wheel lock extension handle.
9. Reinstall the black tip onto the wheel lock extension handle.
10. Slide the wheel lock extension handle over the existing wheel lock handle.

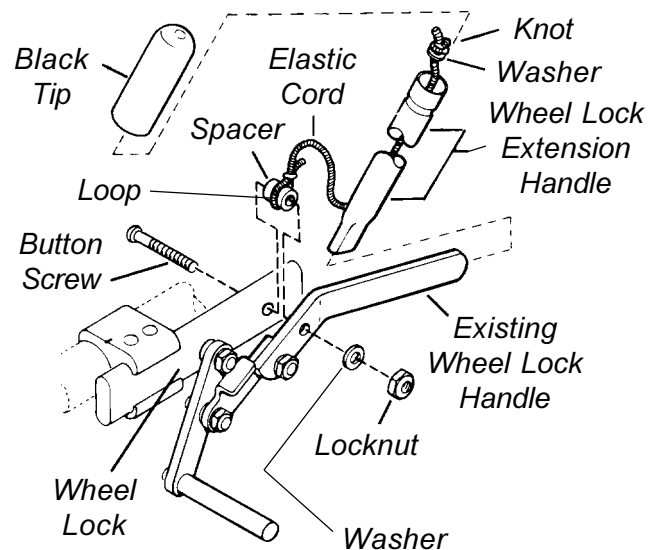


FIGURE 12 - WHEEL LOCK EXTENSION HANDLE INSTALLATION

INSTALLING/ADJUSTING THE ANTI-TIPPERS (FIGURE 13)

Installing the Anti-tippers

1. Position the two (2) half clamps of the anti-tipper on the wheelchair frame. Make sure they sit flush against each other.
2. Install the top hex screw and loosely tighten with locknut.

3. Position the anti-tipper mounting bracket between the two (2) half clamps. Make sure the release button holes are pointing towards the front of the wheelchair.
4. Secure the mounting bracket to the two (2) half clamps with two (2) hex screws and locknuts.
5. Securely tighten the top hex screw and locknut.

WARNING

Anti-tippers **MUST** be fully engaged and release buttons fully protruding out of release button holes **BEFORE** using wheelchair.

6. Press down on the release buttons of the anti-tipper and insert the anti-tipper into the anti-tipper mounting bracket until the release buttons lock in place.
7. Repeat **STEPS 1-6** for the opposite side of the wheelchair.
8. Measure the distance between the bottom of the anti-tipper wheel and the ground/floor.

NOTE: A 1-1/2 to 2-inch clearance between the bottom of the anti-tipper wheels and the floor must be maintained.

9. If the distance between the bottom of the anti-tipper wheel and the ground/floor is not between 1-1/2 to 2-inches, adjust the anti-tipper. Refer to **ADJUSTING THE ANTI-TIPPER HEIGHT** in this procedure of the manual.

Adjusting the Anti-tipper Height

1. Loosen, but do not remove the three (3) hex screws and locknuts that secure the half clamps and anti-tipper mounting brackets to the wheelchair frame.
2. Slide the half clamps forward or rearward along the wheelchair frame until the 1-1/2 to 2-inch clearance is achieved.
3. Securely tighten the three (3) hex screws that secure the half clamps and anti-tipper mounting brackets to the wheelchair frame.

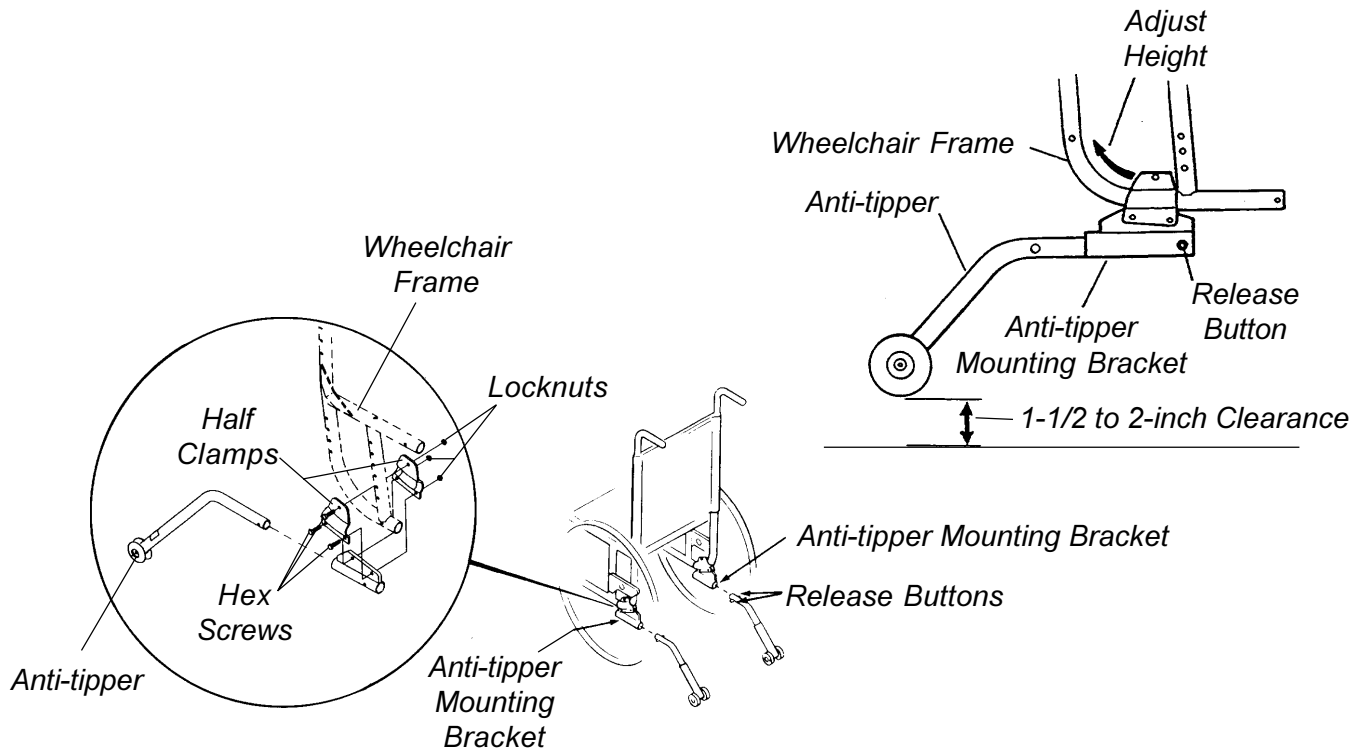


FIGURE 13 - INSTALLING/ADJUSTING THE ANTI-TIPPERS

HANDRIMS

Installing/Replacing Handrims - Spoke Rear Wheels (FIGURE 14)

NOTE: The following procedure is for all spoke rear wheel projection or non-projection handrims.

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

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.

NOTE: Note the position of the existing handrim before removing from the rim.

4. Remove the existing handrim from the rim.
5. Position the new handrim mounting holes with the mounting holes in the rim.
6. Install one (1) of the phillips screws through the mounting holes in the rim and projection handrim.
7. While carefully holding the tire, bar and rim strip to one side, hold the phillips screw and securely tighten the locknut that secure the handrim to the rim.

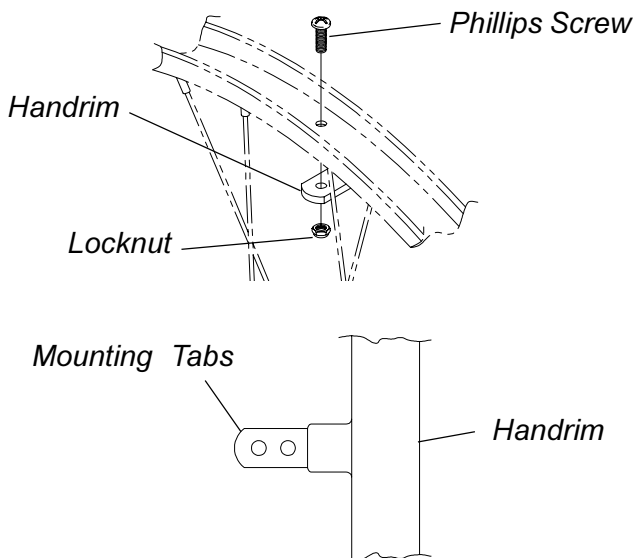


FIGURE 14 - INSTALLING/REPLACING/ADJUSTING HANDRIMS - SPOKE REAR WHEELS

8. Repeat **STEPS 6-7** for the remaining phillips screws and locknuts.

WARNING

DO NOT inflate tire until it is completely assembled.

9. Inflate the tire to the correct psi rating listed on the sidewall of the tire.
10. Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
11. Repeat **STEPS 1-10** for the opposite rear wheel if necessary.

Adjusting Handrims - Spoke Rear Wheels (FIGURE 14)

NOTE: The following procedure is for projection or non-projection handrims.

NOTE: Handrims for composite rear wheels can not be adjusted.

1. Remove the handrim from the rim. Perform **STEPS 1-4** of **INSTALLING/REPLACING HANDRIMS - SPOKE REAR WHEELS** in this procedure of the manual.
2. Move the handrim to one (1) of the following positions:
 - IN** - Moving both handrims to the inside mounting hole on the mounting tabs will reduce the overall width of the wheelchair by 3/4-inch.
 - OUT** - Moving both handrims to the outside mounting hole on the mounting tabs will increase the overall width of the wheelchair by 3/4-inch.
3. Reinstall the handrim onto the rim by performing **STEPS 6-11** of **INSTALLING/REPLACING HANDRIMS - SPOKE REAR WHEELS** in this procedure of the manual.

Replacing Non-Projection Handrims - Composite Rear Wheels (FIGURE 15)

1. Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
2. Remove the phillips screws and washers that secure the handrim to the rear wheel.
3. Remove the existing handrim from the rear wheel.
4. Install the new handrim by reversing **STEPS 1-3**.

WARNING

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

5. Reinstall rear wheel to the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
6. Repeat the procedure for the opposite rear wheel if necessary.

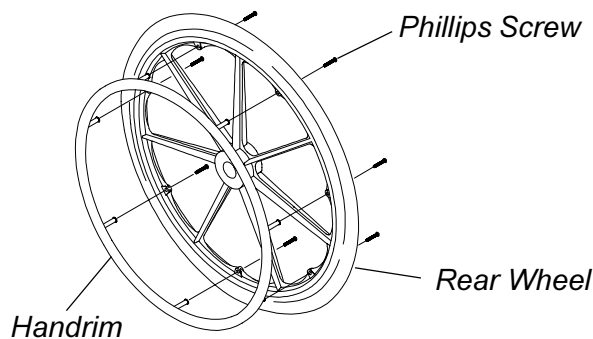


FIGURE 15 - REPLACING NON-PROJECTION HANDRIMS - COMPOSITE REAR WHEELS

Installing/Replacing Optional Projection Handrims- Composite Rear Wheels (FIGURE 16)

NOTE: The following procedure will work for any type of composite rear wheel projection handrim.

1. Remove the rear wheel from the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
2. Perform one (1) of the following:
 - A. Remove the existing non-projection handrim from the rear wheel. Refer to **REPLACING NON-PROJECTION HANDRIMS - COMPOSITE REAR WHEELS** in this procedure of the manual.

- B. Remove the SHORT screws, washers and locknuts that secure the existing projection handrim to the rear wheel and remove the projection handrim from the rear wheel.
3. Using the LONG screws, assemble the links to the new projection handrim.
4. Position one (1) link with one (1) of the mounting holes in the rear wheel.
5. Install a SHORT screw through the link and the rear wheel and loosely tighten with washer and locknut.
6. Repeat **STEPS 3-4** for one (1) link on the opposite side of the rear wheel.

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

7. Repeat **STEPS 3-4** for the remaining links.
8. Securely tighten the washers and locknuts that secure the new projection handrim to the rear wheel.
9. Reinstall the rear wheel onto the wheelchair. Refer to **REMOVING/INSTALLING REAR WHEELS** in this procedure of the manual.
10. Repeat **STEPS 1-9** for the opposite rear wheel if necessary.

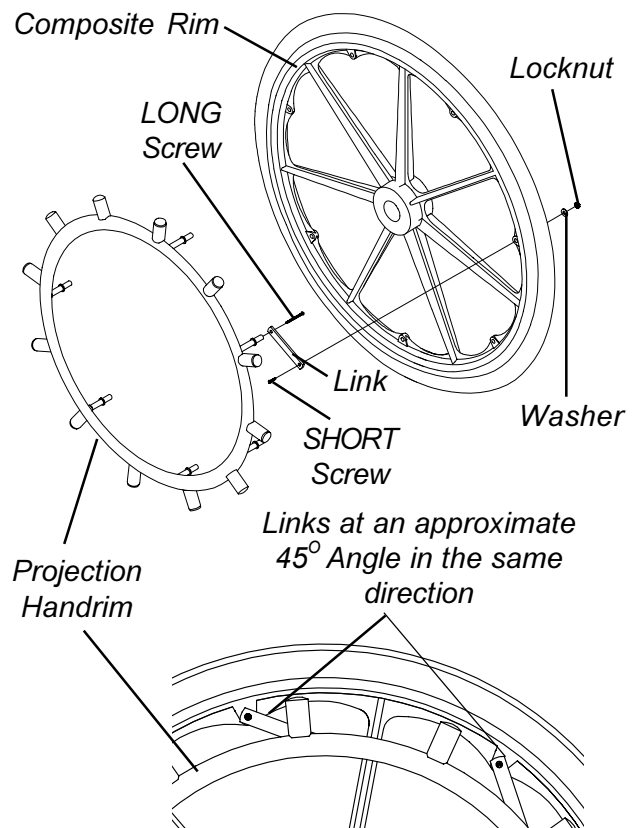


FIGURE 16 - INSTALLING/REPLACING OPTIONAL PROJECTION HANDRIMS- COMPOSITE REAR WHEELS

This Procedure includes the following:
Seat to Floor Height Determination
Changing Seat to Floor Height
Rear Seat to Floor Heights
Front Seat to Floor Heights - All Model Wheelchairs Except PRO-SA
Front Seat to Floor Heights - PRO-SA Only

WARNING
 The following procedure should be performed only by an authorized Invacare Dealer or qualified Technician.
 After adjustments and BEFORE use, make sure all attaching hardware is securely tightened, otherwise injury or damage may occur.

Front Seat to Floor Height

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

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

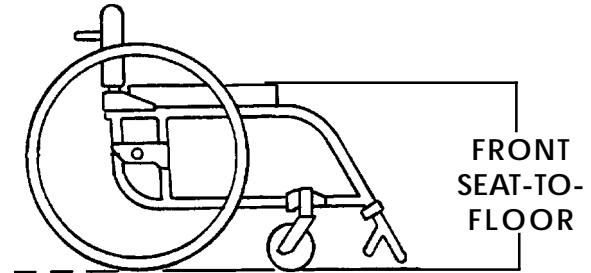


FIGURE 2 - FRONT SEAT TO FLOOR HEIGHT DETERMINATION

SEAT TO FLOOR HEIGHT DETERMINATION (FIGURES 1 AND 2)

Rear Seat to Floor Height

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

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

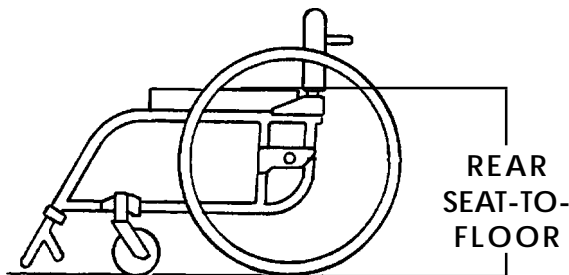


FIGURE 1 - REAR SEAT TO FLOOR HEIGHT DETERMINATION

Seat Dump

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

For Example:

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

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

CHANGING SEAT TO FLOOR HEIGHT

Rear Seat to Floor Height

After determining the axle mounting plate placement for the necessary rear seat to floor height, refer to **ADJUSTING REAR SEAT HEIGHT** in **PROCEDURE 3** of this manual.

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

Front Seat to Floor Height

POSITIONING CASTER HEADTUBES ON THE WHEELCHAIR FRAME.

The following caster headtube positions apply to any size caster. Caster headtube position on the wheelchair frame apply to caster headtubes mounted in ANY of the following positions: Inside/outside of the wheelchair frame or leading/trailing.

Refer to **REPOSITIONING CASTER HEADTUBES ON WHEELCHAIR FRAME** in **PROCEDURE 5** of this manual for more information on mounting the front casters on the inside/outside of the wheelchair frame and leading/trailing positions.

After determining front caster headtube position and front seat to floor height desired, refer to **REPOSITIONING CASTER HEADTUBES ON WHEELCHAIR FRAME** in **PROCEDURE 5** of this manual to reposition the caster headtube on the wheelchair frame.

POSITIONING FRONT CASTER ON THE FORK.

The following caster positions apply to any of the caster sizes.

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

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

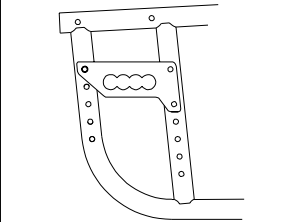
NOTE: The following front seat to floor heights shown are the most common front seat to floor heights available.

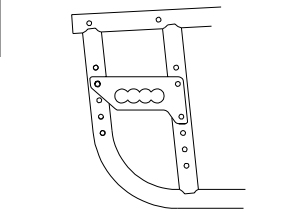
REAR SEAT TO FLOOR HEIGHTS

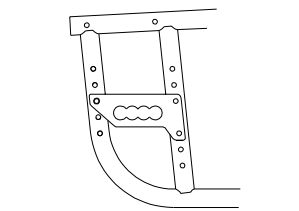
SEAT TO FLOOR

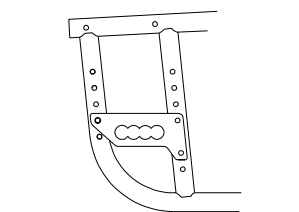
Refer to the following figures to determine the obtainable rear seat to floor height for 559, 700C, 20, 22, 24 or 26-inch rear wheels:

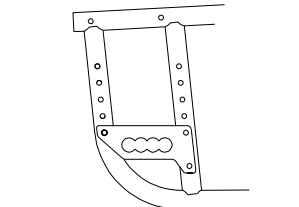
NOTE: The rear seat to floor heights are based on pneumatic tires and pneumatic tires with flat free inserts. If wheelchair is equipped with urethane tires, subtract 1/4-inch from the measurements listed below. All heights are approximate to ±1/4-inch due to tire wear and air pressure.

REAR WHEEL SIZE	REAR SEAT TO FLOOR HEIGHT	AXLE PLATE POSITION
22	14-1/2-INCHES	
24 or 559	15-1/2-INCHES	
26	16-1/2-INCHES	
700C	16-3/4-INCHES	

REAR WHEEL SIZE	REAR SEAT TO FLOOR HEIGHT	AXLE PLATE POSITION
22	15-1/4-INCHES	
24 or 559	16-1/4-INCHES	
26	17-1/4-INCHES	
700C	17-1/2-INCHES	

REAR WHEEL SIZE	REAR SEAT TO FLOOR HEIGHT	AXLE PLATE POSITION
22	16-1/4-INCHES	
24 or 559	17-1/4-INCHES	
26	18-1/4-INCHES	
700C	18-1/2-INCHES	

REAR WHEEL SIZE	REAR SEAT TO FLOOR HEIGHT	AXLE PLATE POSITION
22	17-INCHES	
24 or 559	18-INCHES	
26	19-INCHES	
700C	19-INCHES	

REAR WHEEL SIZE	REAR SEAT TO FLOOR HEIGHT	❖ AXLE PLATE POSITION
22	18-INCHES	
24 or 559	19-INCHES	
26	20-INCHES	
700C	20-1/4-INCHES	

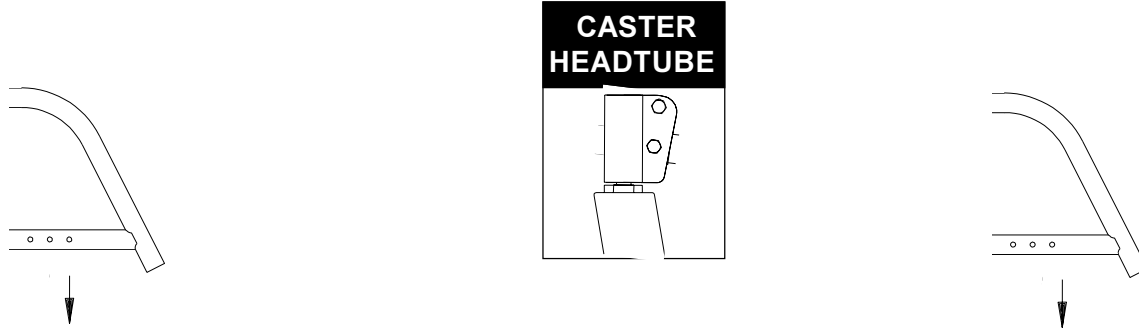
❖ *NOTE: The lowest axle plate position is not available with the heavy duty option.*

SEAT TO FLOOR

FRONT SEAT TO FLOOR HEIGHTS - ALL MODEL WHEELCHAIRS EXCEPT PRO-SA

Refer to the following figures to determine the obtainable front seat to floor (S T F) height for all model wheelchairs EXCEPT Pro-SA with 3, 5, 6 or 8-inch casters:

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



3-INCH FORK		
FRONT S T F	CASTER SIZE	
17	3	
18	5	
N/A	6 OR 8	
❖ 3-INCH FORK w/1-INCH SPACER		
FRONT S T F	CASTER SIZE	
18	3	
19	5	
N/A	6 OR 8	
❖ 3-INCH FORK w/2-INCH SPACER		
FRONT S T F	CASTER SIZE	
19	3	
20	5	
N/A	6 OR 8	
5-INCH FORK		
FRONT S T F	CASTER SIZE	
18-1/2	3	
19-1/2	5	
20	6	
N/A	8	
❖ 5-INCH FORK w/1-INCH SPACER		
FRONT S T F	CASTER SIZE	
19-1/2	3	
20-1/2	5	
21	6	
N/A	8	

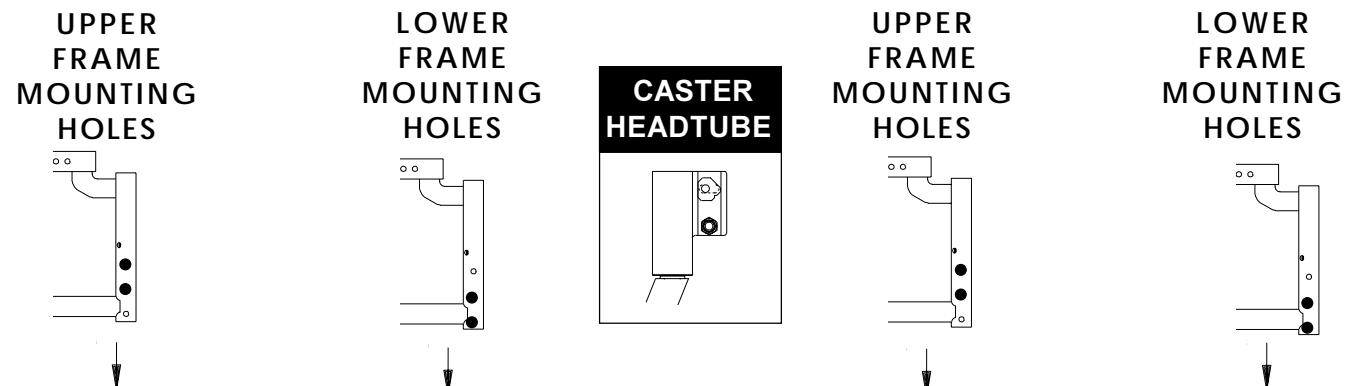
6-INCH FORK-POSITION 1		
	FRONT S T F	CASTER SIZE
	18-1/2	5
	19	6
	N/A	3 OR 8
6-INCH FORK-POSITION 2		
	FRONT S T F	CASTER SIZE
	18-1/4	3
	19-1/4	5
	19-3/4	6
	N/A	8
6-INCH FORK-POSITION 3		
	FRONT S T F	CASTER SIZE
	19	3
	20	5
	20-1/2	6
	N/A	8
8-INCH FORK-POSITION 1		
	FRONT S T F	CASTER SIZE
	N/A	3, 5 OR 6
	20-3/4	8
8-INCH FORK-POSITION 2		
	FRONT S T F	CASTER SIZE
	N/A	3, 5 OR 6
	22	8

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

FRONT SEAT TO FLOOR HEIGHTS - PRO-SA ONLY

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

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



SEAT TO FLOOR

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

6-INCH FORK-POSITION 1			
	FRONT S T F	CASTER SIZE	FRONT S T F
	17-3/4	5	19
	18-1/4	6	19-1/2
N/A	3 OR 8	N/A	
6-INCH FORK-POSITION 2			
	FRONT S T F	CASTER SIZE	FRONT S T F
	17-1/2	3	18-3/4
	18-1/2	5	19-3/4
19	6	20-1/4	
N/A	8	N/A	
6-INCH FORK-POSITION 3			
	FRONT S T F	CASTER SIZE	FRONT S T F
	18-1/4	3	19-1/2
	19-1/4	5	20-1/2
19-3/4	6	21	
N/A	8	N/A	
8-INCH FORK-POSITION 1			
	FRONT S T F	CASTER SIZE	FRONT S T F
	N/A	3, 5 OR 6	N/A
	20	8	21-1/4
8-INCH FORK-POSITION 2			
	FRONT S T F	CASTER SIZE	FRONT S T F
	N/A	3, 5 OR 6	N/A
	21-1/4	8	22-1/2

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

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 on the back cover, provide dealer's name, address, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECTED TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT (INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THE FOLLOWING INSTRUCTIONS.

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

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



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