

ProntoTM / ProntoTM
R2 R2-250 Series

DEALER: KEEP THIS MANUAL. THE PROCEDURES
IN THIS MANUAL MUST BE PERFORMED BY A
QUALIFIED TECHNICIAN.



Yes, you can:

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WARNING

THE PROCEDURES IN THIS MANUAL SHOULD ONLY BE PERFORMED BY A QUALIFIED TECHNICIAN.

DO NOT SERVICE OR OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL AND THE OWNER'S MANUAL SUPPLIED WITH THE WHEELCHAIR. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS, AND INSTRUCTIONS, CONTACT INVACARE TECHNICAL SUPPORT BEFORE ATTEMPTING TO SERVICE OR OPERATE THIS EQUIPMENT - OTHERWISE INJURY OR DAMAGE MAY RESULT.

SPECIAL NOTES

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

NOTICE

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

WHEELCHAIR USER

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

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

SAVE THESE INSTRUCTIONS

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SPECIFICATIONS

SPECIFICATIONS

	CAPTAIN'S SEAT			ADJUSTABLE SEAT BACK ANGLE	RECLINER SEAT
	BACKTYPE				
	LOW (LOB)	LOW SOLID SEAT (LOBSS)	HIGH (HIB)		
Seat Width Range:	19.5-in.	19.5-in.	19.5-in.	16-24-inches	16-24-inches
Seat Depth Range:	17.5-in.	17.5-in.	17.5-in.	16-22 inches - in 1-inch increments	16-22 inches - in 1-inch increments
Back Height Range Std.:	16-in.	16-in.	20-in.	16-24 inches - In 1-inch increments	18-26 inches - In 2-inch increments
W/Optional Headrest:	N/A	N/A	29.0-in.	N/A	29-37 inches - in 1-inch increments
W/Optional Backrest Ext.:	23.5-in.	23.5-in.	N/A	N/A	N/A
Back Angle Range:	(85°-114°)	(98°)	(85°-170°)	80° to 100° - in 5° increments	90° to 170° - continuous
Seat-to-Floor:	23-in.	20-in.	23-in.	18.5-inches	18.5-inches
Overall Width (No joystick):	25.5-in.	25.5-in.	25.5-in.	24.75 -inches	24.75 -inches
Overall Height:	37-in.	37-in.	41.5-in.	34.50 -in. - 42.50-in. Back Height	36.50 -in. - 44.50-in. Back Height
Weight:					
W/O Batteries:	142-lbs			143 lbs.	151 lbs.
W/Batteries (Gel Cell):	216-lbs.			217 lbs.	225 lbs.
Shipping:	266-lbs.			267 lbs.	275 lbs.
Armrests:	Removable, Flip Back, Fixed or Adjustable Height - Desk and Full Length			Removable, Flip Back, Fixed or Adjustable Height - Desk and Full Length	Removable, Flip Back, Fixed or Adjustable Height - Desk and Full Length
Upholstery:	Gray Cloth, Grey Vinyl, Tan Vinyl			Black Nylon	Black Nylon

	CAPTAIN'S SEAT/ADJUSTABLE SEAT BACK ANGLE/RECLINER	
Overall Length (Refer to PERCENTAGE OF WEIGHT DISTRIBUTION in PROCEDURE 1 of this manual.)	47.5-inches (With 8-in. rear casters and 93 front riggings)	34.0-inches (With 8-in. rear casters and no front riggings)
Front Stabilizers	7-inch Urethane	
Drive Wheels/Tires:	12-1/2 x 2-1/4-in. (Std.); 14-in.x 3-in. (Opt.) (Flat Free or Pneumatic)	
Casters w/Precision Sealed Bearings:	8 x 1-3/4-in. Semi Pneumatic (Std.), 8 x 2-in. Pneumatic (Opt.) 6 x 2-in. Semi Pneumatic (Opt.)	
Footrest/Legrest:	Swingaway, Removable Footboard	
Battery/Size (Not Supplied):	Pronto _{R2} uses 22NF Gel Cell/Pronto _{R2-250 Series} uses U1 Gel Cell	

PERFORMANCE	CAPTAIN'S SEAT/ADJUSTABLE SEAT BACK ANGLE/RECLINER
Speed (M.P.H.):	0 to 3.6 (250 lb. Limit), 0 to 5.5 (300 lb. Limit), 0 - 3.8 (400 lb. Limit)
Turning Radius:	≥ 23-inches (With Removable Footboard)
Range (variable) ¹ :	17 miles
Weight Limitation ^{2,3} :	250 lbs., 300 lbs., or 400 lbs. (See FOOTNOTE 3)

Footnotes:

1. Range will vary with battery conditions, surface, terrain and operators weight.
2. Includes seating systems and accessories.
3. Weight limitation varies with motor. Refer to WEIGHT LIMITATION - GENERAL WARNINGS in PROCEDURE 1 of this manual.

<i>This Procedure Includes the Following:</i>

<i>Repair or Service Information</i>

<i>Operating Information</i>

WARNING

REPAIR OR SERVICE INFORMATION

Set-up of the Electronic Control Unit is to be performed **ONLY** by Invacare dealers. The final tuning adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur under these circumstances. If any individual other than a qualified technician performs any work on these units, the warranty is void.

OPERATING INFORMATION

GENERAL WARNINGS

Performance adjustments should only be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver, bystanders, damage to the chair and to surrounding property.

After the wheelchair has been set-up, check to make sure that the wheelchair performs to the specifications entered during the set-up procedure. If the wheelchair does **NOT** perform to specifications, turn the wheelchair **OFF** immediately and reenter set-up specifications. Repeat this procedure until the wheelchair performs to specifications.

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

TIRE PRESSURE

DO NOT use your wheelchair unless it has the proper tire pressure (P.S.I.). **DO NOT** overinflate the tires. Failure to follow these suggestions may cause the tire to explode and cause bodily harm. The recommended tire pressure is listed on the side wall of the tire.

BATTERIES

The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell or sealed lead acid batteries. Invacare strongly recommends their use as the power source for this unit.

The use of rubber gloves and safety glasses is recommended when working with batteries.

Carefully read battery/battery charger information prior to installing, servicing or operating your wheelchair.

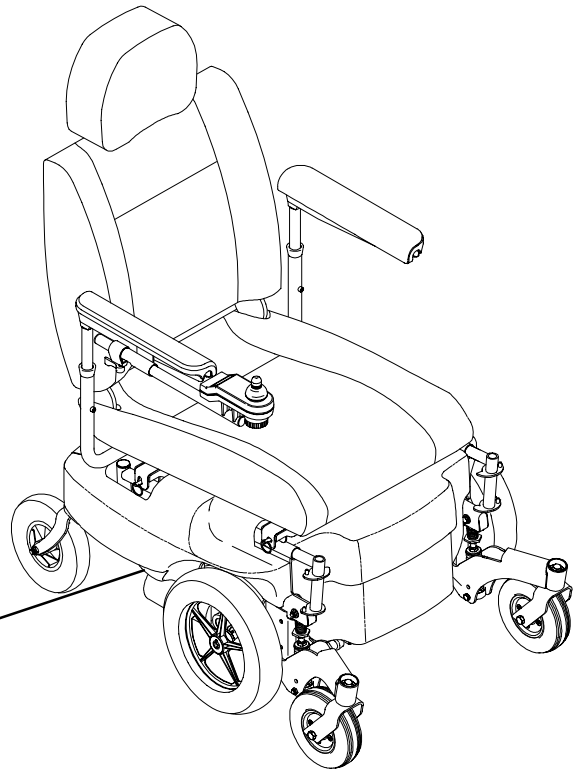
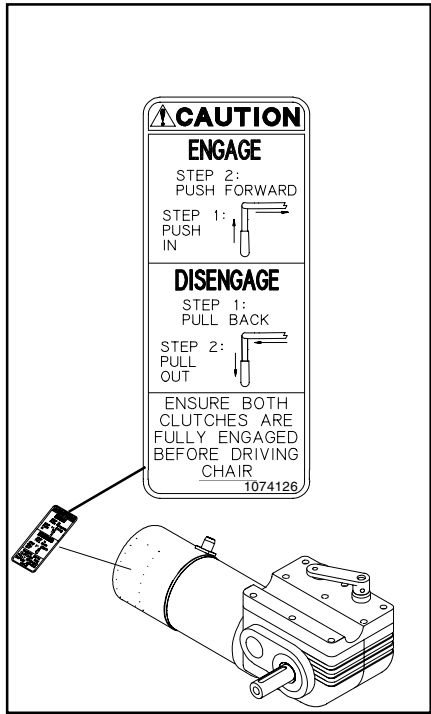
ELECTRICAL

Grounding Instructions:

DO NOT, under any circumstances, cut or remove the round grounding prong from any plug used with or for Invacare products. Some devices are equipped with three-prong (grounding) plugs for protection against possible shock hazards. Where a two-prong wall receptacle is encountered, it is the personal responsibility and obligation of the customer to contact a qualified electrician and have the two-prong receptacle replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code. If you must use an extension cord, use **ONLY** a three-wire extension cord having the same or higher electrical rating as the device being connected. In addition, Invacare has placed **RED/ORANGE WARNING TAGS** on some equipment. **DO NOT** remove these tags. Carefully read battery/battery charger information prior to installing, servicing or operating your wheelchair.

WARNING/CAUTION LABEL LOCATION

GENERAL GUIDELINE



This Procedure Includes the Following:***Field Load Test******Using Hydrometer To Check Battery Cells (Lead Acid)******Motor Testing******Motor Brush Inspection******Electro-Mechanical Parking Brake Testing*****FIELD LOAD TEST (FIGURE 1)**

NOTE: The following test can also be performed through the controller of the wheelchair along with a remote programmer. Refer to the individual CONTROLLER MANUAL supplied with each wheelchair.

Old batteries lose their ability to store and release power, due to increased internal resistance. This means that as you try to take power from the battery, some of that power is used up in the process of passing through the battery, resulting in less voltage at the posts. The more power drawn, the lower the voltage available. When this lost voltage drops the output 1.0 volts under load (2.0 for a pair), replace the batteries.

Testing under load is the only way to spot this problem. While special battery load testing equipment is available, it is costly and difficult to transport.

Use a digital voltmeter to check battery charge level at the charger connector. It is located on the base of the wheelchair frame.

NOTE: READ the instructions CAREFULLY before using the digital voltmeter.

NOTE: Invacare recommends that ONLY qualified technicians perform this test.

1. Ensure that power is OFF.
2. Make sure battery is fully charged. An extremely discharged battery will exhibit the same symptoms as a bad one.
3. Place one (1) piece of wood taller than the axle of the drive wheels between the wheelchair and a wall, workbench or other stationary object.
4. Remove the footrests or footboard from the wheelchair and place the stabilizer wheels against the piece of wood.
5. Place the voltmeter leads into the charger plug on the wheelchair. Most digital voltmeters are not affected by polarity, however, analog meters (meters with swinging needles) can be and should be used carefully. A good meter reading should be 25.5 to 26 VDC.
6. Have two (2) individuals (one [1] on each arm) apply as much downward pressure as possible on the arms of the wheelchair.

7. Turn the wheelchair ON and push the joystick forward, trying to drive the wheelchair through the stationary object. This puts a heavy load on the batteries as they try to push through the stationary object. Read the meter while the motors are straining to determine the voltage under load.

NOTE: If the voltage drops to less than 23.5 volts from a pair of fully charged batteries while under load, they should be replaced regardless of the unloaded voltages.

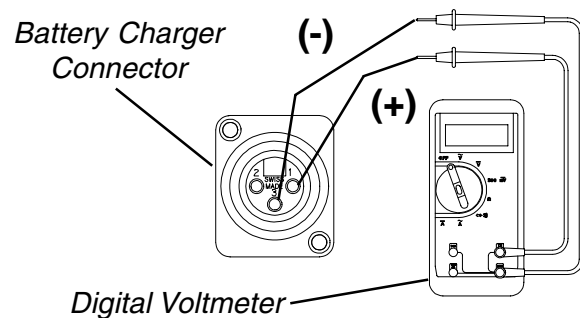


FIGURE 1 - FIELD LOAD TEST

USING HYDROMETER TO CHECK BATTERY CELLS (LEAD ACID) (FIGURE 2)

NOTE: Perform this procedure when a digital voltmeter is not available.

WARNING

NEVER smoke or strike a match near the batteries. If the caps of the battery cells are removed, NEVER look directly into them when charging the battery.

The use of rubber gloves and safety glasses is recommended when testing the battery cells.

When reading a hydrometer, DO NOT allow any liquid to come in contact with your eyes or skin. It is a form of acid and can cause serious burns, and in some cases, blindness. If you do get battery acid on you, flush the exposed areas with cool water IMMEDIATELY. If the acid comes into contact with eyes or causes serious burns, get medical help IMMEDIATELY.

The battery acid can damage your wheelchair, clothing, and household items. Therefore, take readings cautiously and only in designated areas.

WARNING

ONLY use distilled water when topping off the battery cells.

Most batteries are not sold with instructions. However, warnings are frequently noted on the cell caps. Read them carefully.

1. Remove the battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
 2. Remove the battery caps from the battery.
 3. Squeeze the air from the hydrometer.
 4. Place the hydrometer into a battery cell.
- NOTE: DO NOT fill hydrometer more than 3/4 full.*
5. Draw up sufficient acid to cover float balls.
 6. Tap lightly to remove air bubbles.
 7. Number of floating balls indicates charge.

Number of Floating Balls

0	Discharged
1	25% Charged
2	50% Charged
3	75% Charged
4	100% Charged
*5	Overcharged

* Check charging system.

8. Flush the liquid back into the same cell after reading the float. Repeat this step until all cells have been properly read. A shorted or dead cell can be detected when it is the only cell that does not charge.

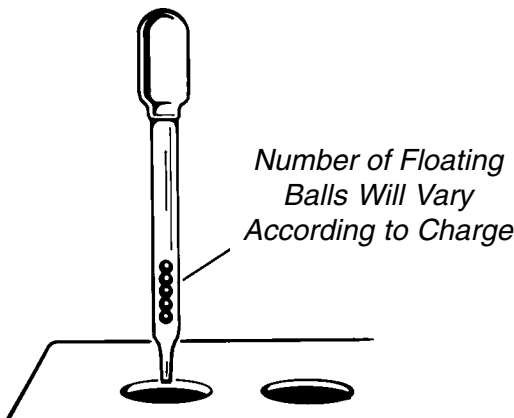


FIGURE 2 - USING A HYDROMETER TO CHECK BATTERY CELLS (LEAD ACID)

9. Flush hydrometer in cold running water by allowing the water to rise into hydrometer as far as possible. Do this several times to guard against burn damage.
10. Replace the battery caps.
11. Reinstall battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.

MOTOR TESTING (FIGURE 3)

1. On the 4-pin motor connector, locate the two (2) contacts in the red and black housings.
2. Set the digital multimeter to measure ohms (Ω).
3. Measure the resistance between the two (2) motor contacts.

NOTE: A normal reading is between 1 and 5 ohms (Ω). A reading of 0 ohms (Ω) or in excess of 15 ohms (Ω) indicates a problem. High readings are generally caused by bad connections and/or damaged brushes. Contact Invacare Dealer.

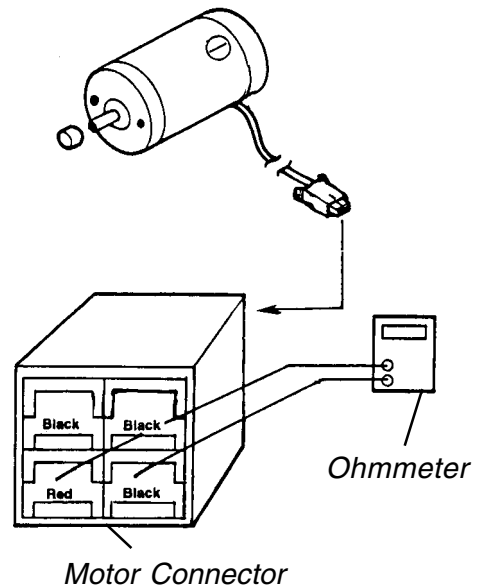


FIGURE 3 - MOTOR TESTING

MOTOR BRUSH INSPECTION (FIGURE 4)

There are two (2) contact brushes on the motors located under the brush caps on the motor housing. If these caps are hard to remove they are either overtightened or the motor has become very hot. Let motors cool. If caps still cannot be removed, it is recommended that the motor be sent to Invacare Technical Services for inspection/repair.

*NOTE: It is very important to note which way the brush comes out of the motor. The brush **MUST** be placed into the motor exactly the same way to ensure good contact with the commutator.*

1. Once the motor brush caps have been removed, pull the brushes out of the motor. The end of the brushes should be smooth and shiny and the spring should not be damaged or discolored. If one or both of the brushes are damaged, only the damaged or worn brushes need be replaced. It is very important that any time a brush is replaced, it must be "burned in". This is accomplished by running the motor for one hour in each direction with a half hour break in-between. This should also be done with little or no load on the motor, i.e., put the wheelchair up on blocks so the drive (large) wheels do not contact the ground and run the wheelchair. A motor with only one brush replaced will only carry a small percentage of its rated load capacity until the NEW brush is burned in.

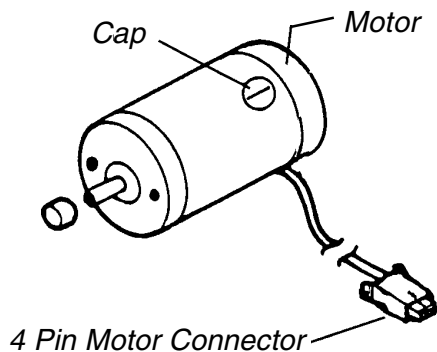


FIGURE 4 - MOTOR BRUSH INSPECTION

ELECTROMECHANICAL PARKING BRAKE TESTING (FIGURE 5)

1. On the four-pin motor connector, locate the side by side connectors in the black housings.
2. Set the digital multimeter to read ohms (Ω).
3. Measure the resistance between the two (2) brake contacts. A normal reading is 100 ohms (Ω). A reading of 0 ohms (Ω) or a very high reading; i.e., MEG ohms or O.L. (out of limit) indicates a shorted brake or an open connection respectively. If either condition exists, send the motor to Invacare Technical Service for inspection/repair.

CAUTION

A shorted electromechanical brake will damage the brake output section in the controller. **DO NOT** connect a shorted electromechanical brake to a good controller module. A shorted brake **MUST** be replaced.

NOTE: A bad motor can damage the controller module but a bad controller should NOT damage a motor.

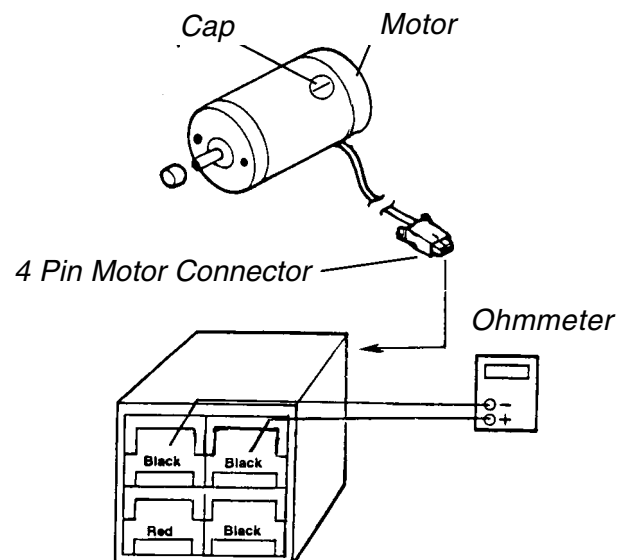


FIGURE 5 - ELECTROMECHANICAL PARKING
BRAKE TESTING

This Procedure Includes the Following:
Adjusting the Removable Footboard Height

WARNING

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

ADJUSTING THE REMOVABLE FOOTBOARD HEIGHT (FIGURE 1)

1. Remove the removable footboard plate. Refer to REMOVING/INSTALLING THE REMOVABLE FOOTBOARD ONTO/FROM THE WHEELCHAIR in PROCEDURE 3 of the Owner's Manual, part number 1096502.
2. Remove the caplug cap.
3. Remove the mounting screw, caplug washer, flat washer and nut that secures the two (2) large washers and support tube to the height adjustment bracket and footboard bracket. Refer to DETAIL "A".
4. Remove the nut and flat washer that secure the threaded arm on the height adjustment bracket to the footboard bracket. Refer to DETAIL "B".
5. Move the height adjustment bracket to one (1) of seven (7) height positions.
6. Reinstall the flat washer and nut that secures the threaded arm on the height adjustment bracket to the footboard bracket. Refer to DETAIL "B".
7. Reinstall the mounting screw, caplug washer, flat washer and nut that secures the two (2) large washers and support tube to the height adjustment bracket and footboard bracket. Refer to DETAIL "A".
8. Reinstall the caplug caps.
9. Repeat STEPS 2-8 for the opposite footboard bracket.
10. Reinstall the removable footboard plate. Refer to REMOVING/INSTALLING THE REMOVABLE FOOTBOARD ONTO/FROM THE WHEELCHAIR in PROCEDURE 3 of the Owner's Manual.

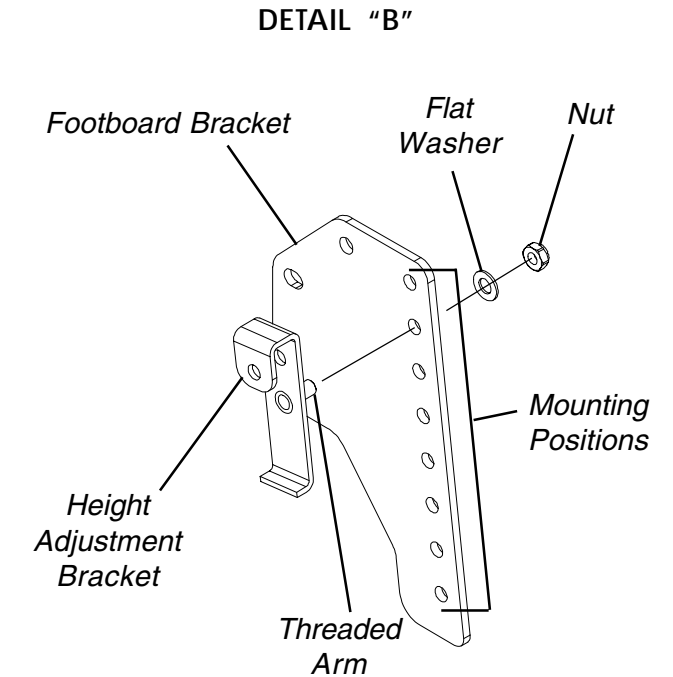
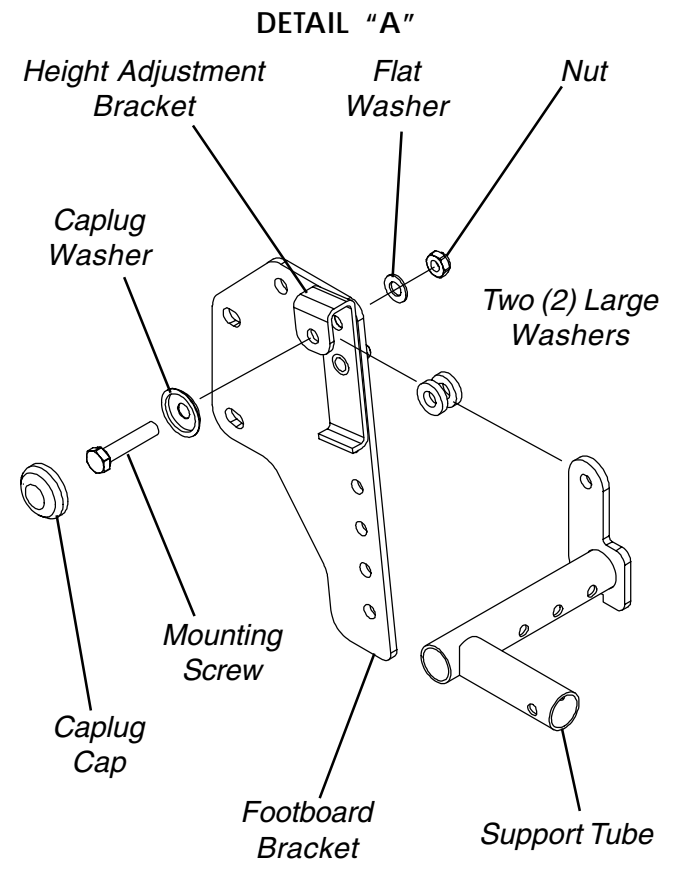


FIGURE 1 - ADJUSTING THE REMOVABLE FOOTBOARD HEIGHT

This Procedure Includes the Following:

Replacing Armrest Pads - Captain's van Seats

Replacing Captain's van Seat Armrest Plate

WARNING

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

REPLACING ARMREST PADS - CAPTAIN'S VAN SEATS (FIGURE 1)

1. Remove the mounting screw that secures the front of the armrest pad to the armrest plate.
2. Remove the mounting screw that secures the rear of the armrest pad and armrest insert to the armrest plate.
3. Remove the existing armrest pad and position the **NEW** armrest pad on the armrest plate.
4. Line up the mounting holes in the armrest insert, armrest plate and **NEW** armrest pad.
5. Reinstall the rear mounting screw through the armrest insert, armrest plate and armrest pad and tighten securely.
6. Reinstall the front mounting screw into the armrest plate and **NEW** armrest pad and tighten securely.

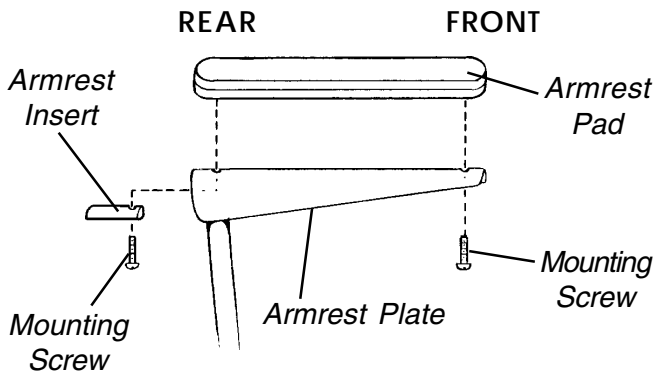


FIGURE 1 - REPLACING ARMREST PADS - CAPTAIN'S VAN SEATS

REPLACING CAPTAIN'S VAN SEAT ARMREST PLATE (FIGURE 2)

1. If necessary, remove the three (3) mounting screws, spacers and locknuts that secure the joystick mounting bracket to the armrest plate.
2. Remove armrest pad. Refer to REPLACING ARMREST PADS - CAPTAIN'S VAN SEATS in this procedure of the manual.
3. Remove the mounting screw, washers and locknut that secure the existing armrest plate to the arm weldment.
4. Position the **NEW** armrest plate on the armrest weldment and secure with the mounting screw, washers, and locknut. Refer to FIGURE 2 for correct hardware orientation.
5. Reinstall van style armrest pad. Refer to REPLACING ARMREST PADS - CAPTAIN'S VAN SEAT in this procedure of the manual.
6. If necessary, reinstall the three (3) mounting screws, spacers and locknuts that secure the joystick mounting bracket to the armrest plate.
7. Repeat STEPS 1-6 for the opposite armrest plate, if necessary.

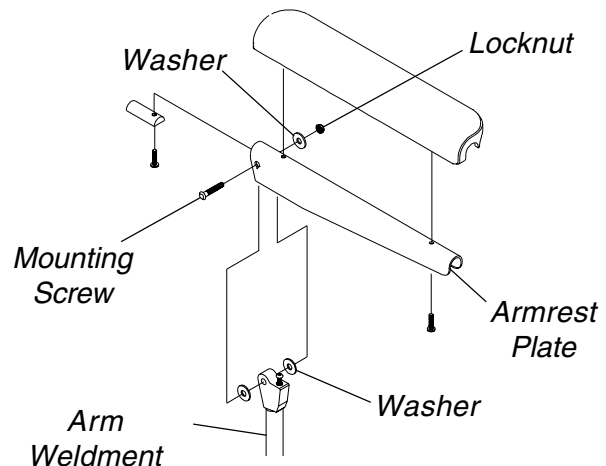


FIGURE 2 - REPLACING CAPTAIN'S VAN SEAT ARMREST PLATE

This Procedure Includes the Following:
Replacing Seat Positioning Strap - Captain's Van Seats
Replacing Back Upholstery

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

REPLACING SEAT POSITIONING STRAP - CAPTAIN'S VAN SEATS (FIGURE 1)

1. Remove the van style seat from the van seat frame. Refer to INSTALLING/REMOVING CAPTAIN'S VAN SEAT ASSEMBLY in PROCEDURE 6 of this manual.
2. Remove the two (2) rear mounting screws, washers, and locknuts that secure the seat positioning straps to the van seat frame.

NOTE: The washer is positioned between the seat positioning strap and the mounting screw.

3. Secure the **NEW** seat positioning strap halves with the mounting screws, washers and locknuts to the van seat frame and torque to 75-inch pounds.
4. Reinstall the van style seat to the van seat frame. Refer to INSTALLING/REMOVING CAPTAIN'S VAN SEAT ASSEMBLY in PROCEDURE 6 of this manual.

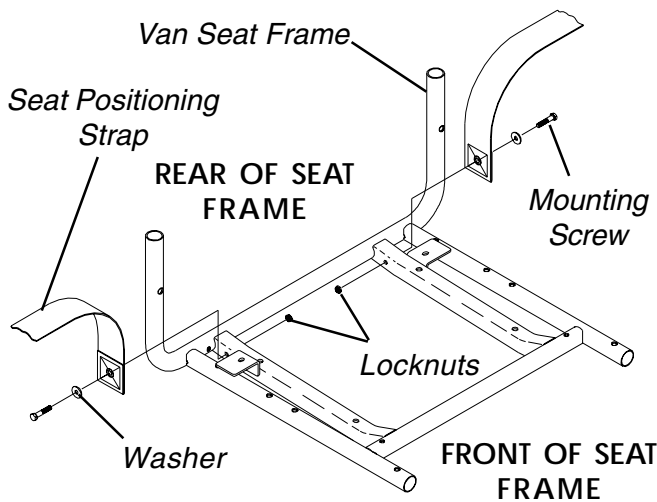


FIGURE 1 - REPLACING SEAT POSITIONING STRAP - CAPTAIN'S VAN SEATS

REPLACING BACK UPHOLSTERY (FIGURE 2)

1. Remove one (1) armrest from the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.
2. If applicable, remove the two (2) mounting screws and locknuts that secure the spreader bar to the back canes.
3. Remove the two (2) mounting screws and washers that secure the existing back upholstery to the back canes.
4. Cut the tie-wraps that secure the bottom of the existing back upholstery to the back canes.

NOTE: Note the back angle before disassembly for proper reinstallation.

5. On the side of the wheelchair that the armrest was removed, remove one (1) of the mounting screws, washer, spacer, and locknut that secures the back cane to the seat frame.

NOTE: To avoid losing the insert in each back cane, thread the mounting screw just removed through the cane from the inside of the wheelchair to hold the insert in place.

6. Remove the other mounting screw, washer, spacer, and locknut that secures the back cane to the seat frame.
7. Slide the back cane out of the spreader bar (if applicable) and the existing back upholstery.
8. Remove other armrest from the chair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.
9. Repeat STEPS 5-7 for the opposite side of the wheelchair.
10. Slide the other back cane out of the spreader bar (if applicable) and the existing back upholstery.
11. Slide one(1) back cane into **NEW** back upholstery and through spreader bar (if applicable).
12. Secure back cane to the seat frame from the outside of the wheelchair with the existing two (2) mounting screws, washers, spacers, and locknuts. Use Loctite 242 and torque to 75-in/lbs.
13. Repeat STEPS 11-12 for opposite back cane.
14. Secure the top of the **NEW** back upholstery to the back canes with the two (2) existing mounting screws.

NOTE: When replacing the back upholstery, back assembly or changing back height, follow these guidelines for spreader bar height:

STANDARD MODELS	
BACK HEIGHT	◆ SPREADER BAR HEIGHT
16-inches*	5-inches
17-inches*	5-inches
18-19-inches*	7-inches
20-24-inches	7-inches

*NOTE: Spreader Bar required on ALL back heights between 20-24-inches. *Spreader bar required on back heights 16, 17, 18, or 19 ONLY if the width or depth of the chair exceeds 19-inches.*

◆ Height of Spreader Bar from Bottom of Back Canes to Top of Spreader Bar Clamp.

HEAVY DUTY MODELS

NOTE: Spreader bar required on all back heights.

BACK HEIGHT	◆ SPREADER BAR HEIGHT
16-17-inches	5-inches
18-24-inches	7-inches

◆ Height of Spreader Bar from Bottom of Back Canes to Top of Spreader Bar Clamp.

- If applicable, reposition the spreader bar at the correct height for the corresponding back height and torque the mounting hardware to 60-in/lbs.
- Reinstall the armrest onto the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.

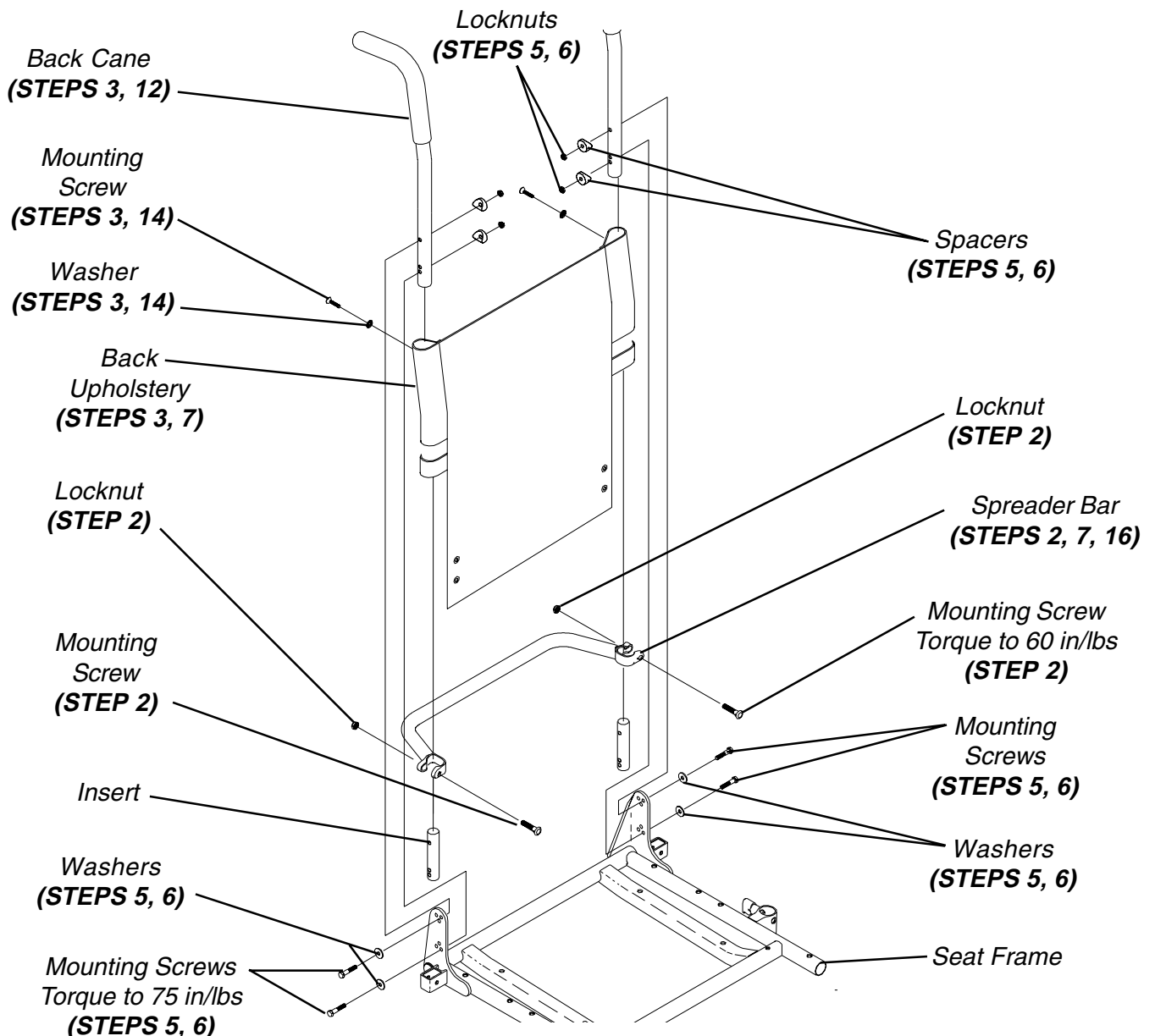


FIGURE 2 - REPLACING BACK UPHOLSTERY

This Procedure includes the following:

Changing Seat Depth For Standard Seat Frame
Replacing Captain's van Seat and/or Captain's van Seat Frame
Removing/Installing Standard Seat
Removing/Installing Captain's Van Seat
Removing/Installing Seat Pan
Mounting Plate - Seat Angle Adjustment and Installation Orientation
Changing Back Height
Back Angle Adjustment

WARNING

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

NOTE: The procedures in this section of the manual refer to NON-RECLINER seat frames only, EXCEPT Seat Angle Adjustment. For recliner seat frames, refer to PROCEDURE 14 of this manual.

CHANGING SEAT DEPTH FOR STANDARD SEAT FRAME (FIGURE 1)

NOTE: The seat depth of the wheelchair can be adjusted up to 1-inch from the original seat depth by simply using the correct depth seat pan without changing the seat frame. Example:

SEAT FRAME	AVAILABLE SEAT DEPTHS
16-inch	16 and 17-inch
18-inch	18 and 19-inch
20-inch	20 and 21-inch
22-inch	22-inch

NOTE: If the desired seat depth change only requires a NEW seat pan, refer to REMOVING/INSTALLING SEAT PAN in this procedure. If the desired seat depth change requires a change in the seat frame, perform the following

1. Remove footrest assemblies. Refer to PROCEDURE 3 in the Owner's Manual, part number 1095602.
2. Remove front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
3. Remove battery box(es). Refer to INSTALLING/REMOVING BATTERY BOX in PROCEDURE 11 of this manual.
4. Cut tie wraps and disconnect joystick from controller.
5. Turn the lever on the adjustment lock to release the adjustment lock from the joystick mounting tube.
6. Remove the flip-back armrests from the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.

7. Remove the seat pan (including seat positioning straps). Refer to REMOVING/INSTALLING SEAT PAN in this procedure of the manual.
8. Remove the back upholstery (including back canes and spreader bar, if applicable). Refer to REPLACING BACK UPHOLSTERY in PROCEDURE 5 of the manual.
9. Remove the four (4) mounting screws, locknuts and spacers, if applicable, that secure the standard seat frame to the seat mounting plates.
10. Remove existing standard seat frame.
11. Position NEW standard seat frame on seat mounting plates.
12. Secure NEW standard seat frame onto seat mounting plates with existing four (4) mounting screws, locknuts and spacers, if applicable. Torque to 156-inch pounds.
13. Reassemble wheelchair by reversing STEPS 1-8.

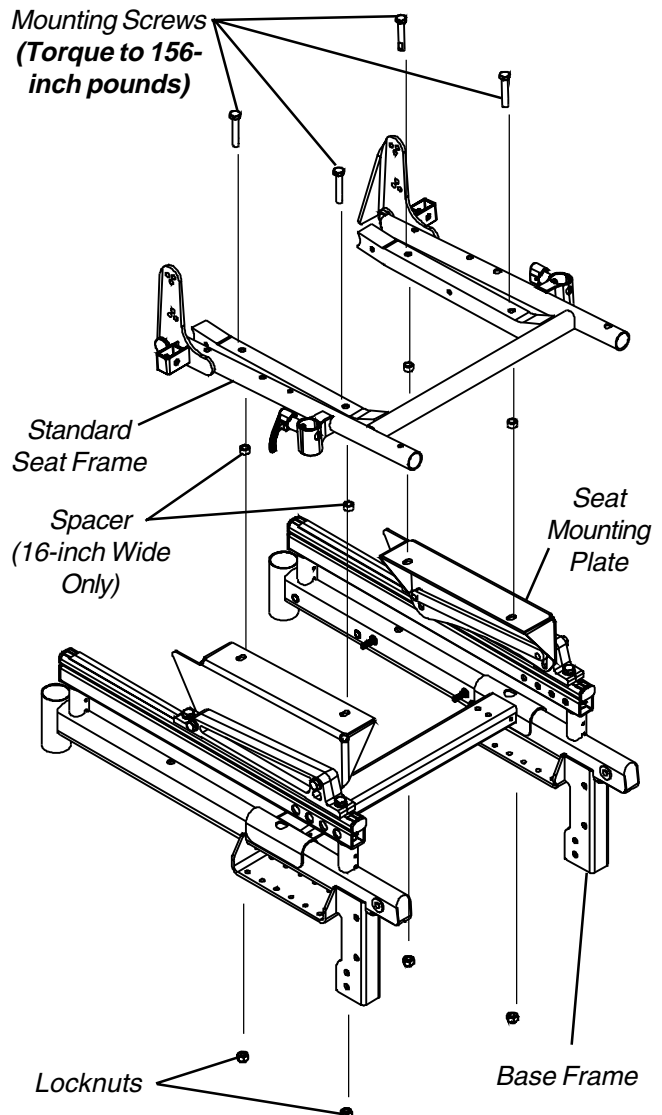


FIGURE 1 - CHANGING SEAT DEPTH FOR STANDARD SEAT FRAME

REPLACING CAPTAIN'S VAN SEAT AND/OR CAPTAIN'S VAN SEAT FRAME (FIGURE 2)

1. Remove footrest assemblies. Refer to PROCEDURE 3 of the Owner's Manual, part number 1095602.
2. Remove front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
3. Remove battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
4. Cut tie wraps and disconnect joystick from controller.

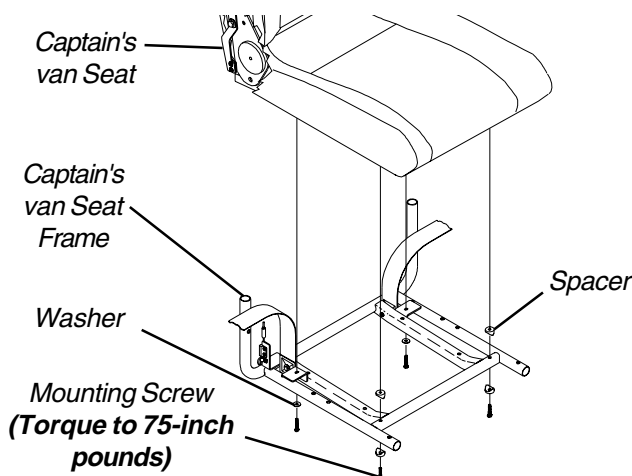
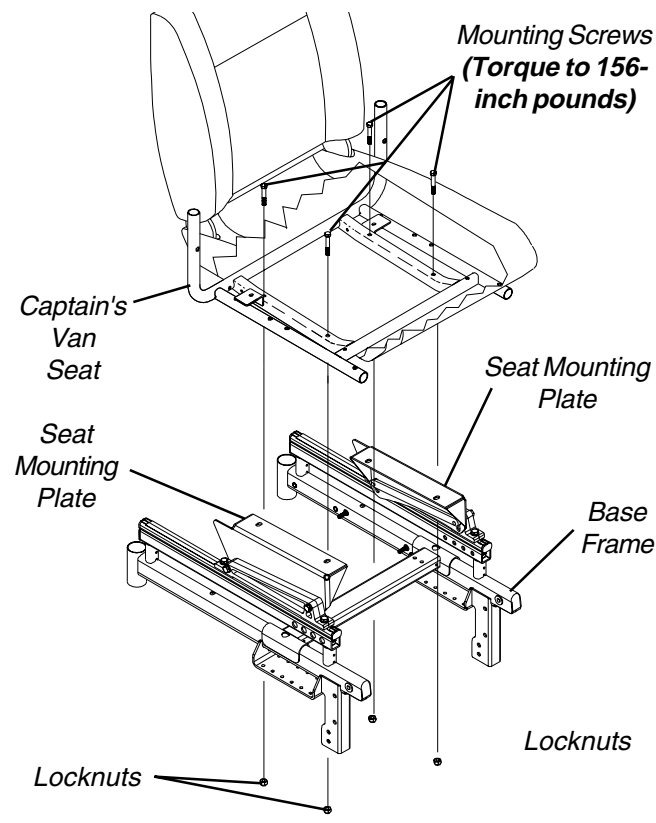


FIGURE 2 - REPLACING CAPTAIN'S VAN SEAT AND/OR CAPTAIN'S VAN SEAT FRAME

5. Turn the lever on the adjustment lock to release the adjustment lock from the joystick mounting tube.
6. Remove the joystick from the wheelchair.
7. Remove the mounting screw that secures the armrest to the van seat frame. Repeat for opposite side.
8. Remove the four (4) mounting screws and locknuts that secure the Captain's Van Seat to seat mounting plates.
9. Remove the four (4) mounting screws, two (2) washers, and two (2) spacers that secure the Captain's van seat to the seat frame.
10. Replace either Captain's van seat or Captain's van seat frame.
11. Secure new/existing Captain's van seat to the new/existing Captain's van seat frame with existing four (4) mounting screws and spacers. Apply Loctite on threads and torque to 75-inch pounds.
12. Reassemble wheelchair by reversing STEPS 1-8.

REMOVING/INSTALLING STANDARD SEAT (FIGURE 3)

Removing

1. Remove footrest assemblies. Refer to PROCEDURE 3 of the Owner's Manual, part number 1095602.
2. Remove front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
3. Remove battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
4. Cut tie wraps and disconnect joystick from controller.
5. Remove the four (4) mounting screws and locknuts that secure the seat frame to the seat mounting plates.
6. Remove the standard seat frame from the base frame.

Installing

1. Position standard seat frame on seat mounting plates.
2. Secure standard seat frame onto seat mounting plates with the existing four (4) mounting screws, locknuts and spacers, if applicable. Torque to 156-inch pounds.
3. Plug joystick into controller and secure with new tie-wraps.
4. Install battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
5. Install front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.

SEAT / BACK

6. Install footrest assemblies. Refer to PROCEDURE 3 of the Owner's Manual, part number 1095602.

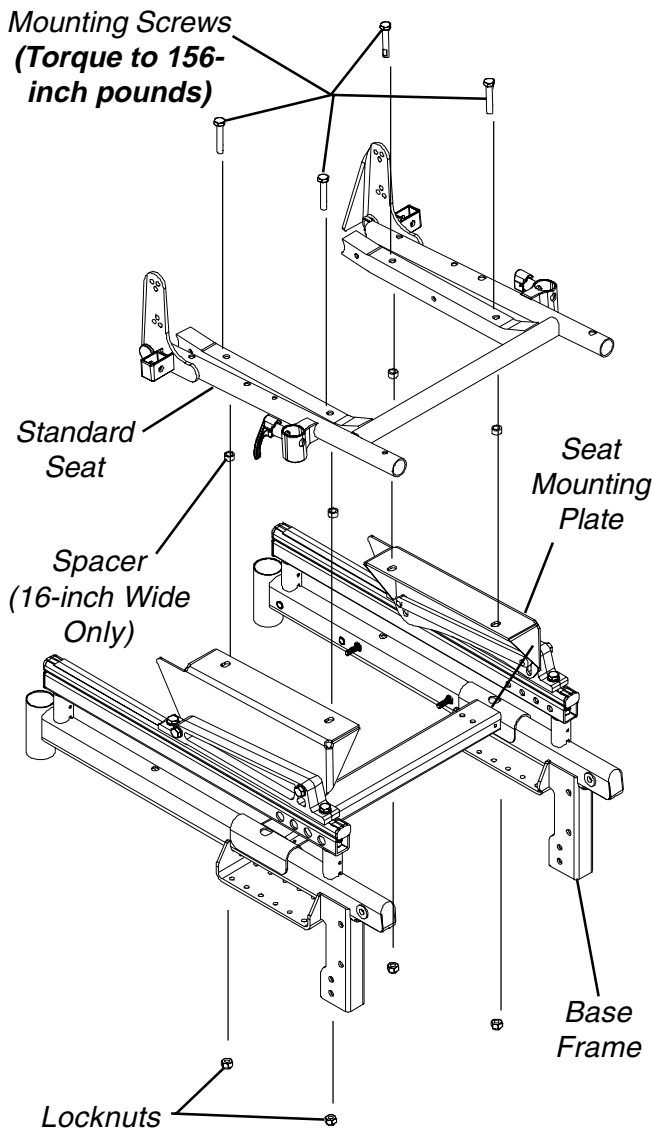


FIGURE 3 - REMOVING/INSTALLING STANDARD SEAT

REMOVING/INSTALLING CAPTAIN'S VAN SEAT (FIGURE 4)

Removing Captain's Van Seat

1. Remove footrest assemblies. Refer to PROCEDURE 3 of the Owner's Manual, part number 1095602.
2. Remove front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
3. Remove battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
4. Unplug joystick from controller.

5. Remove the four (4) mounting screws and locknuts that secure the Captain's van seat to the seat mounting plates.
6. Remove captain's van seat from seat mounting plates.

Installing Captain's Van Seat

1. Position the Captain's van seat on the seat mounting plates at the position shown in FIGURE 4.
2. Line up mounting holes in the Captain's van seat frame and the mounting holes in the seat mounting plates.
3. Secure the Captain's van seat to the seat mounting plates with four (4) mounting screws, and locknuts. Torque to 156-inch pounds.
4. Plug joystick into controller and secure with new tie-wraps.
5. Install battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
6. Install front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
7. Install footrest assemblies. Refer to PROCEDURE 3 of the Owner's Manual, part number 1095602.

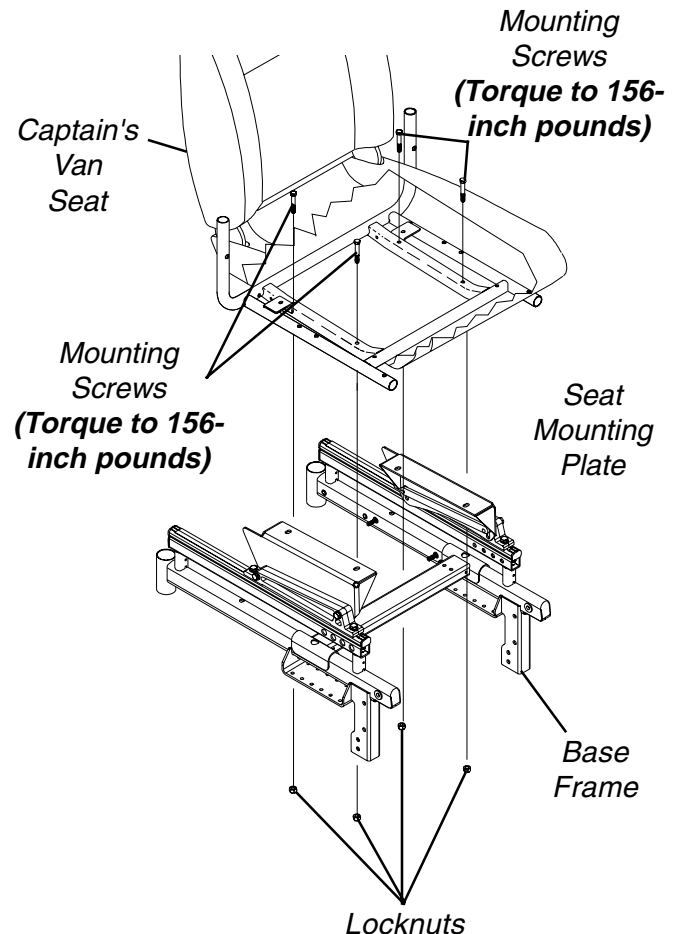


FIGURE 4 - REMOVING/INSTALLING CAPTAIN'S VAN SEAT

REMOVING/INSTALLING SEAT PAN (FIGURE 5)

Removing

1. Remove the seat cushion from the seat pan.
2. Remove the flip-back armrests from the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.
3. Remove the six (6) mounting screws, locknuts, and spacers that secure the seat pan, seat positioning strap, and quick release pin to the seat frame.

NOTE: When removing seat pan, note tab position of quick release pin to the seat positioning strap.

Installing

1. Position the NEW seat pan on the seat frame, aligning the mounting holes of the seat pan and the mounting holes of the seat frame.
2. Position the seat positioning strap and quick release pin tab onto the seat frame and secure with mounting screw and locknut. See FIGURE 9 for proper orientation. Repeat for other seat positioning strap.

NOTE: Check seat positioning strap for proper length. The width range for the two (2) seat positioning straps are: 16 through 19-inches wide and 20 through 22-inches wide.

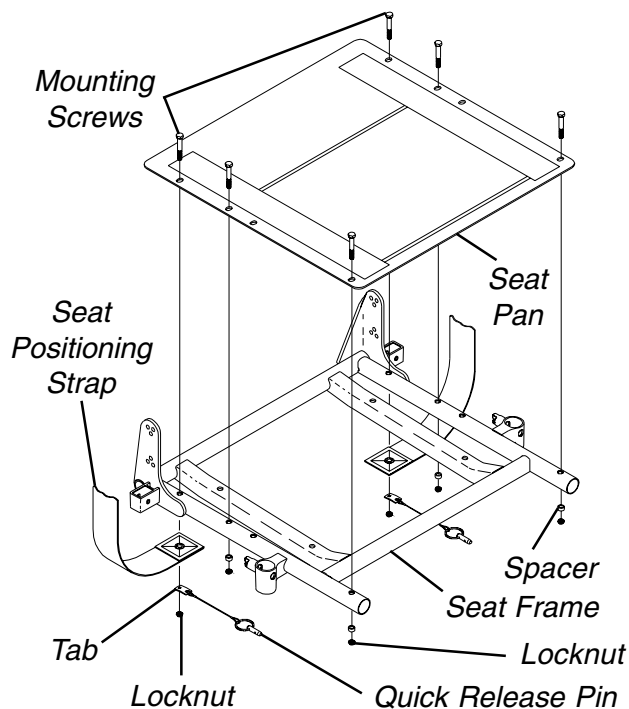


FIGURE 5 - REMOVING/INSTALLING SEAT PAN

3. Reinstall the remaining mounting screws, locknuts, and spacers. Torque all mounting screws to 75-inch pounds.
4. Remove the protective strips from new seat pan and reinstall the seat cushion onto the seat pan.

MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION (FIGURE 6)

Seat Angle Adjustment

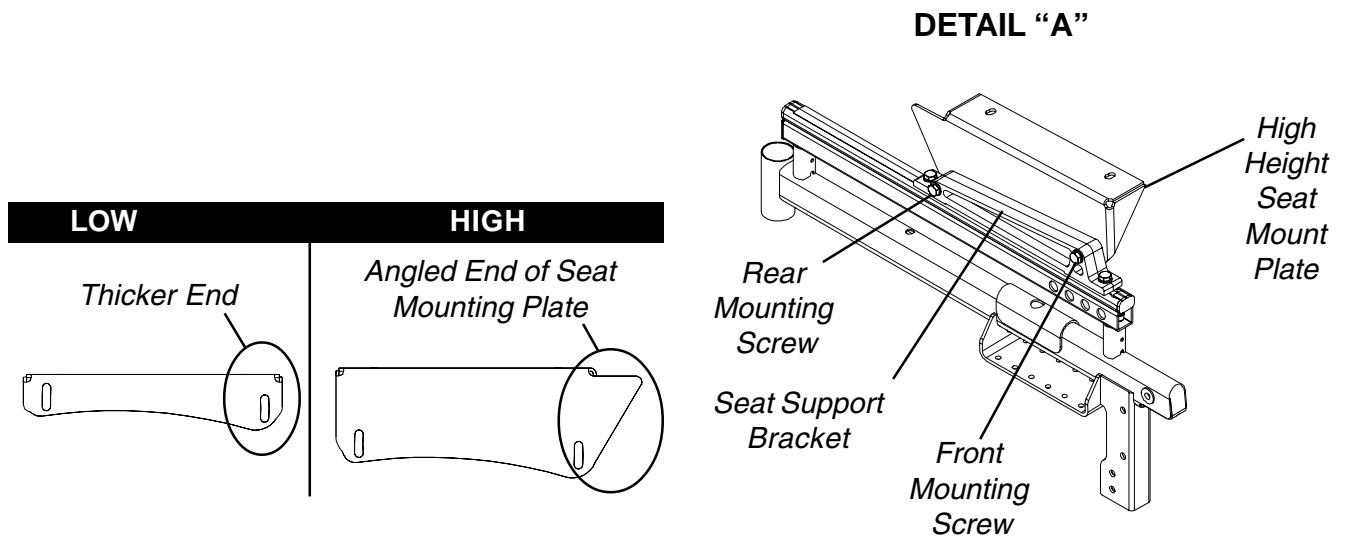
NOTE: The angle of the seat is factory set providing the user with a 5° seat dump. This angle can be changed by adjusting either the front or back of the seat mount plate to obtain any angle between 0° or 10° seat dump.

NOTE: There are two (2) heights of seat mounting plates; low and high. See chart below for proper settings.

1. To obtain a 0° seat dump (DETAIL "A"):
 - A. Loosen the mounting screws that secure the front and rear of the seat mount plate to the seat support bracket. Repeat for opposite side of wheelchair.
 - B. Position the mounting screws at the bottom of the rear slot and the top of the front slot.
 - C. Securely tighten all four (4) mounting screws. Torque to 15-in/lbs.
2. To obtain a 10° seat dump (DETAIL "A"):
 - A. Loosen the mounting screws that secure the front and rear of the seat mount plate to the seat support bracket. Repeat for opposite side of wheelchair.
 - B. Position the mounting screws at the bottom of the front slot and top of the rear slot.
 - C. Securely tighten all four (4) mounting screws. Torque to 15-in/lbs.

Installation Orientation

1. **High Seat Mounting Plates:** Install with the angled end toward the rear of the wheelchair.
2. **Low Seat Mounting Plates:** Install with the thicker end toward the front of the wheelchair.



SEAT MOUNT PLATE

SEAT DUMP

LOW HEIGHT

HIGH HEIGHT

	0°		5°		10°	
	FRONT OF CHAIR	REAR OF CHAIR	FRONT OF CHAIR	REAR OF CHAIR	FRONT OF CHAIR	REAR OF CHAIR
LOW HEIGHT						
HIGH HEIGHT						

FIGURE 6 - MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION

CHANGING BACK HEIGHT (FIGURE 7)

NOTE: If changing the back height, new back upholstery may be needed as well. Refer to the following chart to determine if new back upholstery is needed:

BACK UPHOLSTERY HEIGHT RANGES

16-17-INCHES
18-19-INCHES
20-INCHES
21-22-INCHES
23-24-INCHES

If back height required is within the range of the original back height, only new back canes will be needed.

If the back height required is NOT within the range of the original back height, new back upholstery, as well as new back canes will be needed.

NOTE: Existing hardware and inserts will be reused.

1. Remove the armrests from the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095602.

NOTE: Note the correct mounting screw mounting positions to ensure the proper back angle for reinstallation.

2. Remove the two (2) mounting screws and washers that secure the existing back upholstery to the back canes.
3. Remove the four (4) mounting screws, washers, spacers, and locknuts that secure the existing back canes to the seat frame.
4. Remove the inserts from the existing back canes.
5. Remove the back assembly from the wheelchair.
6. If applicable, loosen, but do not remove the mounting screws and locknuts that secure the spreader bar to the existing back canes.
7. Remove existing back canes from the back assembly.
8. Slide the inserts into the bottom of the **NEW** back canes.
9. Line up the mounting holes of the inserts with the mounting holes in the back canes.

NOTE: To keep the inserts lined up for reinstallation onto the wheelchair, start one (1) of the mounting screws through the back cane from inside of the wheelchair to hold the insert in place.

10. Slide the **NEW** back canes through the existing/**NEW** back upholstery and spreader bar.
11. If applicable, loosely tighten the mounting screws that secure the spreader bar to the **NEW** back canes.
12. Line up the mounting holes in the back canes with the mounting holes in the seat frame.

NOTE: If needing a reference for proper mounting holes for the back angle required, or if changing the original back angle, refer to BACK ANGLE ADJUSTMENT in this procedure of the manual.

WARNING

The back canes **MUST** be fastened securely to the seat frame **BEFORE** using the wheelchair. Torque to 75-inch pounds.

13. Secure the two (2) **NEW** back canes to the seat frame with the existing four (4) mounting screws, washers, spacers, and locknuts. Use Loctite 242 and torque to 75-inch pounds.
14. Secure the top of the existing/new back upholstery to the back canes with the two (2) existing mounting screws and washers.
15. Secure bottom of the existing/**NEW** back upholstery to rear of the seat pan.
16. Secure the bottom of the existing/**NEW** back upholstery to the back canes with new tie-wraps.

NOTE: Clean upholstery with warm DAMP cloth and mild detergent to remove superficial soil.

WARNING

Laundering or moisture will reduce flame retardancy of the upholstery.

NOTE: When replacing the back upholstery, back assembly or changing back height, follow these guidelines for spreader bar height (where applicable):

BACK HEIGHT	◆ SPREADER BAR HEIGHT
16-inches*	5-inches
17-inches*	5-inches
18-19-inches*	7-inches
20-24-inches	7-inches

*NOTE: Spreader Bar required on back heights 20-24-inches. *Spreader bar ONLY required on these back heights if the width or depth of the chair exceeds 19-inches.*

◆ Height of Spreader Bar from Bottom of Back Canes to Top of Spreader Bar Clamp.

HEAVY DUTY MODELS

NOTE: Spreader bar required on all Heavy Duty models.

BACK HEIGHT	◆ SPREADER BAR HEIGHT
16-17-inches	5-inches
18-24-inches	7-inches

◆ Height of Spreader Bar from Bottom of Back Canes to Top of Spreader Bar Clamp.

SEAT / BACK

17. If necessary, reposition the spreader bar at the correct height for the corresponding back height and torque the mounting hardware to 60-inch pounds.

18. Reinstall the armrest onto the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095206.

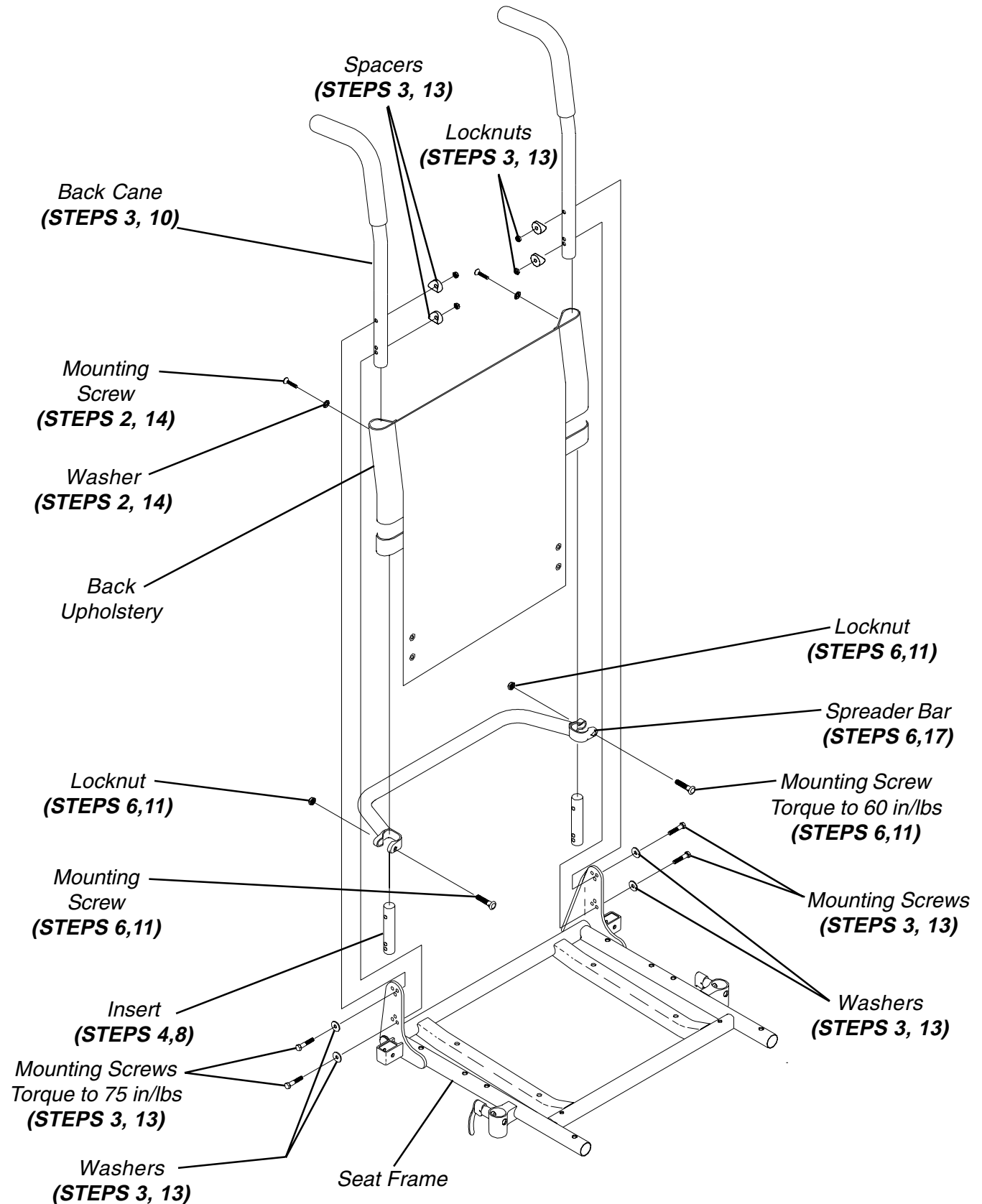


FIGURE 7 - CHANGING BACK HEIGHT

**BACK ANGLE ADJUSTMENT
(FIGURE 8)**

1. Remove armrests from the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095206.
2. Remove the mounting screw and washer from the top mounting hole of **back angle plate** and **back cane**.

NOTE: To avoid losing the insert in each back cane, thread the mounting screw through the cane from the inside of wheelchair to hold the insert in place.

3. Remove the mounting screw and washer from the bottom mounting hole of the **back angle plate** and **back cane**.
4. Reposition the back canes into the correct mounting holes of the **back angle plate** to obtain a back angle between 80° and 100° in 5° increments.
5. Torque mounting screws to 75-inch pounds.
6. Reinstall the armrests onto the wheelchair. Refer to INSTALLING/REMOVING FLIP BACK ARMRESTS in PROCEDURE 4 of the Owner's Manual, part number 1095206.

TO ACHIEVE A BACK ANGLE OF:

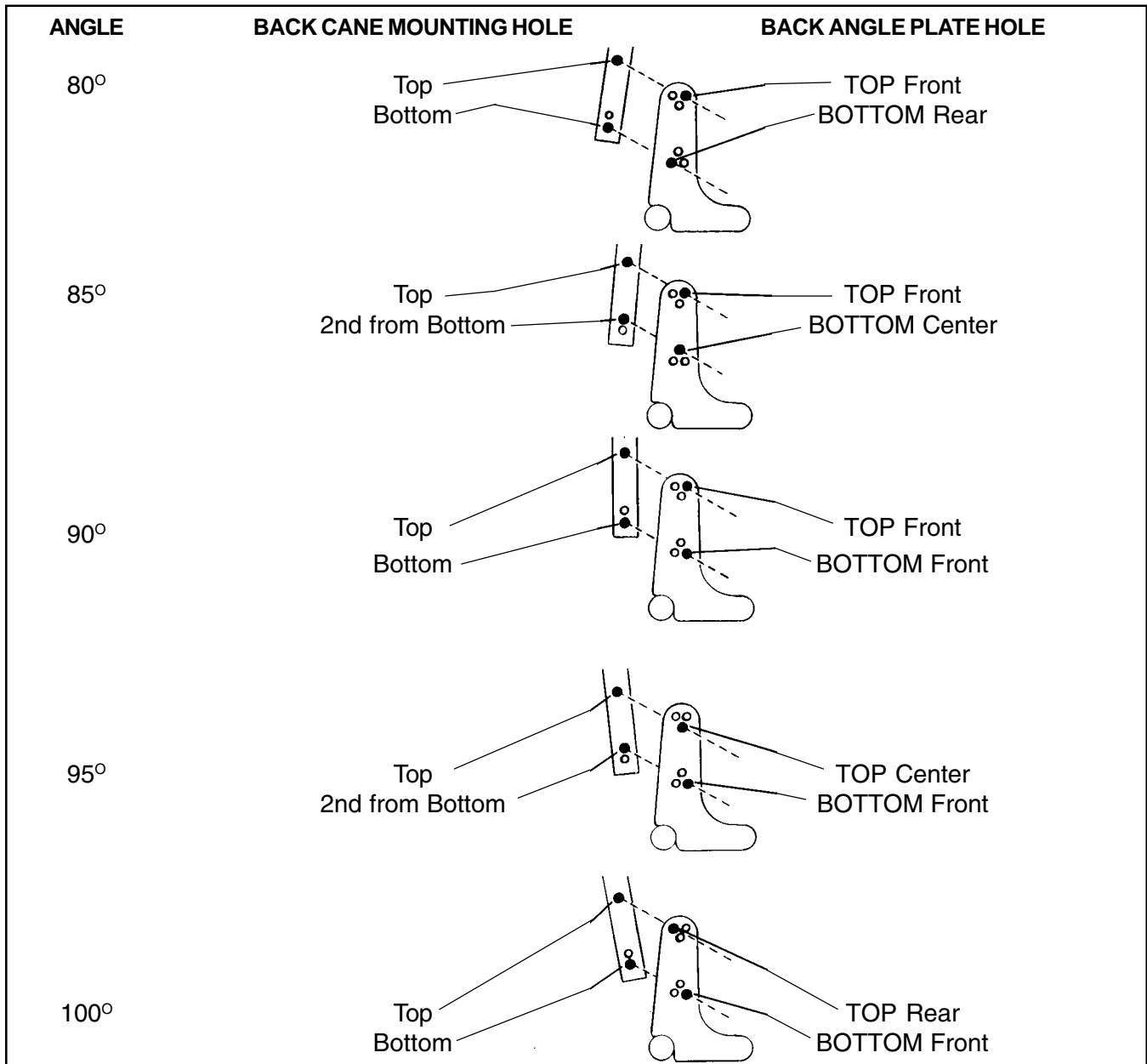


FIGURE 8 - BACK ANGLE ADJUSTMENT

This Procedure Includes the Following:
Repositioning MKIV and RII Joystick
Removing/Installing MKIV and RII Controller

WARNING

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

REPOSITIONING MKIV AND RII JOYSTICK

Captain's Seats (FIGURE 1)

1. Turn the lever on the adjustment lock to release the adjustment lock from joystick mounting tube.
2. Remove the joystick from the wheelchair.
3. Remove the three (3) hex bolts, spacers and locknuts that secure joystick mounting bracket to armrest plate.
4. Remove the phillips screw that secures the front of the armrest pad to the armrest plate.
5. Remove the phillips screw that secures the rear of the armrest pad and armrest insert to the armrest plate.
6. Remove the armrest pad from the armrest plate.
7. Remove the lug bolt, washers and locknut that secure the existing armrest plate to the seat frame assembly.
8. Repeat STEPS 4-7 for opposite side of wheelchair.
9. Position armrest plate with joystick mounting holes on desired side of seat frame assembly and secure with lug bolt, washers and locknut. Refer to FIGURE 1.

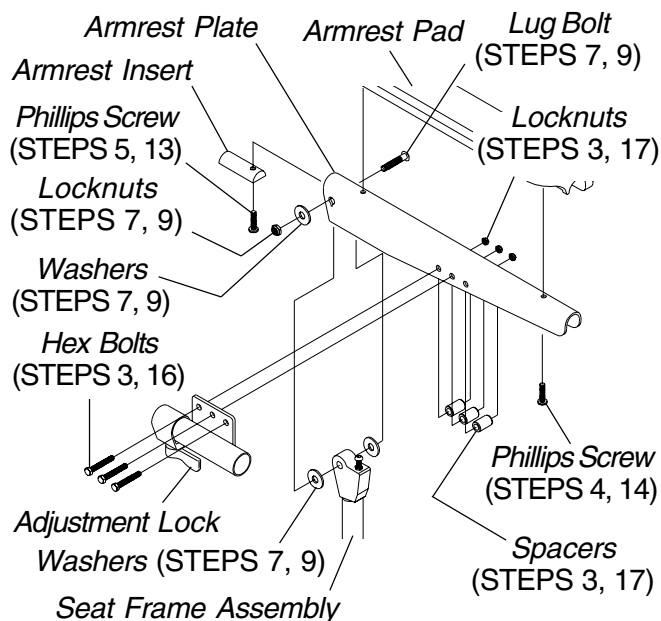


FIGURE 1 - REPOSITIONING MKIV AND RII JOYSTICK - CAPTAIN'S SEATS

10. Position armrest plate without joystick mounting holes on opposite side of seat frame assembly and secure with lug bolt, washers and locknut. Refer to FIGURE 1.
11. Position the armrest pad on the armrest plate.
12. Line up the mounting holes in the armrest insert, armrest plate and armrest pad.
13. Reinstall rear phillips screw through the armrest insert, armrest plate and armrest pad and tighten securely.
14. Reinstall the front phillips screw into the armrest plate and armrest pad and tighten securely.
15. Repeat STEPS 11-14 for opposite side of wheelchair.
16. Install Loctite 242 onto the three (3) hex bolts.
17. Install the three (3) hex bolts, spacers and locknuts that secure joystick mounting bracket to armrest plate.
18. Slide the joystick mounting tube through the joystick mounting bracket to the desired position.
19. Secure adjustment lock to joystick mounting tube by turning lever on adjustment lock.

REMOVING/INSTALLING THE MKIV CONTROLLER OR RII CONTROLLER

WARNING

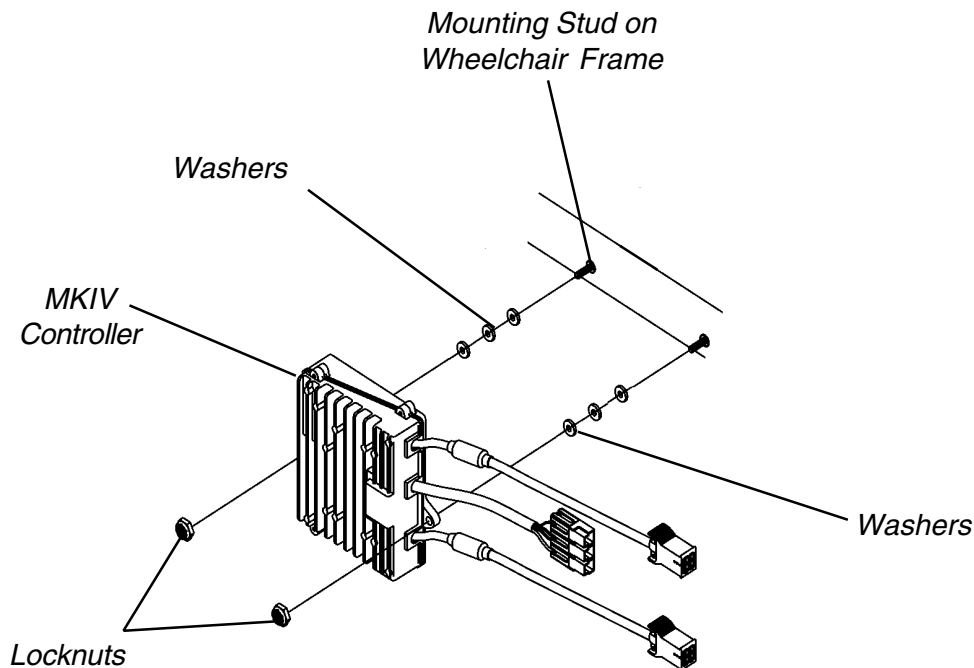
Replacement controller **MUST** be same part number as factory installed controller - Otherwise, injury or damage may result.

MKIV Controller (FIGURES 2 AND 3)

REMOVING.

1. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
2. Unplug joystick from controller.
3. Remove tie-wrap A and B that secure the following to the base frame: (Refer to FIGURE 3)
 - A. The connection between the left motor/gearbox lead and left controller lead.
 - B. Right controller lead.
 - C. The connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
 - D. The coil wrapped battery lead.

4. Disconnect the following:
 - A. The connection between the right motor/gearbox lead and right controller lead. NOTE: Tie-wrap "C" does not need to be removed to make this disconnection.
 - B. The connection between the left motor/gearbox lead and left controller lead.
 - C. The connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
 5. Remove the two (2) locknuts and washers that secure the existing MKIV controller to the wheelchair. (FIGURE 2)
 6. Remove existing MKIV controller from the wheelchair.
- INSTALLING.**
1. Install washer(s) onto mounting stud on wheelchair.
 2. Install new/existing MKIV controller onto wheelchair frame.
 3. Secure the new/existing MKIV controller to the wheelchair with NEW locknuts. Torque to 156-in/lbs.
 4. Connect the following:
 - A. The connection between the right motor/gearbox lead and right controller lead. NOTE: Tie-wrap "C" does not need to be removed to make this connection.
 - B. The connection between the left motor/gearbox lead and left controller lead.
 - C. The connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
 - D. The coil wrapped battery lead.
 5. Install NEW tie-wraps A and B to secure the following to the base frame:
 - A. The connection between the left motor/gearbox lead and left controller lead.
 - B. Right controller lead.
 - C. The connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
 - D. The coil wrapped battery lead.
 6. Install the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
 7. Plug joystick into controller.



NOTE: Base Frame shown is for reference only. It is not a true representation of the Pronto Base Frame.

FIGURE 2 - REMOVING/INSTALLING MKIV CONTROLLER

ELECTRONICS

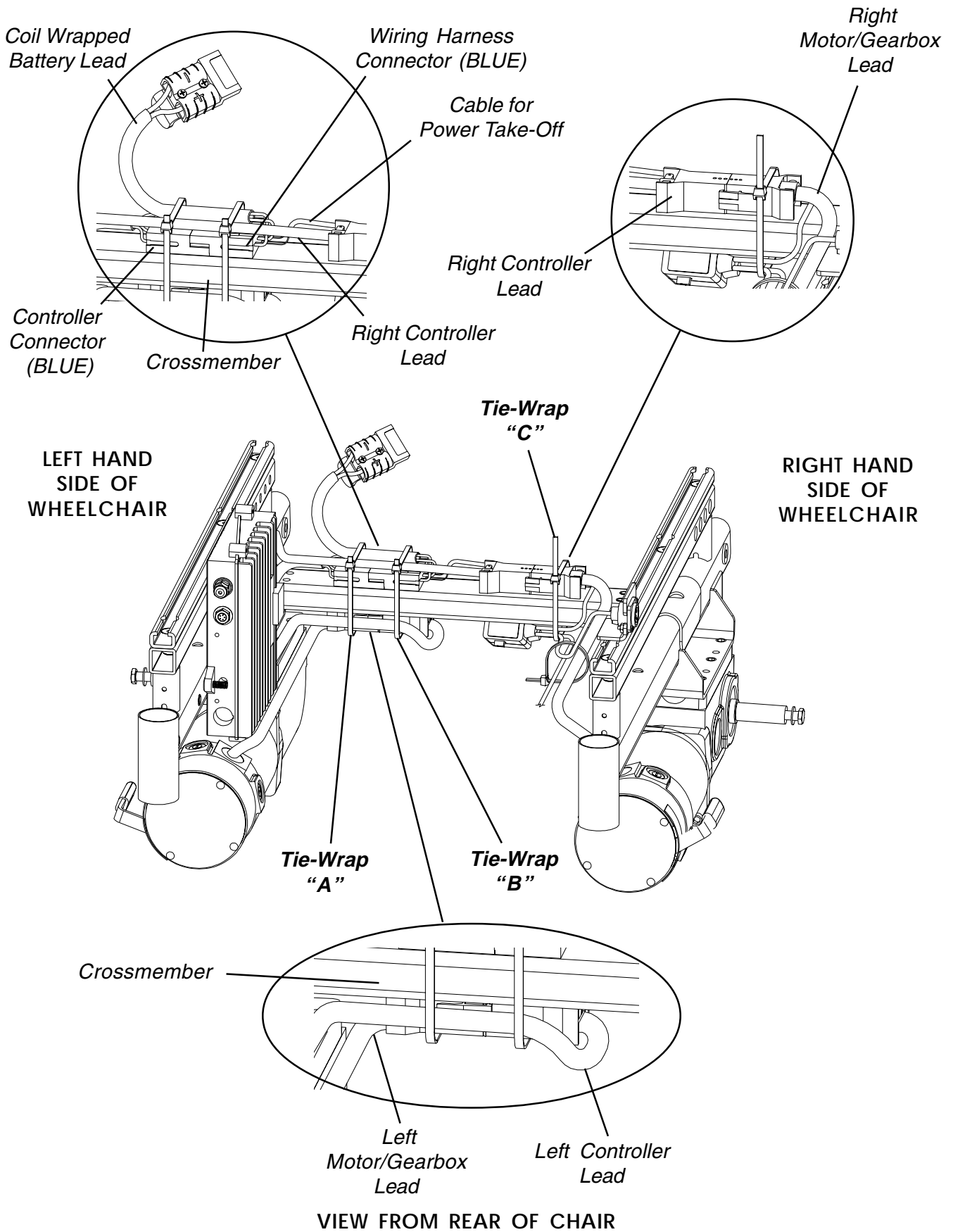


FIGURE 3 - REMOVING/INSTALLING MKIV CONTROLLER - TIE-WRAP LOCATIONS

RII Controller (FIGURE 4)**REMOVING.**

1. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
2. Remove tie-wrap A and B that secure the following to the base frame:
 - A. The connection between the left motor/gearbox lead and left controller lead.
 - B. Right controller lead.
 - C. The power take-off (PTO) lead.

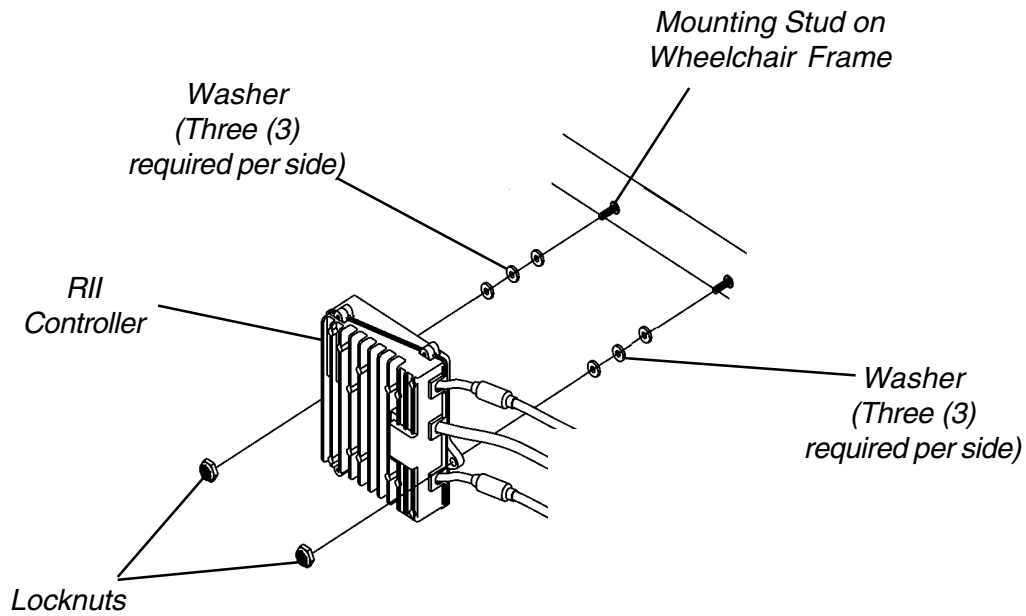
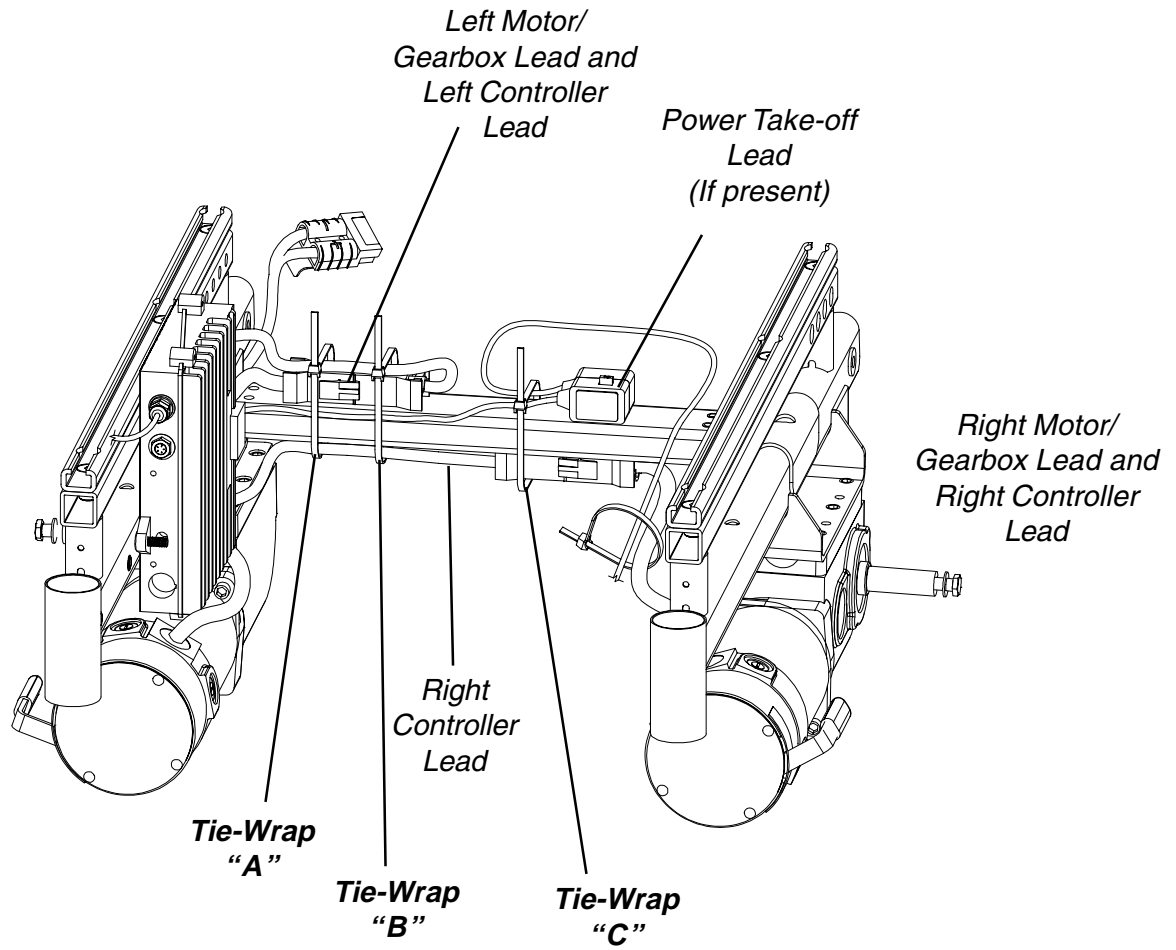
NOTE: The PTO is present if wheelchair is equipped with Captain's Van Seat or manual recliner.

3. Remove tie-wrap "C" that secures the following to the base frame:
 - A. The connection between the right motor/gearbox lead and right controller lead.
 - B. The power take-off lead. *NOTE: The PTO is present if wheelchair is equipped with Captain's Van Seat or manual recliner.*
4. Disconnect the following:
 - A. The connection between the right motor/gearbox lead and right controller lead.
 - B. The connection between the left motor/gearbox lead and left controller lead.
 - C. If necessary, the power take-off lead from Captain's Van Seat or manual recliner.

5. Remove the two (2) locknuts and washers that secure the existing RII controller to the wheelchair.
6. Remove existing RII controller from the wheelchair.

INSTALLING.

1. Install washer(s) onto mounting stud on wheelchair.
2. Install new/existing RII controller onto wheelchair frame.
3. Secure the new/existing RII controller to the wheelchair with NEW locknuts. Torque to 156-in/lbs.
4. Connect the following:
 - A. The connection between the right motor/gearbox lead and right controller lead.
 - B. The connection between the left motor/gearbox lead and left controller lead.
 - C. If necessary, connect the power take-off lead to the Captain's Van Seat or manual recliner.
5. Install NEW tie-wraps A and B to secure the following to the base frame:
 - A. The connection between the left motor/gearbox lead and left controller lead.
 - B. Right controller lead.
 - C. The power take-off lead.
6. Install the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.



NOTE: Base Frame shown is for reference only. It is not a true representation of the Pronto Base Frame.

FIGURE 4 - REMOVING/INSTALLING RII CONTROLLER

This Procedure Includes the Following:
Adjusting Limit Switch

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

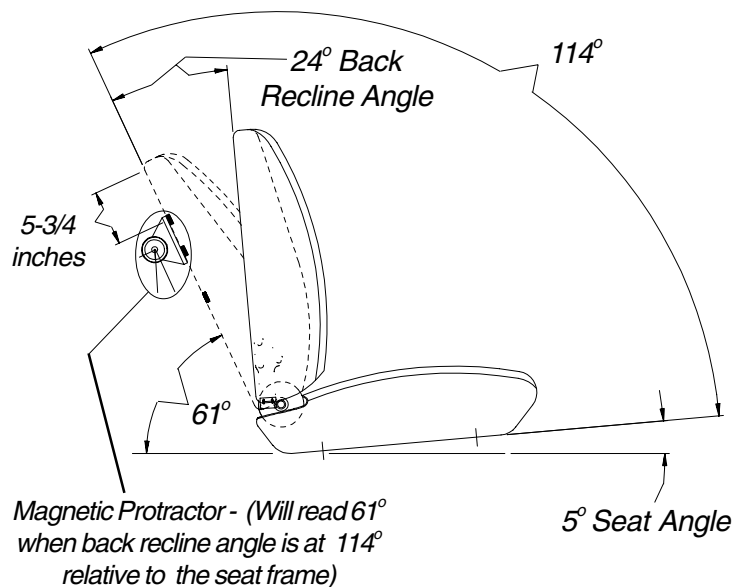
ADJUSTING LIMIT SWITCH (FIGURE 1)

NOTE: The following procedure is for High Back Captain's seat model wheelchairs only.

WARNING
 NEVER operate the wheelchair while in any recline position over 114° RELATIVE TO THE SEAT FRAME. If the limit switch does not stop the wheelchair from operating in a recline position greater than 114° RELATIVE TO THE SEAT FRAME, DO NOT operate the wheelchair. Adjust the limit switch or have the wheelchair serviced by a qualified technician, otherwise injury or damage may occur.

1. Place the wheelchair on a level surface.
2. Recline the captain's seat back to a 24° to achieve the 114° angle relative to the seat frame. Refer to ADJUSTING CAPTAIN'S SEAT in PROCEDURE 5 of the Owner's Manual, part number 1095602.

NOTE: The captain's seat frame is at a 5° angle relative to the ground. When the back angle is adjusted to 114° relative to the seat, it will measure 61° relative to the ground.



NOTE: To determine 114° back angle relative to the seat frame, place a magnetic protractor (available at any hardware store) on the back as shown in FIGURE 3 and adjust the back until the magnetic protractor reads 61°.

3. Turn the wheelchair power switch on the joystick to the ON position.

NOTE: The wheelchair should not operate.

4. IF wheelchair operates, proceed to the following steps to adjust the actuator on the upper limit switch bracket:
 - A. Fully recline the back. Refer to ADJUSTING CAPTAIN'S SEAT in PROCEDURE 5 of the Owner's Manual, part number 1095602.

NOTE: This will make access to the limit switch easier.

- B. Loosen, but do not remove, the two (2) phillips screws, washers and locknuts that secure the actuator to the upper limit switch bracket.
- C. Slide the actuator UP (towards the top of the wheelchair).

CAUTION
 DO NOT over tighten the phillips screws that secure the actuator to the upper limit switch bracket. Damage to the actuator may occur.

- D. Only tighten the two (2) phillips screws, washers and locknuts that secure the actuator to the upper limit switch bracket until the actuator does not move.
- E. Repeat STEPS 1-3 until the wheelchair does not operate when the captain's seat back is at a 24° angle.

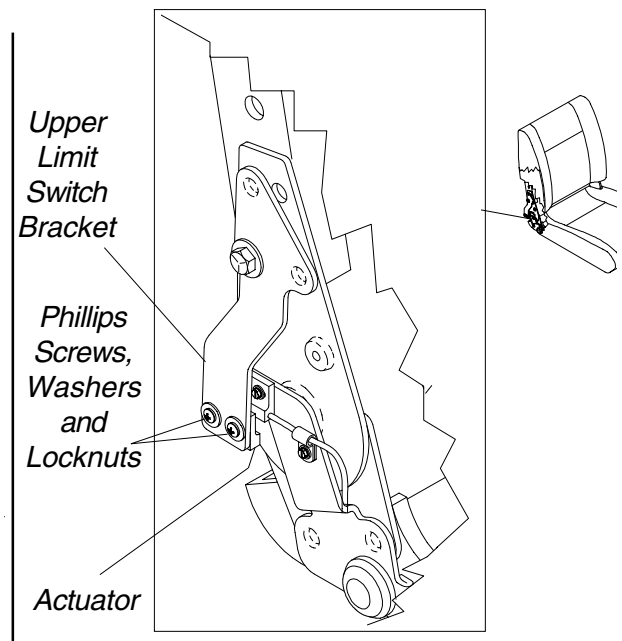


FIGURE 1 - ADJUSTING LIMIT SWITCH

This Procedure Includes the Following:

Replacing Pneumatic Tires/Tubes - Drive Wheels/Casters

Removing/Installing Drive Wheels

Removing/Installing Drive Wheel Hub

Replacing Casters

Replacing Forks

WARNING

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

CAUTION

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

REPLACING PNEUMATIC TIRES/TUBES - DRIVE WHEELS/CASTERS

WARNING

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

If tires are pneumatic, replacement of tire or tube MUST be performed by a qualified technician.

NOTE: If drive wheels or casters are pneumatic, under-inflation causes excessive wear which results in poor performance of the tires.

REMOVING/INSTALLING DRIVE WHEELS

WARNING

NEVER use a locking tab washer more than once. ALWAYS use a NEW locking tab washer when installing the drive wheels.

12-inch Drive Wheel (FIGURE 1)

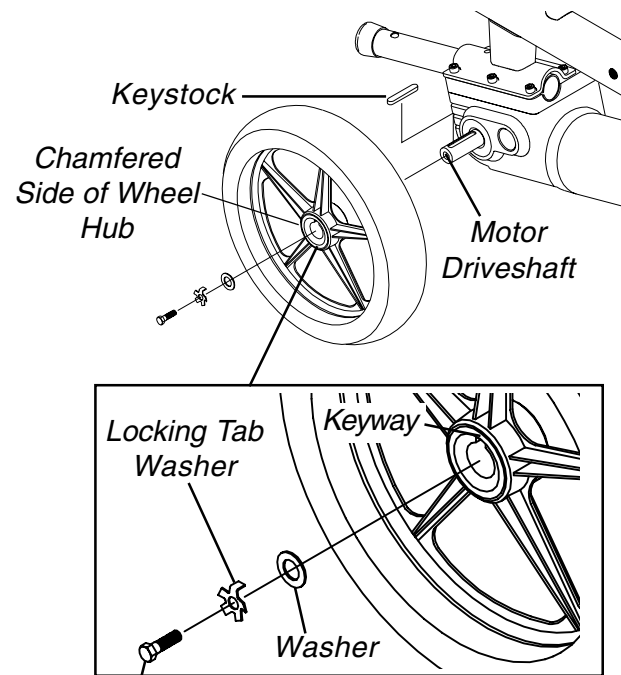
REMOVING.

1. The tab of the locking washer that is bent 90° up against the head of the mounting screw MUST be flattened before the mounting screw can be removed.
2. Remove the hex screw, locking tab washer and washer that secure the existing front wheel to the wheel hub.

INSTALLING.

NOTE: The keystone in the wheel hub MUST lineup with the cutout in the gearbox drive shaft.

1. Install new/existing front wheel onto the motor drive shaft. Make sure the chamfered (angled in) side of the wheel hub is pointing away from the wheelchair.
2. Install washer onto motor drive shaft.
3. Install the **NEW** locking tab washer onto the motor drive shaft. Make sure the locking tab is in line with the keyway of the front wheel.
4. Apply Loctite 242 to the hex screw.
5. Install the hex screw. Use a torque wrench only and torque to 90-inch pounds.



Hex Screw (Apply Loctite 242 and use a Torque Wrench only to Torque to 90-inch pounds)

TIGHTEN Hex Screw if Locking Tab is not Parallel with Flat on Head (STEP 9)

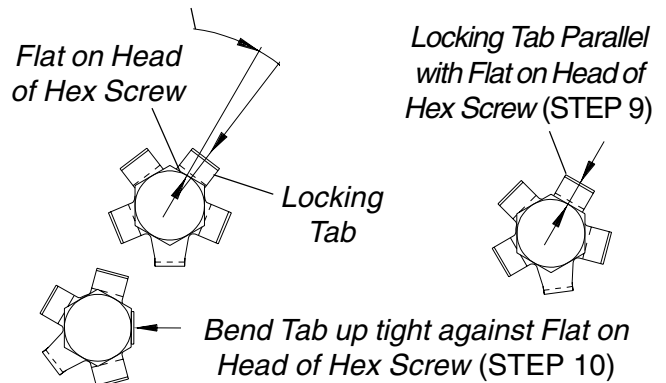


FIGURE 1 - REMOVING/INSTALLING 12-INCH DRIVE WHEELS

6. Examine the head of the hex screw and the locking tab washer. Make sure one (1) of the tabs on the locking tab washer is parallel with one (1) of the flats on the head of the hex screw.
7. If one (1) of the tabs on the locking tab washer is NOT parallel with one (1) of the flats on the head of the hex screw (FIGURE 1), **TIGHTEN** the hex screw until the closest flat and locking tab are parallel.

NOTE: Tighten hex screw only. DO NOT loosen hex screw to make one of the tabs on the locking washer parallel.

8. Bend the parallel tab of locking tab washer up tight against flat of the hex screw (FIGURE 1).

14-inch Drive Wheel (FIGURE 2)

REMOVING.

1. Remove the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
2. Remove the four (4) beveled locknuts that secure the drive wheel to the wheel hub.
3. Remove the existing drive wheel from the wheel hub.

INSTALLING.

1. Install drive wheel onto wheel hub
2. Secure the drive wheel onto the drive wheel hub with the existing four (4) beveled locknuts. Torque locknuts to 160-inch pounds.
3. Repeat STEPS 1-2 for opposite side if necessary.
4. Install the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.

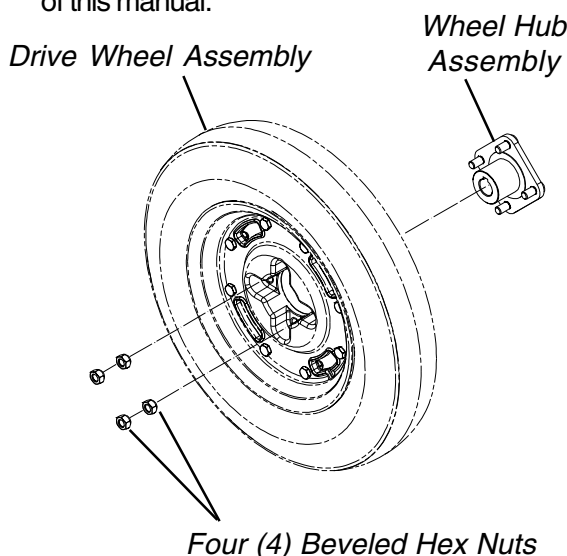


FIGURE 2 - REMOVING/INSTALLING 14-INCH DRIVE WHEELS

REMOVING/INSTALLING DRIVE WHEEL HUB (FIGURE 3)

NOTE: Drive wheel hubs are only on 14-inch drive wheels.

WARNING

NEVER use a locking tab washer more than once. **ALWAYS** use a **NEW** locking tab washer when installing the drive wheels.

Removing

1. Remove the drive wheels. Refer to REMOVING/INSTALLING THE DRIVE WHEELS in this procedure of the manual.

*NOTE: The tab of the locking washer that is bent 90° up against the head of the mounting screw **MUST** be flattened before the mounting screw can be removed.*

2. Flatten the tab of the locking washer that is bent 90° up against the head of the mounting screw.
3. Remove the mounting screw, locking tab washer and washer that secure the existing drive wheel to the wheel hub.
4. Remove the wheel hub and keystone from drive shaft.

Installing

1. Position the keystone on the drive shaft

CAUTION

DO NOT apply more than a one (1)-inch (in length) thin film of anti-seize compound to the drive shaft. Applying more than one (1)-inch (in length) can cause the anti-seize compound to leak resulting in damage to flooring (carpet, tile, etc.).

2. Apply a thin film of anti-seize compound one (1) inch in length to the end of the drive shaft.
3. Reinstall drive wheel hub onto the gearbox drive shaft.

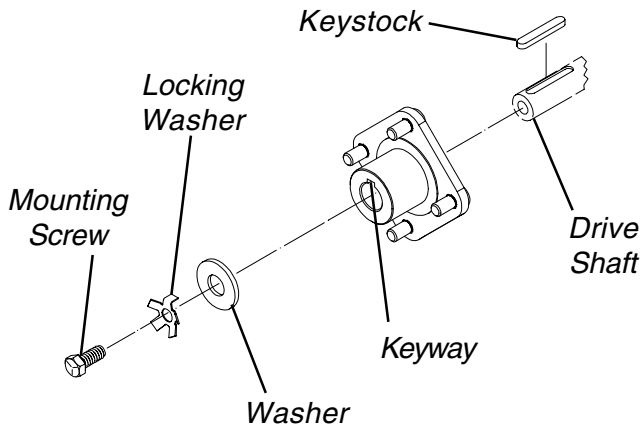
NOTE: While installing the drive wheel hub onto the drive shaft, spin the drive wheel hub to evenly distribute the anti-seize compound over the entire drive shaft.

4. Install the washer and **NEW** locking tab washer onto the wheel hub. Make sure the locking tab is in line with the keyway of the wheel hub.
5. Apply Loctite 242 to the mounting screw.
6. Install the mounting screw. Use a torque wrench only and torque to 90-inch pounds.

7. Examine the head of the hex screw and the locking tab washer. Make sure one (1) of the tabs on the locking tab washer is parallel with one (1) of the flats on the head of the hex screw.
8. If one (1) of the tabs on the locking tab washer is NOT parallel with one (1) of the flats on the head of the hex screw (FIGURE 1), **TIGHTEN** the hex screw until the closest flat and locking tab are parallel.

NOTE: Tighten hex screw only. DO NOT loosen hex screw to make one of the tabs on the locking washer parallel.

9. Bend the parallel tab of locking tab washer up tight against flat of the hex screw (FIGURE 1).
10. Reinstall the drive wheel onto the wheel hub. Refer to REMOVING/INSTALLING DRIVE WHEELS in this procedure of the manual.
11. Repeat procedure for the opposite side of the wheelchair, if necessary.



Mounting Screw (Apply Loctite 242 and use a Torque Wrench only to Torque to 90-inch pounds)

TIGHTEN Hex Screw if Locking Tab is not Parallel with Flat on Head (STEP 9)

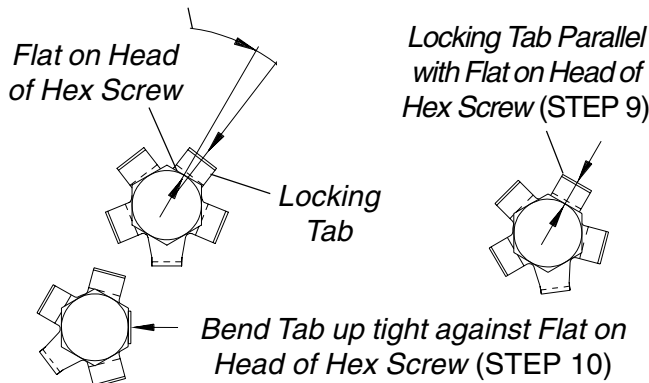


FIGURE 3 - REMOVING/INSTALLING DRIVE WHEEL HUB

REPLACING CASTERS (FIGURE 4)

1. Remove the hex screw, washers and locknut that secure the caster to the fork.
2. Remove the caster from the fork.
3. Install Loctite 242 onto the hex screw.
4. Replace caster and reverse STEPS 1-3.
5. Torque the locknut to 120-inch pounds.
6. Loosen the locknut 1/8 of a turn.
7. Move the caster side to side.

NOTE: If the caster moves side to side, tighten the locknut slightly. Repeat STEP 7 until there is no side to side movement of the caster.

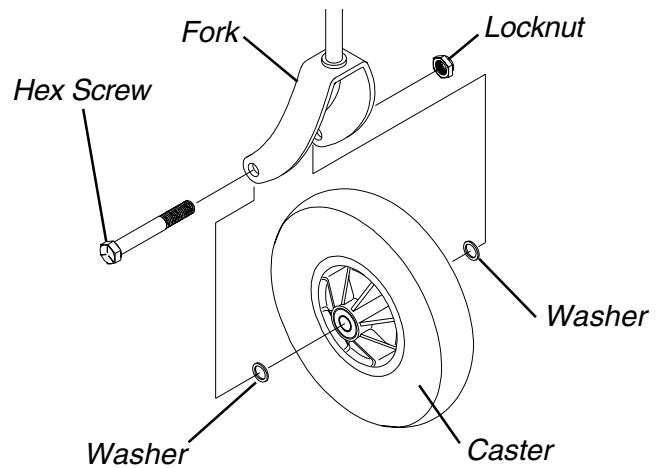


FIGURE 4 - REPLACING CASTERS

REPLACING FORKS (FIGURE 5)

1. Remove the hex screw, washers and locknut that secure the caster to the existing fork.
2. Remove the caster from the existing fork.
3. Remove the dust cover.
4. Remove the locknut and nylon washer.
5. Drop the existing fork out of the caster head tube.
6. Slide the new fork into the caster head tube.
7. Ensure that new fork slides completely into the caster head tube.
8. Install nylon washer and secure with locknut.

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

9. Install Loctite 242 onto the hex screw.

10. Position the caster into the new fork.
11. Reinstall the hex screw, washers and locknut that secure the caster to the new fork.
12. Torque the locknut to 120-inch pounds.
13. Loosen the locknut 1/8 of a turn.
14. Move the caster side to side.

NOTE: If the caster moves side to side, tighten the locknut slightly. Repeat STEP 14 until there is no side to side movement of the caster.

15. Adjust the fork. Refer to ADJUSTING FORKS in PROCEDURE 8 of the Owner's Manual, part number 1095602.

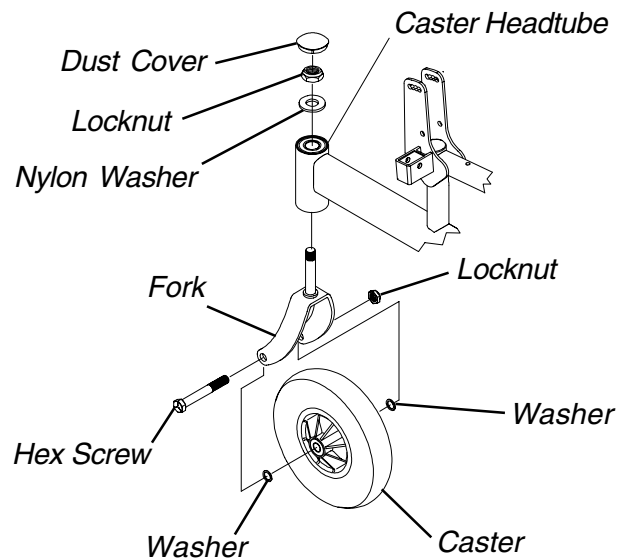


FIGURE 5 - REPLACING FORKS

This Procedure Includes the Following:
Removing/Installing Shrouds

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

REMOVING/INSTALLING SHROUDS (FIGURE 1)

REMOVING FRONT SHROUD.

1. Turn the two (2) 1/4-turn bolts that secure front shroud to the two (2) side shrouds COUNTERCLOCKWISE.
2. Remove the front shroud from the wheelchair.

INSTALLING FRONT SHROUD.

1. Position the two (2) 1/4-turn bolts with the two (2) mounting holes in the side shrouds.
2. Install the front shroud onto the two (2) side shrouds.
3. Turn the two (2) 1/4-turn bolts that secure the front shroud to the two (2) side shrouds CLOCKWISE.

REMOVING REAR SHROUD AND REAR STORAGE COMPARTMENT.

NOTE: The rear storage compartment is available on wheelchairs NOT equipped with weight shift basic tilt only.

1. Lift up on rear shroud and remove from wheelchair.
2. Turn the two (2) 1/4-turn bolts that secure the rear storage compartment to the wheelchair frame COUNTERCLOCKWISE.
3. Remove rear storage compartment from wheelchair.

INSTALLING REAR SHROUD AND REAR STORAGE COMPARTMENT.

1. Position the two (2) 1/4-turn bolts with the two (2) mounting holes in the wheelchair frame.
2. Install rear storage compartment onto chair frame.
3. Turn two (2) 1/4-turn bolts that secure the rear storage compartment to the wheelchair frame CLOCKWISE.
4. Position rear shroud on the two (2) side shrouds and slide towards the front of the wheelchair until it stops.
5. Press down on the rear shroud until the two (2) clips secure the rear shroud to the two (2) side shrouds.

REMOVING SIDE SHROUDS.

1. Remove the front shroud from the wheelchair. Refer to REMOVING/INSTALLING FRONT SHROUD in this procedure of the manual.

2. Remove rear shroud and rear storage compartment (if equipped) from the wheelchair. Refer to REMOVING/INSTALLING REAR SHROUD AND REAR STORAGE COMPARTMENT in this procedure of the manual.
3. Perform one (1) of the following:
 - A. CAPTAIN'S SEAT MODELS - Remove the Captain's Seat from the wheelchair. Refer to REMOVING/INSTALLING CAPTAIN'S SEAT in PROCEDURE 5 of this manual.
 - B. WEIGHT SHIFT BASIC TILT MODELS - Proceed to STEP 4.
4. Remove the phillips screws, washer, and coved washers that secure side shroud to wheelchair frame. Refer to FIGURE 1 for phillips screw and washer locations.
5. Remove the phillips bolts, washers and locknuts that secure the side shroud to the wheelchair frame. Refer to FIGURE 1 for phillips bolt and locknut location.
6. Repeat STEPS 4-5 for the opposite side of the wheelchair, if necessary.

INSTALLING SIDE SHROUDS.

1. Position the side shroud on the wheelchair frame.
2. Line up the mounting holes in the side shroud with the mounting holes in the wheelchair frame.

CAUTION
DO NOT overtighten the phillips screws and phillips bolt that secure the side shroud to the wheelchair frame - otherwise damage to the side shroud can occur.

3. Install the phillips bolt, washers and locknut that secure the side shroud to the wheelchair frame and tighten securely. DO NOT OVERTIGHTEN. Refer to FIGURE 1 for phillips bolt and locknut location.
4. Install the phillips screws, washers, and coved washers that secure the side shroud to the wheelchair frame and tighten securely. DO NOT OVERTIGHTEN. Refer to FIGURE 1 for phillips screw and washer locations.
5. Repeat STEPS 1-4 for the opposite side of the wheelchair, if necessary.
6. Reinstall the Captain's Seat onto the wheelchair. Refer to REMOVING/INSTALLING CAPTAIN'S SEAT in PROCEDURE 5 of this manual or WEIGHT SHIFT TILT MODELS - Proceed to STEP 7.
7. Reinstall the rear shroud and rear storage compartment (if equipped) onto the wheelchair. Refer to REMOVING/INSTALLING REAR SHROUD AND REAR STORAGE COMPARTMENT in this procedure of the manual.
8. Reinstall the front shroud onto the wheelchair. Refer to REMOVING/INSTALLING FRONT SHROUD in this procedure of the manual.

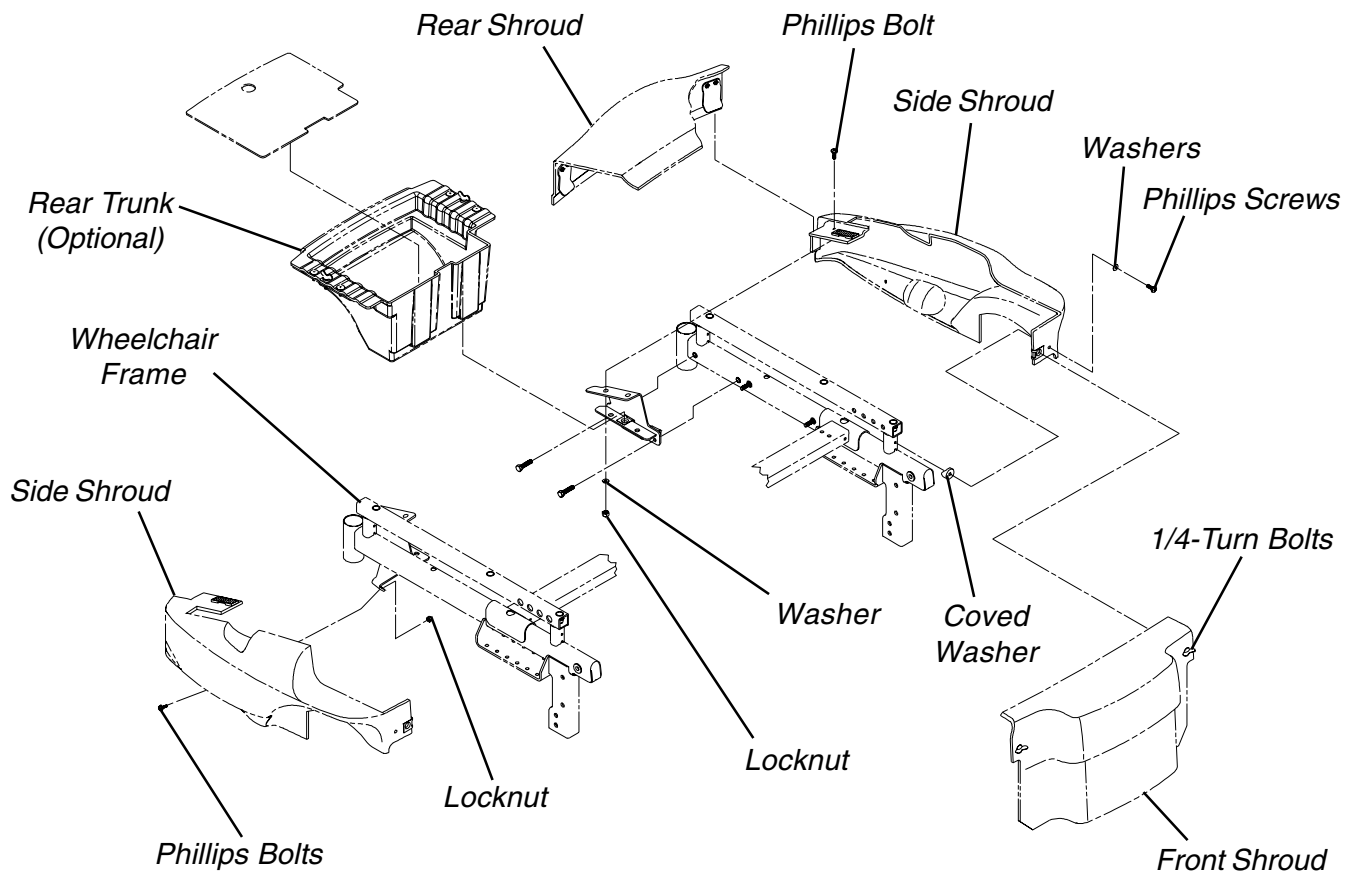


FIGURE 1 - REMOVING/INSTALLING SHROUDS

This Procedure includes the following:

- Installing/Removing Batteries into/From Battery Boxes**
- Connecting Battery Cables**
- When to Charge Batteries**
- Charging Batteries**
- Replacing Batteries**
- Installing/Removing Battery Boxes**
- Removing/Installing Battery Tray**

WARNING

Make sure power to the wheelchair is OFF before performing this procedure.

The use of rubber gloves and safety glasses is recommended when working with batteries.

Invacare strongly recommends that battery installation and battery replacement always be done by a qualified technician.

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

NOTE: If there is battery acid in the bottom or on the sides of the battery box(es) or battery(ies), apply baking soda to these areas to neutralize the battery acid. Before reinstalling the NEW or existing battery(ies), clean the baking soda from the battery box(es) or battery(ies).

NOTE: When securing battery lifting strap to battery, observe polarity markings located on the ends of the battery lifting strap, (+) side to POSITIVE (+) battery terminal/post and (-) side to NEGATIVE (-) battery terminal/post.

1. If necessary, remove the battery boxes from the wheelchair. Refer to **INSTALLING/REMOVING BATTERY BOXES** in PROCEDURE 11 of this manual.
2. Secure the battery lifting strap to battery terminal(s)/post(s) (FIGURE 1).

CAUTION

Some battery manufacturers mold a carrying strap and/or hold down flanges directly into the battery case. Batteries which interfere with the battery box cannot be used for these applications. Attempting to "wedge" a battery into a battery box may damage the box and/or the battery.

3. Place batteries into battery box bottom.

INSTALLING/REMOVING BATTERIES INTO/FROM BATTERY BOXES (FIGURE 1)

NOTE: To remove the battery(ies) from the battery box(es), reverse the following procedure.

NOTE: Have the following tools available:

TOOL	QTY	COMMENTS
Battery Lifting Strap	1	See Note
1/2-inch (6 pt) Box Wrench	1	Not Supplied
7/16-inch (6pt) Box Wrench	1	Not Supplied
3/8-inch (6pt) Box Wrench	1	Not Supplied
Diagonal Cutters	1	Not Supplied

**NOTE: The Battery Lifting strap supplied is for Group 22 Batteries ONLY. Refer to the battery manufacturer for the proper lifting strap and/or battery tools for U1 battery removal/installation.*

WARNING

Always use a battery lifting strap when lifting a battery. It is the most convenient method and assures that the battery acid will not spill. It also helps to prolong the life of the battery.

DO NOT tip the batteries. Keep the batteries in an upright position.

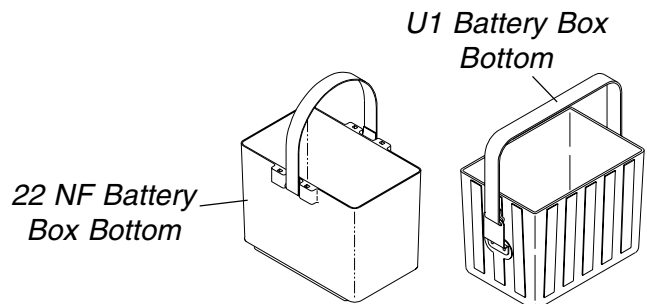
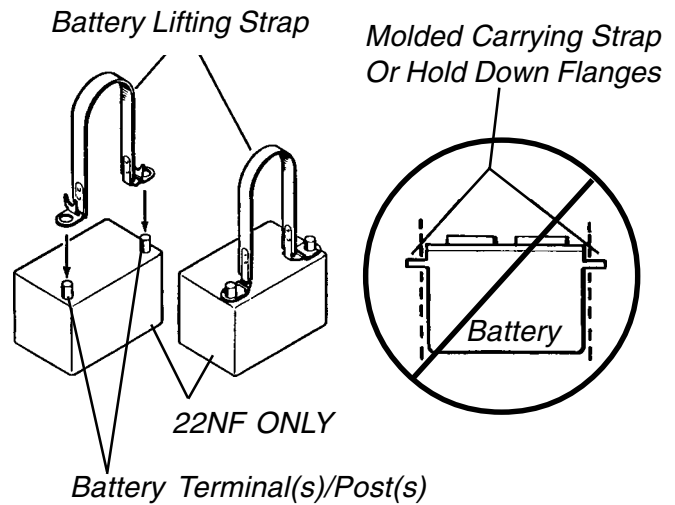


FIGURE 1 - INSTALLING/REMOVING BATTERIES INTO/FROM BATTERY BOXES

CONNECTING BATTERY CABLES

WARNING

NEVER allow any of your tools and/or battery cable(s) to contact BOTH battery terminal(s)/post(s) at the same time. An electrical short may occur and serious personal injury or damage may occur.

The use of rubber gloves and safety glasses is recommended when working with batteries.

CAUTION

When connecting the battery cables to the battery(ies), the battery cable(s) MUST be connected to the battery terminal(s)/post(s) as shown in DETAIL "A" or DETAIL "B" of FIGURE 3 (depending on battery type), otherwise damage to the battery cable may result when installing battery terminal caps.

BATTERIES

Dual U1 or Dual 22NF Battery Boxes

Perform one (1) of the following methods for connecting the battery cable(s):

- A. **FOR DUAL U1 BATTERIES** - Use direct mount method. Refer to FIGURES 2 and 3.
- B. **FOR DUAL 22 NF BATTERIES THAT HAVE MOUNTING HOLES IN THE BATTERY TERMINAL(S)/POST(S)** - Use direct mount method. Refer to FIGURES 2 and 3.
- C. **FOR DUAL 22 NF BATTERIES THAT DO NOT HAVE MOUNTING HOLES IN THE BATTERY TERMINAL(S)/POST(S)** - Use battery clamp method. Refer to FIGURES 4, 5 AND 6.

DIRECT MOUNT METHOD (FIGURE 2, 3 AND 4).

1. Install battery terminal cap(s) onto battery cable(s) as follows (FIGURE 2):

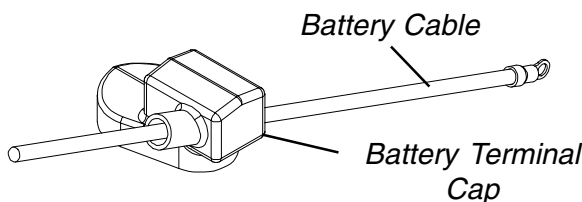
DUAL U1 BATTERIES:

- A. ORANGE battery terminal cap onto RED battery cable.
- B. GRAY battery terminal cap onto BLACK battery cable.

DUAL 22 NF BATTERIES:

- A. RED battery terminal cap onto RED battery cable.
- B. BLACK battery terminal cap onto BLACK battery cable.

INSTALLING BATTERY TERMINAL CAPS



NOTE: Only one (1) battery cable and terminal cap shown for clarity. Both caps install in the same manner.

FIGURE 2 - CONNECTING BATTERY CABLES - DIRECT MOUNT METHOD

2. Connect battery cable(s) to battery(ies) terminal(s)/post(s) as follows (DETAIL "A" or DETAIL "B" of FIGURE 3, depending on battery type):
 - A. NEGATIVE (-) BLACK battery cable to NEGATIVE (-) battery terminal/post.
 - B. POSITIVE (+) RED battery cable to POSITIVE (+) battery terminal/post.
3. Secure the battery cable(s)/ring terminal(s) to the battery terminal(s)/post(s), BLACK to NEGATIVE (-) and RED to POSITIVE (+), with the provided 1/4-20 x 7/8-inch hex flange screw and hex flange locknut. Securely tighten. (DETAIL "A" or DETAIL "B" of FIGURE 3, depending on battery type).
4. Verify all battery cable(s)/ring terminal(s) are correctly installed and securely tightened.
5. Slide terminal cap(s) down battery cable(s) and onto battery clamps (FIGURE 3).
6. Secure each terminal cap in place with a tie-wrap (Use tie-wraps 11-1/2-inches long) (FIGURE 3).

NOTE: It will be necessary to trim excess tie-wrap in order to install the battery box top(s).

7. Install the battery box top(s).
8. Install the battery box(es) into the wheelchair. Refer to INSTALLING/REMOVING BATTERY BOX(ES) in PROCEDURE 11 of this manual.

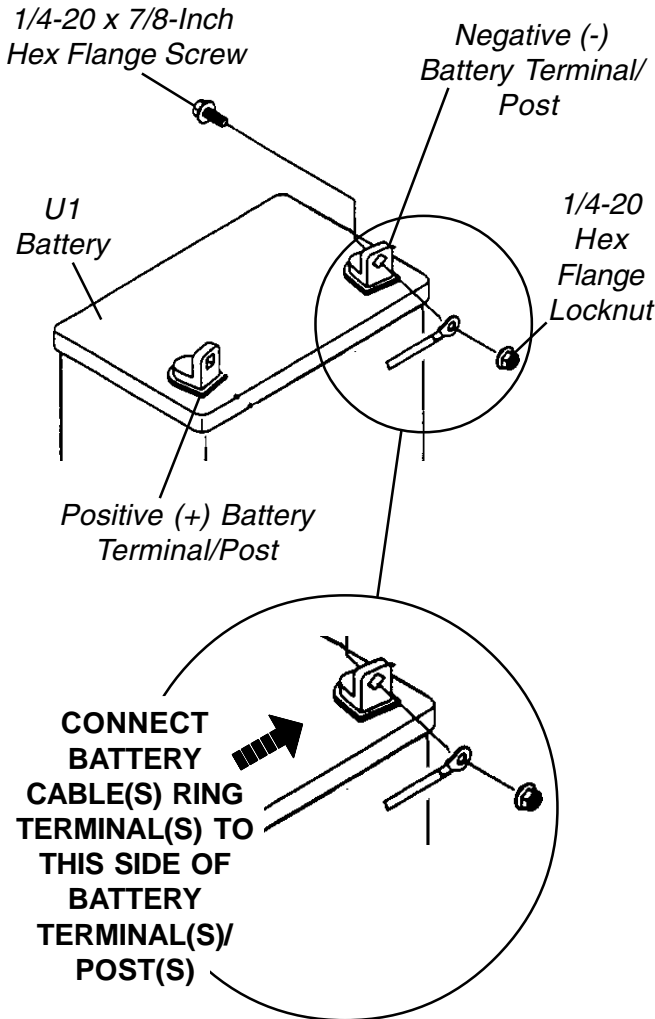
NOTE: New Battery(ies) MUST be fully charged BEFORE using, otherwise the life of the battery(ies) will be reduced.

9. If necessary, charge the battery(ies). Refer to CHARGING BATTERIES in the PROCEDURE 11 of this manual.

BATTERIES

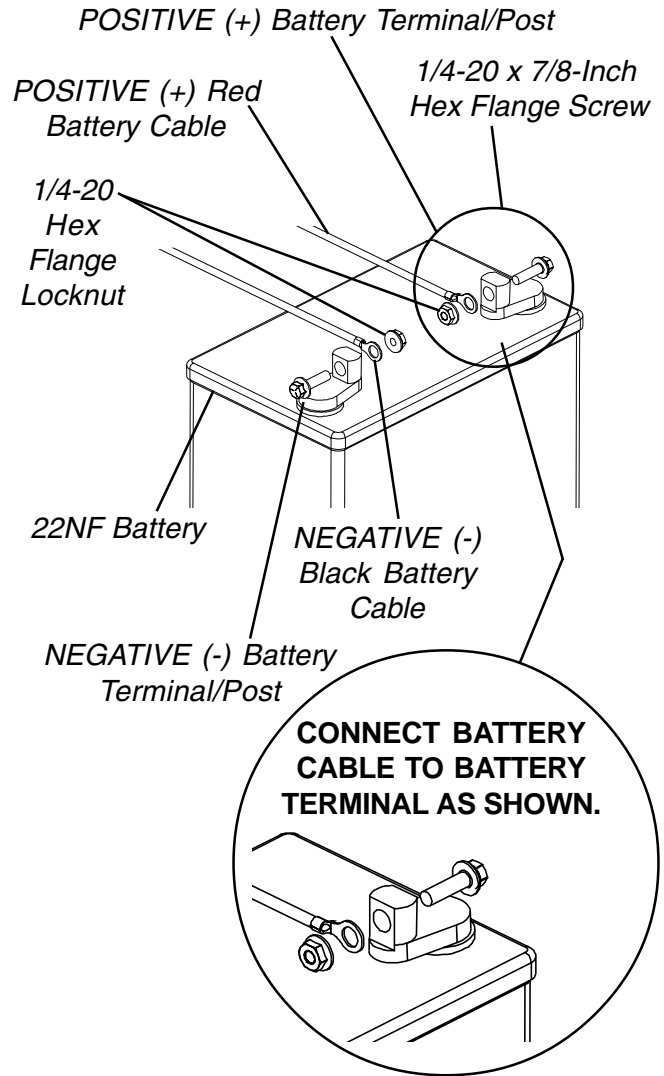
DETAIL "A"

DUAL U1 BATTERIES

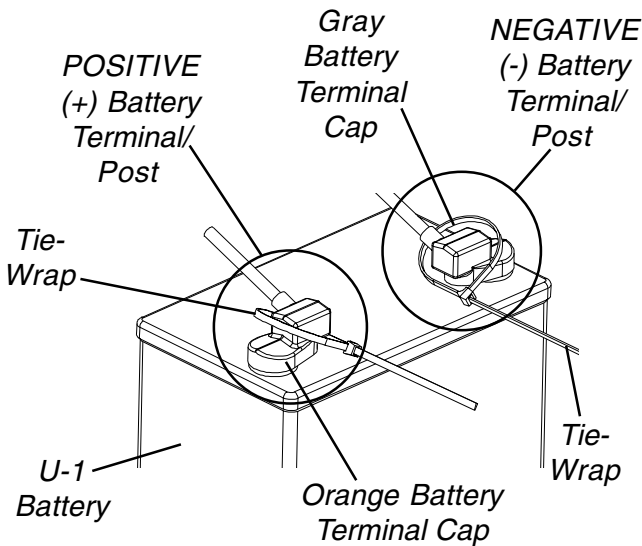


DETAIL "B"

DUAL 22NF BATTERIES



DUAL U1 BATTERIES



DUAL 22NF BATTERIES

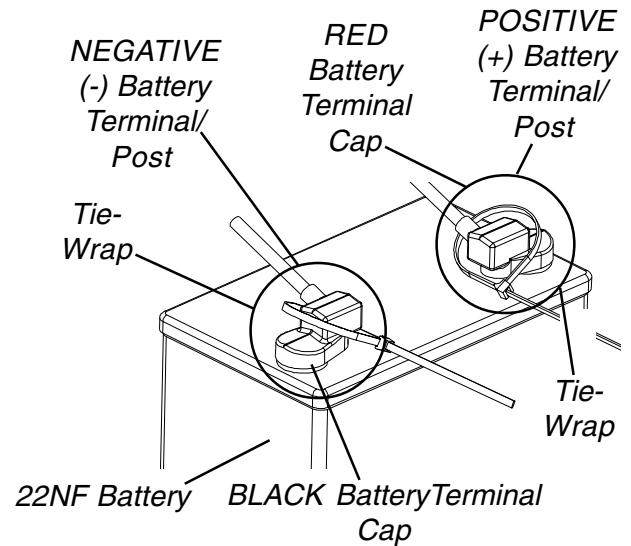


FIGURE 3 - CONNECTING BATTERY CABLES - DIRECT MOUNT METHOD

BATTERY CLAMP METHOD (FIGURES 4, 5 AND 6).

WARNING

The battery clamp of the POSITIVE (+) battery terminal/post MUST be mounted in the position shown in FIGURE 5, otherwise the battery box top cannot be installed properly.

1. Perform one (1) of the following:
 - A. If the battery clamp of the POSITIVE (+) battery terminal/post is **NOT** mounted in the orientation shown in FIGURE 4, perform the following:
 - Loosen the hex nut that secures the battery clamp to the POSITIVE (+) battery terminal/post.
 - B. If the battery clamp on the POSITIVE (+) battery terminal/post is positioned as shown in FIGURE 4, proceed to STEP 2.

CAUTION

When tightening the clamps, always use a box wrench. Pliers will "round off" the nuts. NEVER wiggle the battery terminal(s)/post(s) when tightening. The battery may become damaged.

- Remove the battery clamp from the POSITIVE (+) battery terminal/post.
- Reposition the battery clamp on the POSITIVE (+) battery terminal/post as shown in FIGURE 4.
- Securely tighten the hex nut that secures the battery clamp to the positive (+) battery terminal/post.

CORRECT ORIENTATION OF THE POSITIVE (+) BATTERY TERMINAL/POST BATTERY CLAMP

*POSITIVE (+) Battery Terminal/Post
(Note position of battery clamp)*

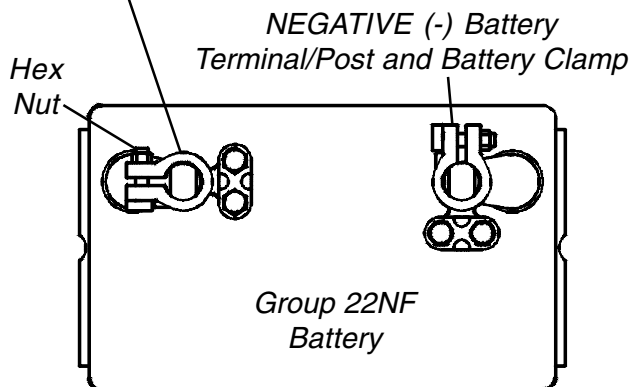


FIGURE 4 - CONNECTING BATTERY CABLES - BATTERY CLAMP METHOD

2. Install battery clamp covers onto battery cables as follows: (FIGURE 5)
 - A. RED battery clamp cover onto RED battery cable.
 - B. BLACK battery clamp cover onto BLACK battery cable.

NOTE: Only one (1) battery cable and battery clamp cover are shown for clarity. Both battery clamp covers install in the same manner.

INSTALLING BATTERY CLAMP COVERS

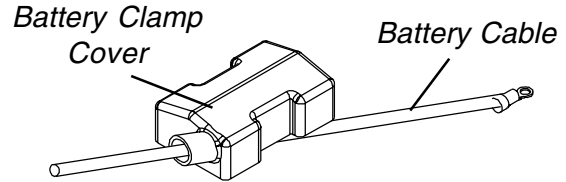


FIGURE 5 - CONNECTING BATTERY CABLES - BATTERY CLAMP METHOD

CAUTION

When connecting the battery cable/ring terminal(s) to the battery(ies) clamp(s), the battery cable(s) MUST be connected in the position shown in DETAIL "A", otherwise damage may occur to the battery cable and/or battery clamp covers.

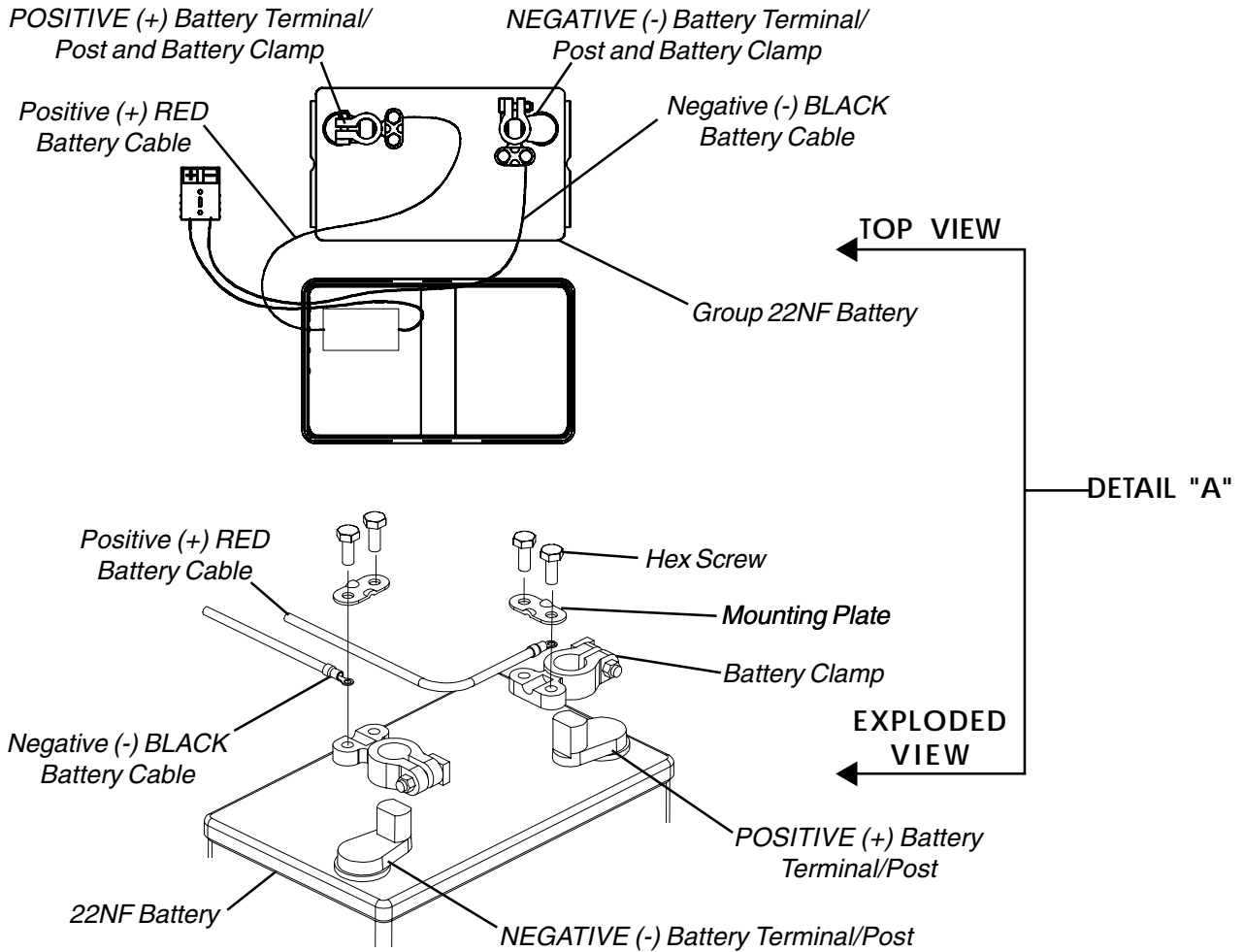
3. Connect battery cable(s) to battery(ies) terminal(s)/post(s) as follows (DETAIL "A"):
 - A. NEGATIVE (-) BLACK battery cable/ring terminal between the mounting plate and battery clamp of NEGATIVE (-) battery terminal/post.
 - B. POSITIVE (+) RED battery cable/ring terminal between the mounting plate and battery clamp of POSITIVE (+) battery terminal/post.
 4. Secure the battery cable(s)/ring terminal(s) to the battery clamp(s), BLACK to NEGATIVE (-) and RED to POSITIVE (+), with existing hex screws. Securely Tighten. (DETAIL "A")
 5. Verify battery cable ring terminal(s) are correctly installed and securely tightened.
 6. Slide battery clamp covers down battery cables and onto battery terminals. (DETAIL "B")
 7. Secure each terminal cap in place with a tie-wrap (Use tie-wraps 11-1/2-inches long). (DETAIL "B")
- NOTE: It will be necessary to trim excess tie-wrap in order to install the battery box top(s).*
8. Install the battery box top(s).

9. Install the battery box(es) into the wheelchair. Refer to INSTALLING/REMOVING BATTERY BOX(ES) in PROCEDURE 11 of this manual.

10. If necessary, charge the battery(ies). Refer to CHARGING BATTERIES in the PROCEDURE 11 of this manual.

NOTE: New Battery(ies) MUST be fully charged BEFORE using, otherwise the life of the battery(ies) will be reduced.

CONNECTING BATTERY CABLE(S) TO BATTERY(IES) TERMINAL(S)/POST(S)



NOTE: Battery clamps exploded away for clarification purposes only.

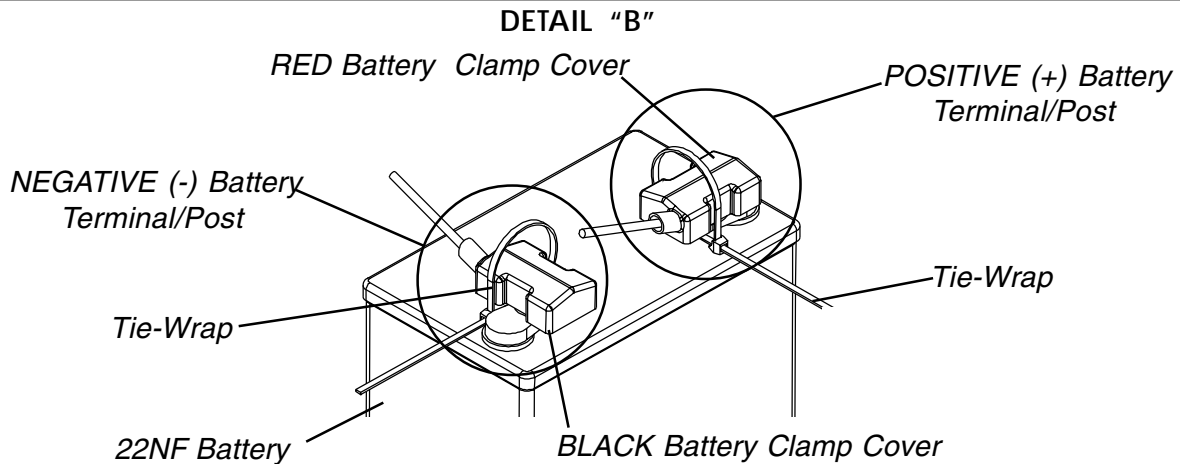


FIGURE 6 - CONNECTING BATTERY CABLES - BATTERY CLAMP METHOD

BATTERIES

WHEN TO CHARGE BATTERIES (FIGURE 7)

It is advantageous to recharge daily rather than only when necessary. In fact, a battery's life is extended if the charge level is maintained well above a low condition.

MKIV RII Joystick

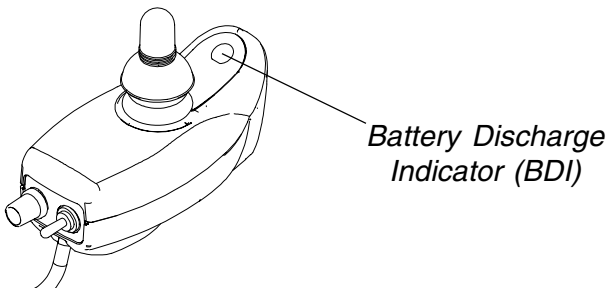
BATTERY DISCHARGE INDICATOR (BDI) is located at the front of the joystick housing and provides information on the remaining charge in the batteries. At FULL charge the BDI will be GREEN. As the battery becomes discharged, the BDI indicator will turn AMBER (YELLOW), then RED and finally FLASHING RED. If the BDI is FLASHING RED, the user should charge the batteries as soon as possible.

NOTE: Accurate readings are displayed when in neutral.

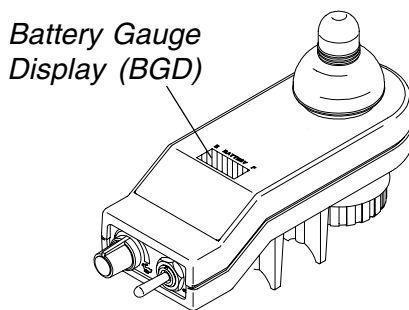
MCC-MKIV X, A or A+ Joystick

BATTERY GAUGE DISPLAY (BGD) is the bar graph display located on the MKIV X, A or A+ joystick. It will keep you informed as to power availability. A visual warning is given before the power becomes too low to operate the wheelchair. At full charge the two (2) LEFT segments and the farthest RIGHT segment of the bar graph will be illuminated. As the battery becomes discharged, the farthest RIGHT segment will progressively move to the LEFT until only the last two (2) bars (LEFT) are illuminated. At this level the last two (2) bars (LEFT) will start to Flash ON and OFF to indicate that the end user should charge the batteries as soon as possible.

NOTE: Accurate readings are displayed when in neutral.



MKIV- RII JOYSTICK



MKIV X, A OR A+ JOYSTICK

NOTE: MKIV X Shown.

FIGURE 7 - WHEN TO CHARGE BATTERIES

CHARGING BATTERIES (FIGURE 8)

WARNING

Never attempt to recharge the batteries by attaching cables directly to the battery terminals or clamps. Always use the recharging plug located on the controller OR the side/rear of the wheelchair frame.

DO NOT attempt to recharge the batteries and operate the power wheelchair at the same time.

During use and charging, unsealed batteries will vent hydrogen gas which is explosive in the right concentration with air.

CAUTION

Always charge new batteries fully BEFORE initial use or battery life will be reduced.

NOTE: As a general rule, batteries should be recharged daily to assure the longest possible life and minimize the required charging time. Plan to recharge the batteries when it is anticipated the wheelchair will not be used for several days.

The range per battery charge using recommended batteries should be approximately 5 to 9 hours of typical operation. Extensive use on inclines or age of batteries may substantially reduce per charge mileage.

Description and Use of Battery Chargers

The charger automatically reduces the amount of charge from an initially high rate to a zero reading at a fully charged condition.

SHUTOFF PROCEDURE.

- A. **For PRONTO_{R2} Models** - If left unattended, the charger will automatically shut-off when full charge is obtained.
- B. **For PRONTO_{R2-250 Series} Models** - The Charger output and green light will stay ON until the power switch on the battery charger is moved to the OFF position.

There are some basic concepts which will help you understand this automatic process:

The amount of electrical current drawn within a given time to charge a battery is called "charge rate". If, due to usage, the charge stored in the battery is low, the charge rate is high. (**For PRONTO_{R2} Models** - this is indicated by the green light on the charger. Initially, the green light will stay illuminated for a short period of time followed by a longer period of off time.)

BATTERIES

As a charge builds up, the charge rate is reduced, and the following will occur:

- A. For **PRONTO_{R2} Series Models** - the green light will stay illuminated for a longer period of time followed by a shorter off time.
- B. For **PRONTO_{R2} Models** - the battery charger rate decreases to a "trickle charge".

NOTE: If performing the charging procedures independently, READ and CAREFULLY follow the individual instructions for each charger (supplied or purchased).

NOTE: If charging instructions are not supplied, consult a qualified service technician for proper procedures.

Required Items:

TOOL	QUANTITY	COMMENTS
Battery Charger	1	Supplied
⊕ Extension Cord	1	Not Supplied

⊕ 3-prong plug, 15 ampere current rating; industrial type

Wheelchairs Equipped With MCC-Mark IV Joystick (Detail "A" of FIGURE 8)

1. Attach the battery charger connector to the charger cable/battery harness.
2. Plug the charger's AC power cord, or extension, into the grounded 120 VAC wall outlet.
3. Wait until charging is complete.

NOTE: Allow eight (8) hours for normal charging. Larger batteries (greater than 55 ampere-hours) or severely discharged batteries may require up to sixteen (16) hours to be properly charged and equalized.

NOTE: PRONTO_{R2} ONLY - If the charger operates for sixteen (16) hours and is unable to fully charge the batteries, an internal timer turns the charger off and begins to fast blink the green light.

NOTE: If the batteries need to be charged more often or take longer to charge than normal, they may need to be replaced. Contact an Invacare dealer for service.

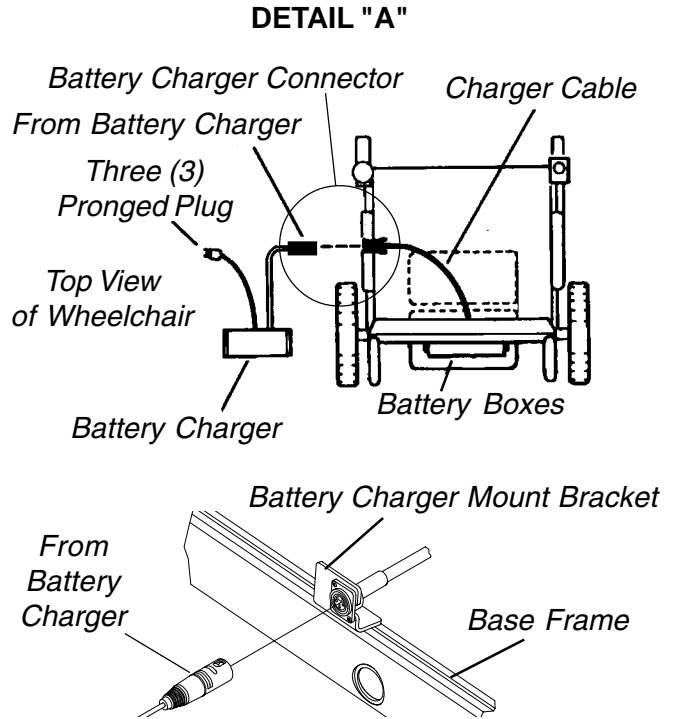
Wheelchairs Equipped With Mark IV RII Joystick (Detail "B" of FIGURE 8)

1. Attach the battery charger connector to the charger port on the FRONT of the joystick.
2. Plug the charger's AC power cord, or extension, into the grounded 120 VAC wall outlet.
3. Wait until charging is complete.

NOTE: Allow eight (8) hours for normal charging. Larger batteries (greater than 55 ampere-hours) or severely discharged batteries may require up to sixteen (16) hours to be properly charged and equalized.

NOTE: PRONTO_{R2} ONLY - If the charger operates for sixteen (16) hours and is unable to fully charge the batteries, an internal timer turns the charger off and begins to fast blink the green light.

NOTE: If the batteries need to be charged more often or take longer to charge than normal, they may need to be replaced. Contact an authorized dealer for service.



DETAIL "B"

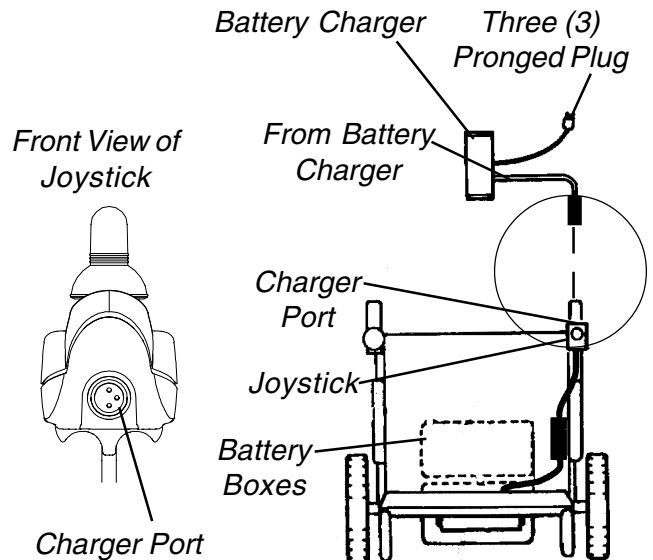


FIGURE 8 - CHARGING BATTERIES

REPLACING BATTERIES

WARNING

Most batteries are not sold with instructions. However, warnings are frequently noted on the cell caps. Read them carefully, otherwise injury or damage can occur.

NOTE: Invacare recommends that both batteries be replaced if one (1) battery is defective.

Recommended Battery Types

WARNING

The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell or sealed lead acid batteries. Invacare strongly recommends their use as the power source for this unit.

CAUTION

Failure to use the correct battery size and/or voltage may cause damage to your wheelchair and give you unsatisfactory performance.

NOTE: The recommended battery type is 22NF deep cycle.

1. Remove the battery boxes from the wheelchair. Refer to REMOVING/INSTALLING BATTERY BOXES in this procedure of the manual.
2. Remove existing batteries from the battery boxes. Refer to INSTALLING/REMOVING BATTERIES INTO/FROM BATTERY BOXES in this procedure of the manual.
3. Clean the new battery terminals.
4. Install the new batteries into the battery boxes. Refer to INSTALLING/REMOVING BATTERIES INTO/FROM BATTERY BOXES in this procedure of the manual.

Cleaning Battery Terminals

WARNING

DO NOT allow the liquid in the battery to come in contact with skin, clothes or other possessions. It is a form of acid and harmful or damaging burns may result. Should the liquid touch your skin, wash the area immediately and thoroughly with cool water. In serious cases or if eye contact is made, seek medical attention **IMMEDIATELY**.

NEVER smoke or strike a match near batteries. If the caps of the battery cells are removed, **NEVER** look directly into them while charging batteries.

1. Examine battery clamps and terminals for corrosion.
2. If applicable, verify that the plastic caps are in place over the battery cell holes.

3. Cut the tie wraps around the terminal caps/covers.
4. Slide the terminal cap/cover up the wire to expose the battery terminal.
5. Clean the terminals and inside the battery clamps by using a battery cleaning tool, wire brush, or medium grade sand paper.

NOTE: When done, these areas should be shiny, not dull.

6. Carefully dust off all metal particles.
7. Slide the terminal cap/cover back down the wire to cover the battery terminal.
8. Secure the terminal cap/cover using NEW tie wraps.

INSTALLING/REMOVING BATTERY BOXES (FIGURE 9)

NOTE: To remove the battery boxes from the wheelchair, reverse the following procedure.

WARNING

If the wheelchair is equipped with the removable footboard AND it is installed in the highest position, it is necessary to remove the footboard plate **BEFORE** removing the battery boxes. Otherwise, injury can occur.

To remove the removable footboard, refer to REMOVING THE REMOVABLE FOOTBOARD ASSEMBLY FROM THE WHEELCHAIR in PROCEDURE 3 of this manual.

NOTE: Motors should be in the engaged position when removing/installing batteries. Refer to ENGAGING/DISENGAGING MOTORS in PROCEDURE 8 of this manual.

1. Verify that the ON/OFF switch on the joystick is in the OFF position.
2. If necessary, remove the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 9 of this manual.

WARNING

Use extreme care when installing/removing the battery boxes.

NEVER unplug the battery cables by pulling on the wires. Unplug the battery cables by pulling on the connector **ONLY**. Otherwise injury or damage may result.

When removing the battery boxes from the wheelchair, remove the rear battery box first.

NOTE: RIGHT and LEFT are determined by sitting in the wheelchair.

3. Position the battery boxes onto the battery tray in the following order:
 - A. TWO (2) connector battery box in FRONT so that the "open" ends of the connectors are facing the REAR of the chair.
 - B. ONE (1) connector battery box in REAR so that the flying lead is on the RIGHT side of the wheelchair.

NOTE: Make sure the leads that connect the REAR battery box to the FRONT battery box are on the same side.

4. Position retaining straps around each battery box as shown in DETAIL "B" of FIGURE 7 and clip retaining strap together.
5. Connect the REAR battery box lead to the FRONT battery box lead.
6. Connect the FRONT battery box lead to the wiring harness.
7. If necessary, reinstall the removable footboard. Refer to REMOVING THE REMOVABLE FOOTBOARD ASSEMBLY FROM THE WHEELCHAIR in PROCEDURE 3 of this manual.

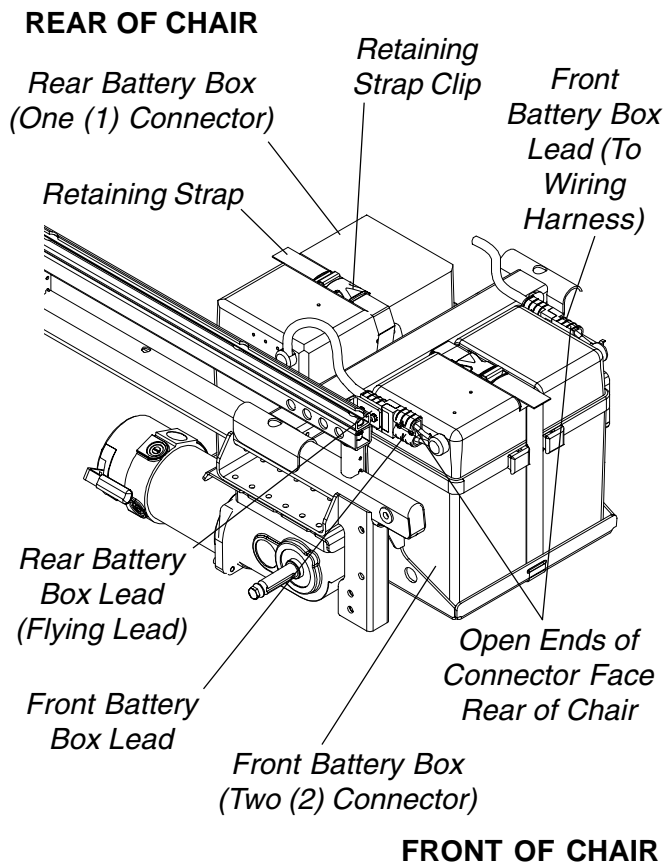


FIGURE 9 - INSTALLING/REMOVING BATTERY BOXES

REMOVING/INSTALLING THE BATTERY TRAY (FIGURE 10)

Removing

1. Remove the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
2. Remove the front and rear battery boxes. Refer to REMOVING/INSTALLING THE BATTERY BOXES in PROCEDURE 11 of this manual.
3. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
4. Remove the drive wheels. Refer to REMOVING/INSTALLING THE DRIVE WHEELS in PROCEDURE 9 of this manual.
5. For wheelchairs equipped with motors that have clutches, perform the following: Refer to DETAIL "A".
 - A. Remove the pin that secures the clutch handle to the existing motor/gearbox.
 - B. Disconnect clutch handle from existing motor/gearbox.
6. Remove the three (3) outside and two (2) inside mounting screws that secure one (1) motor/gearbox and battery tray to the base frame.
7. Remove the motor/gearbox from wheelchair frame.
8. Perform STEPS 6 and 7 for opposite motor/gearbox.
9. Remove battery tray from wheelchair frame.

Installing

NOTE: Battery Tray Installation Summary - The battery tray will need to be positioned on some type of support. The base frame will then be positioned on top of the battery tray. The motor/gearboxes are then held in position underneath the battery tray with mounting holes of all three (3) components in alignment. Perform the following steps to install the battery tray.

1. Position the new/existing battery tray on a support.
2. Position the base frame on the new/existing battery tray so that the mounting holes on the base frame align with the mounting holes on the battery tray.

3. Position one (1) motor/gearbox underneath battery tray aligning the mounting holes of all three (3) components. (Base frame, battery tray, and motor/gearbox)

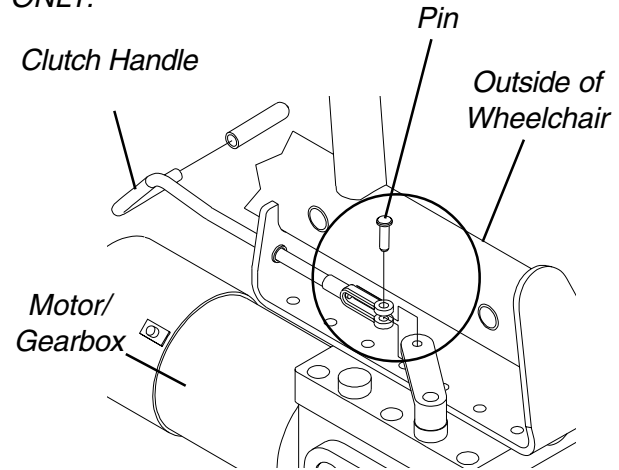
CAUTION

The three (3) OUTSIDE mounting screws that secure the motor/gearbox to the base frame MUST be M6 x 1 x 35-millimeters long and the two (2) INSIDE mounting screws that secure the motor/gearbox to the base frame MUST be M6 x 1 x 20-millimeters long, otherwise damage to the gearbox casting can result.

4. Install the three (3) outside and two (2) inside mounting screws that secure one (1) motor/gearbox and battery tray to the battery tray and base frame. Apply Loctite 242. Loosely tighten mounting screws
5. Perform STEPS 3-4 for opposite motor/gearbox.
6. Torque all ten (10) mounting screws to 160-inch pounds.
7. For wheelchairs equipped with motors that have clutches, perform the following: Refer to DETAIL "A".
 - A. Connect clutch handle existing motor/gearbox.
 - B. Install the pin that secures the clutch handle to the existing motor/gearbox.
8. Install the drive wheels. Refer to REMOVING/INSTALLING THE DRIVE WHEELS in PROCEDURE 9 of this manual.
9. Install the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
10. Install the front and rear battery boxes. Refer to REMOVING/INSTALLING THE BATTERY BOXES in PROCEDURE 11 of this manual.
11. Install the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.

DETAIL "A"

NOTE: This applies to motors that have clutches ONLY.



NOTE: Battery tray not shown for clarity.

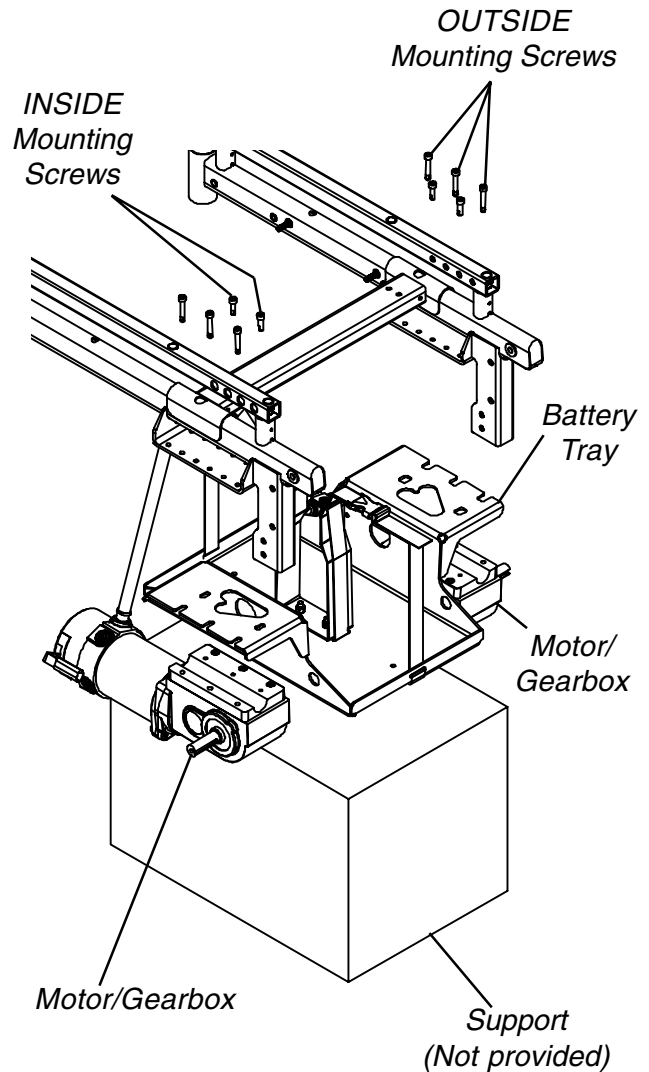


FIGURE 10 - REMOVING/INSTALLING THE BATTERY TRAY

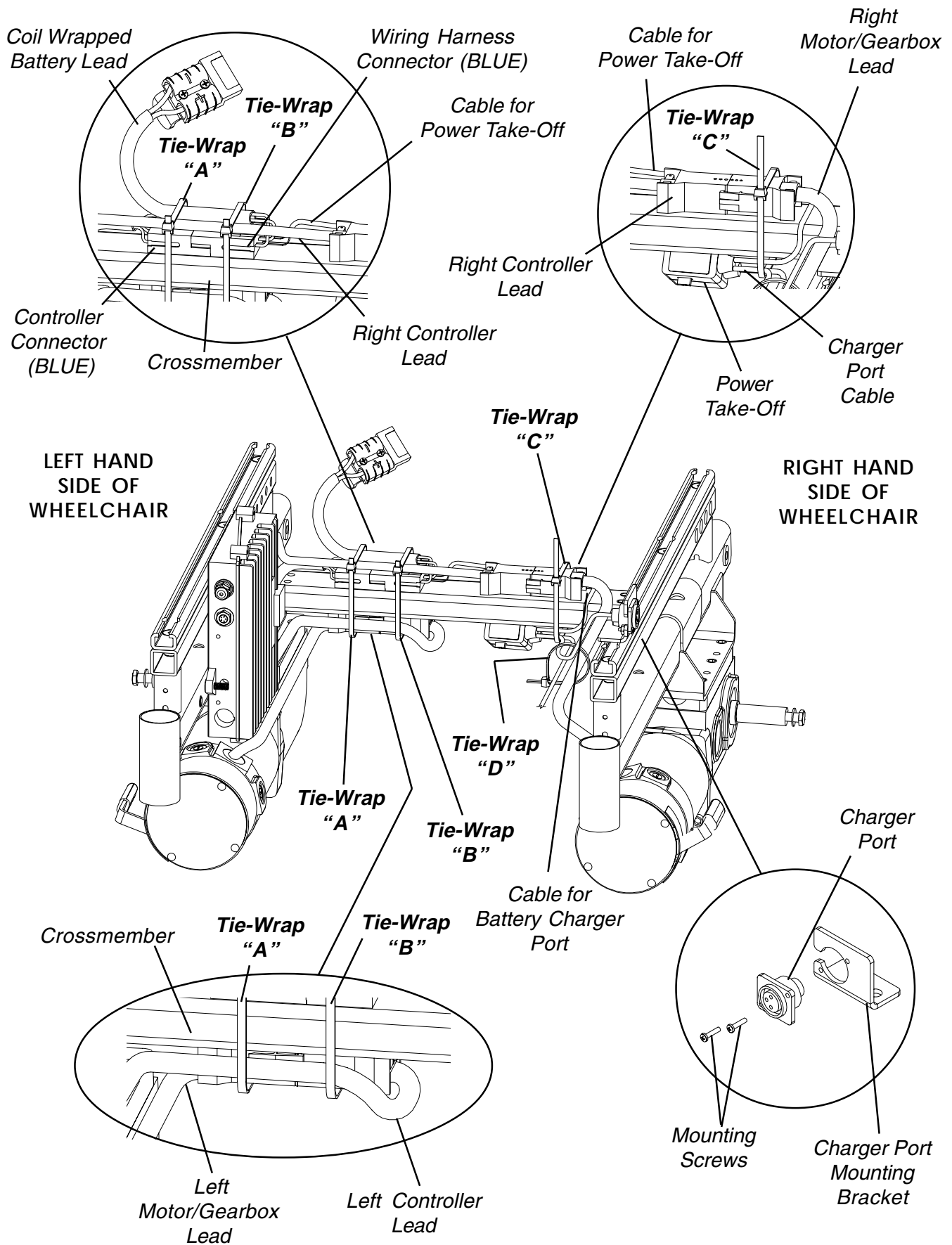
This Procedure includes the following:
Replacing the Wiring Harness MKIV Controller Only
Adjusting Stabilizer Assembly for User Preference
Replacing Stabilizer Cylinders
Replacing Stabilizer Wheel
Replacing Clutch Handles
Replacing Motor/Gearbox - Basic Motors
Replacing Motor/Gearbox - Standard Motors
Replacing Seat Mounting Plates
Replacing Seat Support Brackets
Replacing Seat Support Bracket T-Nuts
Replacing Battery Charger Bracket and T-Nut
Adjusting Weight Distribution

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

REPLACING THE WIRING HARNESS MKIV CONTROLLER ONLY (FIGURE 1)

1. If necessary, remove the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
 2. Remove the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
- NOTE: Before removing the tie-wraps, note the tie-wraps position on the base frame and the components that they secure.*
3. Remove the tie-wrap "A" and "B" that secure the following components to the base frame:
 - A. The connection between the left motor/gearbox lead and left controller lead.
 - B. Right controller lead.
 - C. The connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
 - D. The coil wrapped battery lead.
 4. Remove tie-wrap "C" that secures the following to the base frame:
 - A. The connection between the right motor/gearbox lead and right controller lead.
 - B. The cable extending out from the blue connector of the wiring harness for the power take-off.
 - C. Power take-off cable and lead for battery charger port
 5. Remove tie-wrap "D".

6. Remove the two (2) phillips bolts and locknuts that secures the battery charger port to the mounting bracket.
7. Remove the battery charger port from the mounting bracket.
8. HIGH BACK CAPTAIN'S SEAT MODEL WHEEL-CHAIRS ONLY (DETAIL "A") - Unplug the power take-off of the Captain's Van Seat from the power take-off of the wiring harness.
9. Disconnect the the connection between the controller connector (BLUE) and the wiring harness (BLUE) connector.
10. Remove the existing wiring harness from wheelchair.
11. Connect the controller connector (BLUE) and the new wiring harness (BLUE) connector.
12. Install the battery charger port into the mounting bracket.
13. Secure the battery charger port to the mounting bracket with the existing two (2) phillips bolts and locknuts. Securely tighten.
14. HIGH BACK CAPTAIN'S SEAT MODEL WHEEL-CHAIRS ONLY - Plug the power take-off of the captain's van seat into the power take-off of the wiring harness.
15. Perform the following steps for tie-wrap installation:
 - A. Position the connection between left controller lead and the left motor/gearbox lead below the crossmember with the left controller lead furthest out on the crossmember and then fold cable lead back in the opposite direction.
 - B. Position the connection between the controller connector (BLUE) and the wiring harness (BLUE) connector on top of the crossmember with the coil wrapped battery lead extending out toward the right hand side of the chair then fold back in opposite direction and positioned on top of the two (2) blue connectors. The cable for the PTO extending from the BLUE connector is to run along crossmember to the right hand side of the chair
 - C. Position the connection of the right controller lead and the right motor/gearbox lead on top of the crossmember so that the right controller lead is routed on top of the blue connectors.
 - D. Install tie-wrap "A" and "B" to secure all components and cables noted in STEPS 1-3 to the base frame.
 - E. With the connection of the right controller lead and the right motor/gearbox lead on top of the crossmember, fold the power take-off leads underneath crossmember and secure with tie wrap "C".
 - F. Install tie-wrap "D".
16. Reassemble wheelchair by reversing STEPS 1-2.



NOTE: View of base frame is from the rear of the wheelchair

FIGURE 1 - REPLACING WIRING HARNESS MKIV CONTROLLER ONLY

ADJUSTING STABILIZER ASSEMBLY FOR USER PREFERENCE (FIGURE 2)

1. Rotating the locknut that is located on top of the lower spring provides one (1) of the following:
 - A. Rotating the locknut **CLOCKWISE** - provides more resistance of the stabilizer when stopping.
 - B. Rotating the locknut **COUNTER-CLOCKWISE** - provides less resistance of the stabilizer when stopping.

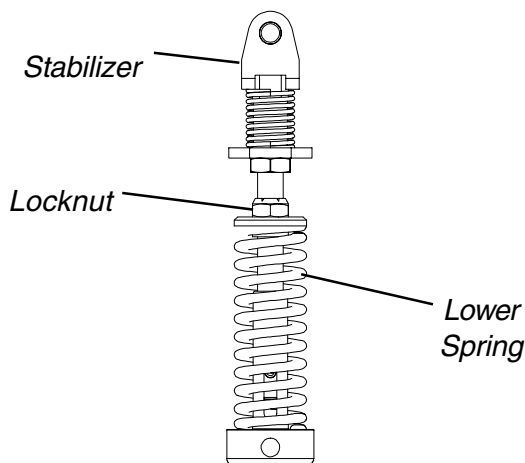


FIGURE 2 - ADJUSTING STABILIZER ASSEMBLY FOR USER PREFERENCE

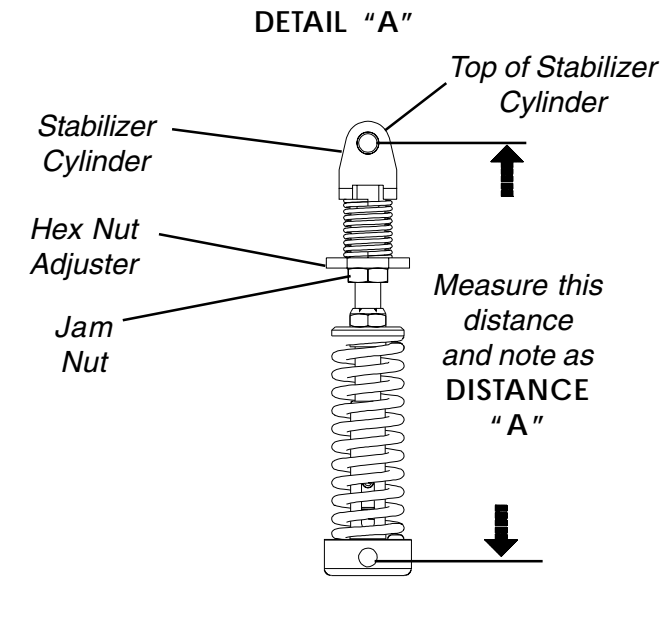
REPLACING STABILIZER CYLINDERS (FIGURE 3)

1. Remove the top mounting screw and locknut that secures the top of the stabilizer cylinder to the wheelchair frame.
2. Note the mounting position of the existing stabilizer cylinder for proper installation of the new stabilizer cylinder.
3. Remove the bottom mounting screw, washers and locknut that secures the bottom of the stabilizer cylinder to the swing arm.
4. Remove the existing stabilizer cylinder.
5. Secure the bottom of the NEW stabilizer cylinder to the mounting hole on the swing arm noted in STEP 2 with the mounting screw, washers, and locknut. Loosely tighten.
6. Secure the top of the stabilizer cylinder to the wheelchair frame with the top mounting screw and locknut. Loosely tighten.

7. Torque both mounting screws to 13 ft/lbs and then back off 1/8 to 1/4 turn.

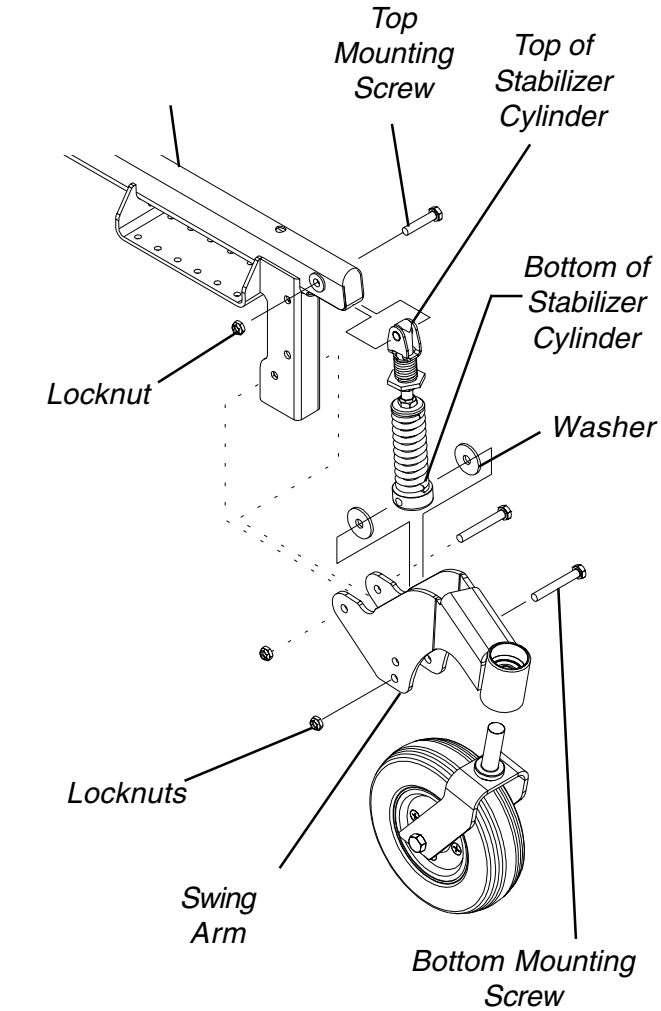
NOTE: The length of the new stabilizer cylinder must be adjusted to match the length of the stabilizer cylinder just removed.

8. Measure the distance between the top mounting hole and the bottom mounting hole on the existing stabilizer cylinder. Note this distance as distance "A". Refer to DETAIL "A"
9. Place the wheelchair on a flat surface so that the stabilizer wheels can hang freely.
10. Loosen the jam nut, located underneath the hex nut adjuster, by turning **CLOCKWISE** as viewed from the top.
11. Rotate the hex nut adjuster in one (1) of the following directions:
 - A. Rotating the hex nut adjuster **CLOCKWISE**, as viewed from the top, will move the stabilizer wheel up.
 - B. Rotating the hex nut adjuster **COUNTER - CLOCKWISE**, as viewed from the top, will move the stabilizer wheel down.
12. When distance "A" is achieved, noted from STEP 8, retighten the jam nut by rotating **COUNTER-CLOCKWISE** as viewed from the top to lock the hex nut adjuster in position.
13. Place the wheelchair on a flat surface with all six wheels in contact with the surface.



REPLACING STABILIZER WHEEL (FIGURE 4)

1. Remove the mounting screw, washers, and locknut that secure the stabilizer wheel to the fork.
 2. Remove the existing stabilizer wheel.
 3. Secure the new stabilizer wheel to the fork with existing mounting screw, washer and locknut. Torque to 120-in/lbs.
 4. Loosen the locknut 1/8 of a turn by turning the locknut COUNTERCLOCKWISE.
 5. Move the caster side to side.
- NOTE: If the caster moves side to side, tighten the locknut slightly. Repeat STEP 3 until there is no side to side movement.*
6. Repeat STEP 1 for other caster and fork.



NOTE: Stabilizer assembly exploded away for clarity. It is not necessary to remove the stabilizer assembly from the wheelchair frame.

FIGURE 3 - REPLACING STABILIZER CYLINDERS

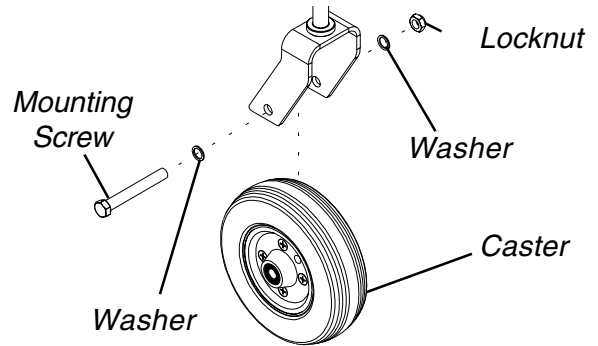


FIGURE 4 - REPLACING STABILIZER WHEEL (FIGURE 5)

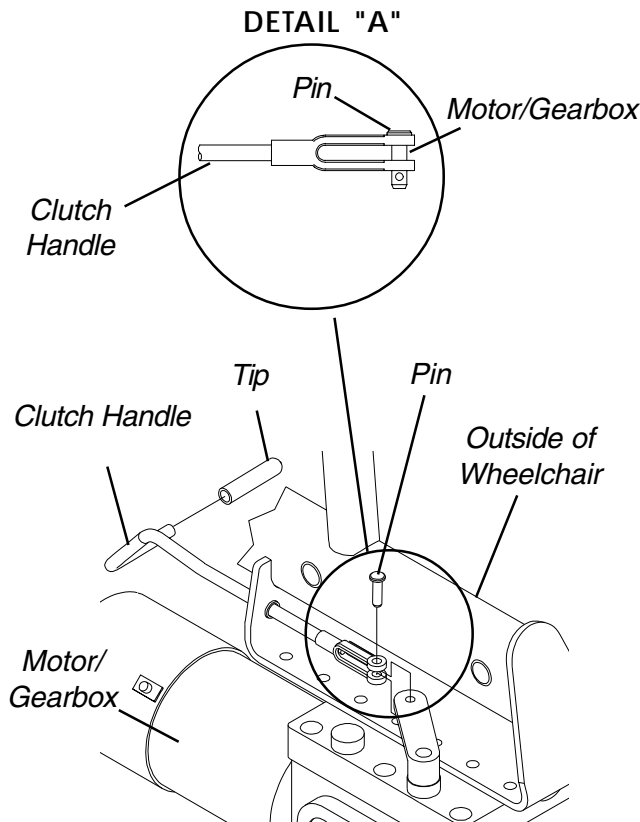
1. Remove the front, rear and side shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
2. Remove the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
3. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
4. Remove the pin that secures the clutch handle to the existing motor/gearbox.
5. Disconnect clutch handle from existing motor/gearbox.
6. Repeat STEPS 4-5 for other clutch handle.

7. Remove the battery tray and both motor/gearboxes. Refer to REMOVING/INSTALLING THE BATTERY TRAY in PROCEDURE 11 in this manual.
8. Remove the controller. Refer to REMOVING/INSTALLING THE CONTROLLER in PROCEDURE 7 of this manual.
9. Remove the tip from the existing clutch handle.
10. Feed the existing clutch handle through the wheelchair frame.
11. Remove the rubber tip from the new clutch handle.
12. Install the NEW clutch handle onto the wheelchair.
NOTE: Make sure the NEW clutch handle is pointing towards the outside of the wheelchair.
13. Install the rubber tip onto the new clutch handle.
14. Repeat STEPS 9-13 for the opposite side of the wheelchair, if necessary.
15. Install the controller. Refer to REMOVING/INSTALLING THE CONTROLLER in PROCEDURE 7 of this manual.
16. Install the battery tray and both motor/gearboxes. Refer to REMOVING/INSTALLING THE BATTERY TRAY in PROCEDURE 11 in this manual.

17. Connect clutch handles to existing motor/gearboxes.
18. Install the pins that secure the clutch handles to the existing motor/gearboxes.
19. Reassemble wheelchair by reversing STEPS 1-3.

REPLACING THE MOTOR/GEARBOX (FIGURES 5 AND 6)

1. Remove the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
2. Remove the front and rear battery boxes. Refer to REMOVING/INSTALLING THE BATTERY BOXES in PROCEDURE 11 of this manual.
3. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
4. Remove the drive wheels. Refer to REMOVING/INSTALLING THE DRIVE WHEELS in PROCEDURE 9 of this manual.
5. For wheelchairs equipped with motors that have clutches, perform the following: Refer to FIGURE 5.
 - A. Remove the pin that secures the clutch handle to the existing motor/gearbox.
 - B. Disconnect clutch handle from existing motor/gearbox.
6. Note mounting position of motor/gearbox on the wheelchair frame for installation of the new motor/gearbox.
7. Remove the three (3) outside and two (2) inside mounting screws that secure one (1) motor/gearbox and battery tray to the base frame. Refer to FIGURE 6.
8. Remove the motor/gearbox from wheelchair frame.
9. Position the NEW motor/gearbox and align mounting holes with the existing battery tray and wheelchair frame at the position noted previously. Refer to FIGURE 6.



NOTE: Battery tray not shown for clarity.

FIGURE 5 - REPLACING CLUTCH HANDLES

CAUTION
 The three (3) OUTSIDE mounting screws that secure the motor/gearbox to the base frame MUST be M6 x 1 x 35-millimeters long and the two (2) INSIDE mounting screws that secure the motor/gearbox to the base frame MUST be M6 x 1 x 20-millimeters long, otherwise damage to the gearbox casting can result.

10. Install (apply loctite to mounting screws) the three (3) outside and two (2) inside mounting screws to secure motor/gearbox and battery tray to the base frame. Refer to FIGURE 6.
 11. Torque mounting screws to 160-inch pounds.
 12. For wheelchairs equipped with motors that have clutches, perform the following: Refer to FIGURE 5
 - A. Connect clutch handle existing motor/gearbox.
 - B. Install the pin that secures the clutch handle to the existing motor/gearbox.
- NOTE: Make sure the detent ball on the pin is fully visible.*
13. Perform STEPS 5-12 for other motor/gearbox if necessary.
 14. Install the drive wheels. Refer to REMOVING/INSTALLING THE DRIVE WHEELS in PROCEDURE 9 of this manual.

*OUTSIDE Mounting Screws
M6 x 1 x 35-millimeters
(Apply Loctite 242 and torque
to 60-inch pounds)*

*INSIDE Mounting Screws
M6 x 1 x 20-millimeters long
(Apply Loctite 242 and torque
to 60-inch pounds)*

*On models equipped
with motors that have
clutches only*

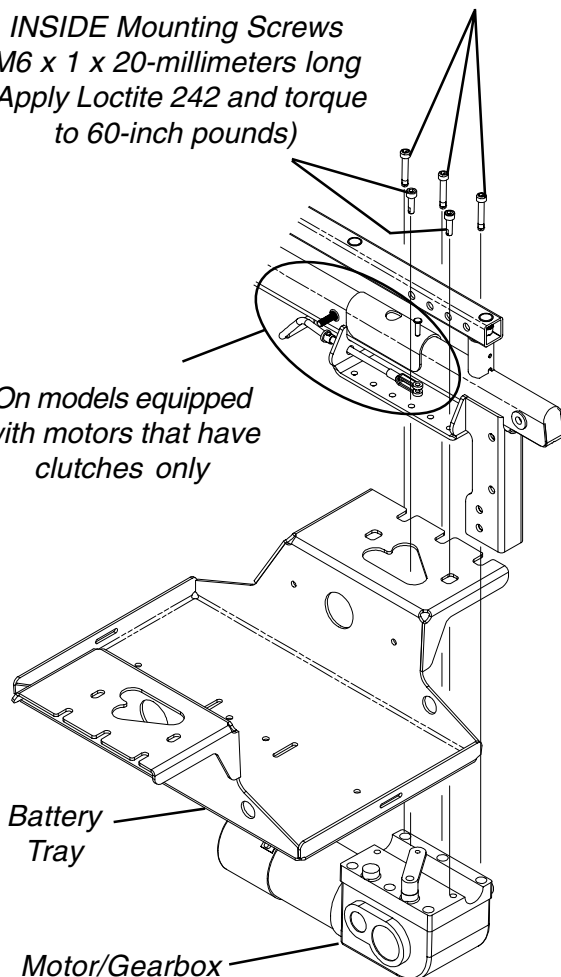


FIGURE 6 - REPLACING THE MOTOR/GEARBOX

15. Install the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.
16. Install the front and rear battery boxes. Refer to REMOVING/INSTALLING THE BATTERY BOXES in PROCEDURE 11 of this manual.
17. Install the front and rear shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.

REPLACING SEAT MOUNTING PLATES (FIGURE 7)

1. Remove the front, rear and side shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.
2. Remove the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.
3. Remove the seat. Refer to one (1) of the following:
 - A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.
 - C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.

NOTE: Before removing seat mounting plates, note the position of the washers for proper reinstallation.

4. Remove the two (2) mounting screws, washers and bolt strap bracket that secure the seat mounting plate to the seat support bracket.
5. Secure NEW seat mounting plate with existing two (2) mounting screws, washers, and bolt straps to seat support bracket using Loctite 242 and torque to 156-inch pounds.

BASE FRAME

6. Repeat STEPS 4–5 for opposite side, if necessary.

NOTE: For illustrations of the two (2) different seat mounting plates, refer to MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION in PROCEDURE 6 of this manual.

7. Adjust seat mounting plates to desired angle. Refer to MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION in PROCEDURE 6 of this manual.

8. Reassemble wheelchair by reversing STEPS 1-3.

4. Remove seat mounting plates. Refer to REPLACING SEAT MOUNTING PLATES in this procedure of the manual.

NOTE: Note the position of the seat support brackets before removing to ensure proper reinstallation.

WARNING

Do not adjust the position of the seat support bracket in this procedure. If an adjustment is desired, refer to ADJUSTING WEIGHT DISTRIBUTION in PROCEDURE 12.

5. Remove the two (2) mounting screws and washers that secure the seat support bracket to the base frame.

WARNING

When installing seat support bracket, ensure the mounting screws are threaded into the T-Nuts located inside the channel of the base frame.

6. Secure the NEW seat support bracket to the T-nuts located inside the channel of the base frame with the existing two (2) mounting screws and washers. Torque to 156-inch pounds.

7. Reinstall seat mounting plates. Refer to REPLACING SEAT MOUNTING PLATES in this procedure of the manual.

8. Adjust seat mounting plates to desired angle. Refer to MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION in PROCEDURE 6 of this manual.

9. Reassemble wheelchair by reversing STEPS 1-3.

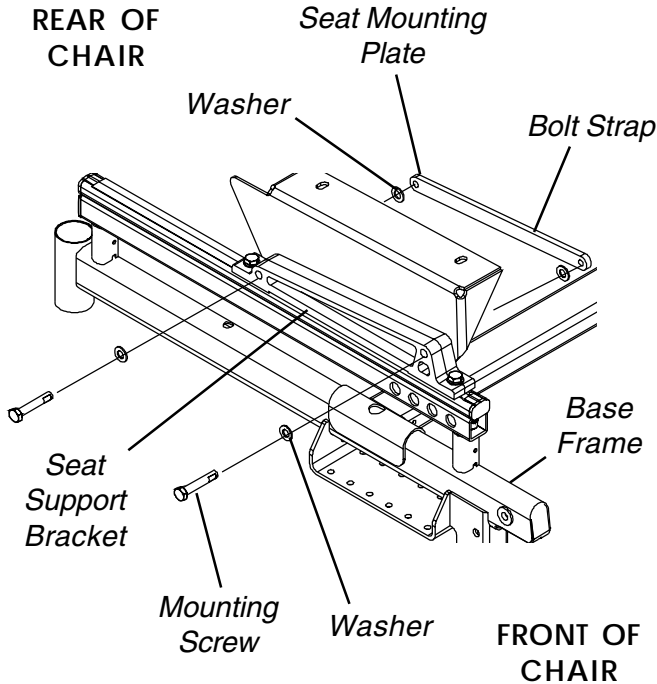


FIGURE 7 - REPLACING SEAT MOUNTING PLATES

REPLACING SEAT SUPPORT BRACKETS (FIGURE 8)

1. Remove the front, rear and side shrouds. Refer to REMOVING/INSTALLING SHROUDS in PROCEDURE 10 of this manual.

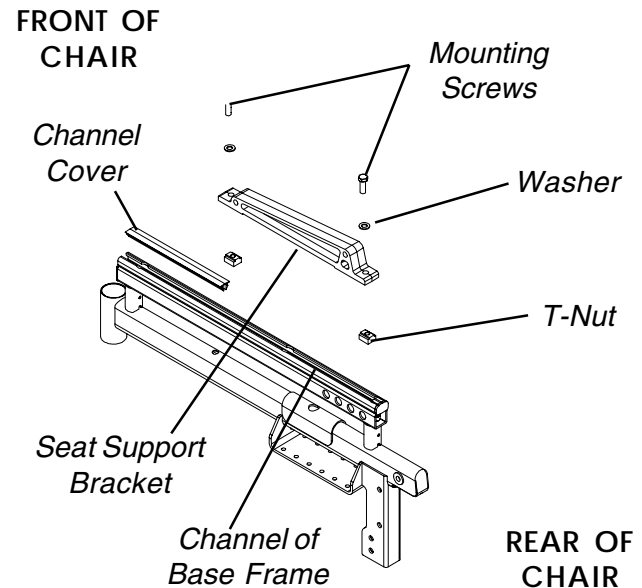
2. Remove the battery boxes. Refer to INSTALLING/REMOVING BATTERY BOXES in PROCEDURE 11 of this manual.

3. Remove the seat. Refer to one (1) of the following:

A. REMOVING/INSTALLING THE STANDARD SEAT FRAME in PROCEDURE 6 of this manual.

B. REMOVING/INSTALLING THE CAPTAIN'S VAN SEAT in PROCEDURE 6 of this manual.

C. REMOVING/INSTALLING THE RECLINER SEAT FRAME in PROCEDURE 13 of this manual.



NOTE: Left side of base frame shown. Right and Left are determined by sitting in the wheelchair.

FIGURE 8 - REPLACING SEAT SUPPORT BRACKETS

REPLACING SEAT SUPPORT BRACKET T-NUTS (FIGURE 9)

1. Perform one (1) of the following:
 - A. Remove standard seat frame. Refer to REMOVING/INSTALLING STANDARD SEAT FRAME in PROCEDURE 6 of this manual.
 - B. Remove Captain's van seat. Refer to INSTALLING/REMOVING CAPTAIN'S VAN SEAT ASSEMBLY in PROCEDURE 6 of this manual.
2. Remove the seat mounting plates. Refer to REPLACING SEAT MOUNTING PLATES in this procedure of the manual.

NOTE: Before removing seat support brackets, note the position of the seat support brackets relative to the base frame.

3. Remove the two (2) mounting screws and washers that secure the seat support bracket to the base frame.
4. Remove the seat support bracket.
5. Remove the end cap.
6. Remove the end bolt that secures the channel to the base frame
7. Slide existing T-Nut(s) out of channel.
8. Insert NEW T-Nut(s) into channel.
9. Use Loctite 242 and reinstall end bolt that secures channel to base frame.

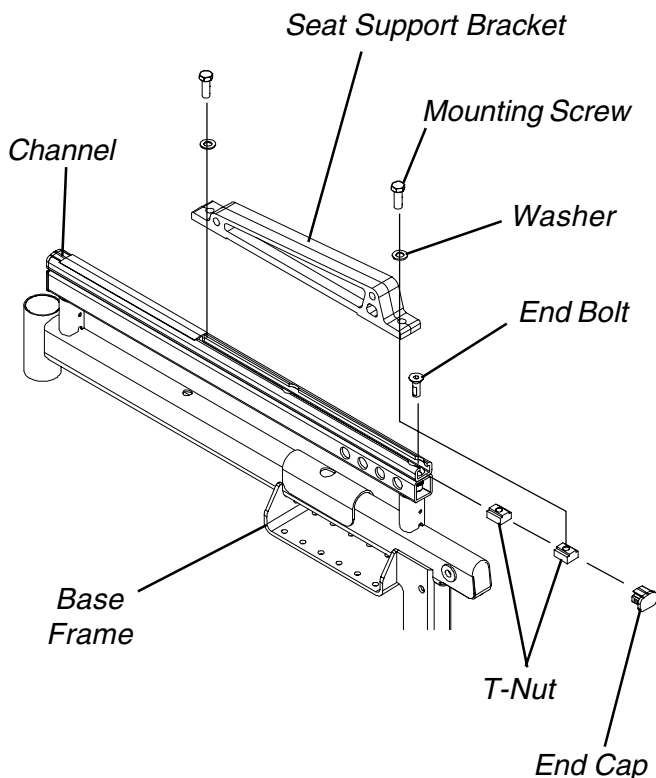


FIGURE 9 - REPLACING SEAT SUPPORT BRACKET T-NUTS

10. Replace end cap.
11. Secure seat support bracket, in orientation noted above, to NEW T-nuts with existing mounting screws and washers. Torque to 13 ft/lbs..
12. Reassemble wheelchair by reversing STEPS 1-2.

REPLACING BATTERY CHARGER BRACKET AND T-NUT (FIGURE 10)

1. Remove the two (2) mounting screws that secure the battery charger connector to the mount bracket.
2. Remove battery charger connector from mount bracket.
3. Remove the mounting screw which secures the battery charger mount bracket to the T-nut located in the channel of the base frame.
4. Replace battery charger mount bracket and secure to base frame with existing mounting screw.
5. Secure the battery charger connector to the mount bracket with the EXISTING two (2) mounting screws. Tighten securely.

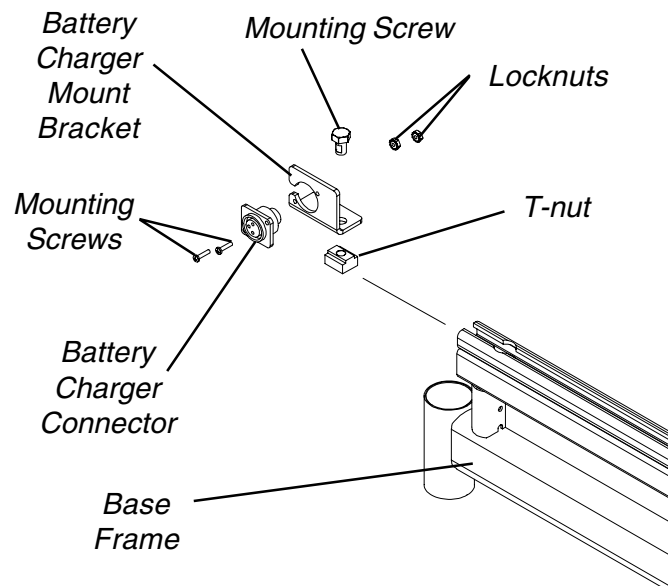


FIGURE 10 - REPLACING BATTERY CHARGER BRACKET AND T-NUT

ADJUSTING WEIGHT DISTRIBUTION (FIGURE 11)

NOTE: The seat mount plates and seat support brackets allow seat frame to be repositioned along the base frame.

NOTE: The position of the seat support brackets is factory set between 3/4-inch and 2-3/4-inch depending on seat depth. Measurements are taken from the front end of the base frame.

* Distance measured from the front of the base frame to the front of the seat support bracket.

Adjustment for Optimum Performance

1. Loosen the four (4) mounting screws that secure the seat support brackets to the base frame.
2. Adjust seat back until one (1) of the following occurs:
 - A. The clearance of the front riggings and the stabilizers is at a minimum or
 - B. The rear stop is contacted.

WARNING

DO NOT adjust seat beyond end of extrusion or seat stop screws, if applicable.

3. Retighten mounting screws securing the seat support brackets to the base frame.
4. Test wheelchair for handling.

5. If handling of the power wheelchair is drifting, repeat this procedure moving seat up in small increments until the chair handles properly.
6. Once the seat is adjusted to the point of proper handling, comfort adjustments can be made.
7. Adjust the stabilizers to the desired setting. Refer to ADJUSTING STABILIZERS in this procedure of the manual.

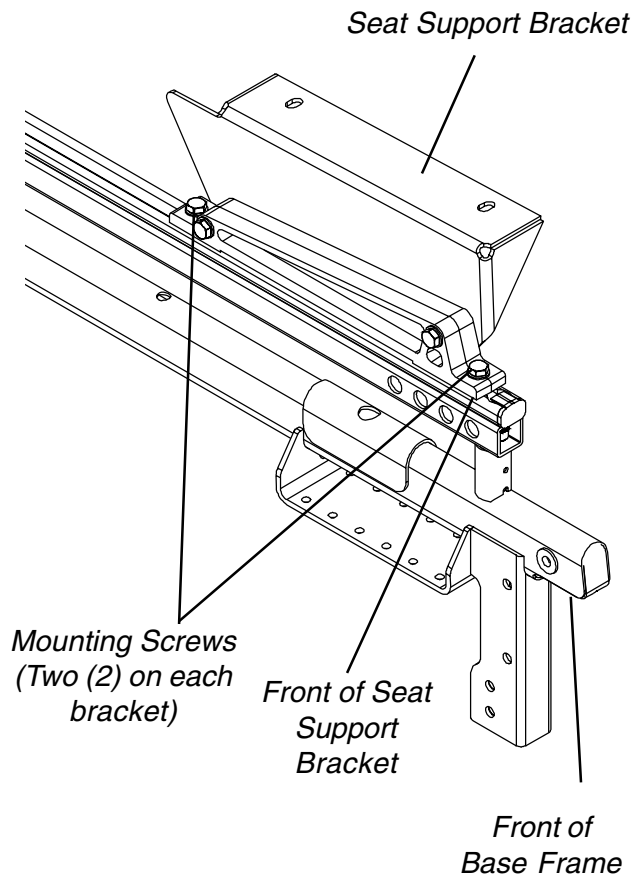


FIGURE 11 -ADJUSTING WEIGHT DISTRIBUTION

<p><i>This Procedure Includes the Following:</i></p> <p><i>Positioning Limit Switch</i></p> <p><i>Adjusting Limit Switch</i></p> <p><i>Replacing Recliner Cable Assemblies</i></p> <p><i>Replacing/Adjusting Gas Cylinders</i></p> <p><i>Changing Back Height</i></p> <p><i>Changing Seat Depth</i></p> <p><i>Changing Seat Width</i></p> <p><i>Installing/Replacing Adjustable 16 to 19-inch Deep Recliner Seat Frame onto Arrow or X Base</i></p>
--

WARNING

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

POSITIONING LIMIT SWITCH (FIGURE 1)

NOTE: The battery charger connector, as well as, the limit switch are factory set on the RIGHT side of the wheelchair. However, they can be positioned on either side for user convenience. The limit switch MUST BE positioned on the same side as the battery charger connector.

1. Cut the two (2) tie wraps that secure the limit switch wire to the seat frame.
2. Remove the two (2) mounting screws and washers that secure the actuator to the gas cylinder pivot block.
3. Position actuator on opposite gas cylinder pivot block.

CAUTION

DO NOT over tighten the mounting screws that secure the actuator to the pivot block. Damage to actuator will occur.

4. Secure the actuator to the pivot block with the two (2) mounting screws and washers. DO NOT overtighten.
5. Remove the mounting screw that secures the wire retainer to the inside of the seat frame.
6. Remove the two (2) mounting screws and washers that secure the limit switch sensor to the seat frame.
7. Turn limit switch sensor over so opposite side is facing up and the wire is on the INSIDE of the seat frame.
8. Position the limit switch sensor onto the opposite side of the seat frame.

CAUTION

DO NOT over tighten the mounting screws that secure the limit switch sensor to the seat frame. Damage to the limit switch sensor will occur.

9. Secure limit switch sensor to the seat frame with the two (2) mounting screws and washers.
10. Secure the wire retainer onto the INSIDE of the seat frame with the mounting screw.
11. Tie wrap the limit switch wire to the seat frame.
12. Adjust the limit switch. Refer to ADJUSTING LIMIT SWITCH in this procedure of the manual.

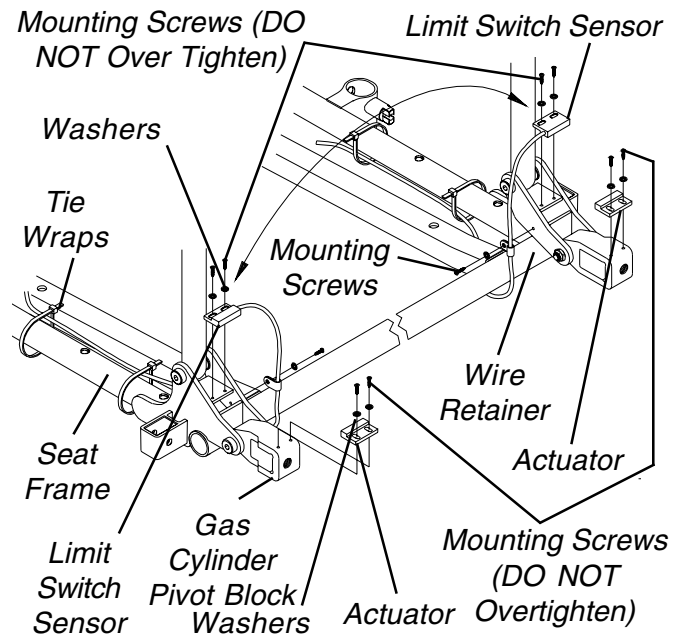


FIGURE 1 - POSITIONING LIMIT SWITCH

ADJUSTING LIMIT SWITCH (FIGURE 2)

WARNING

NEVER operate the wheelchair while in any recline position over 105° RELATIVE TO THE SEAT FRAME. If the limit switch does not stop the wheelchair from operating in a recline position greater than 105° RELATIVE TO THE SEAT FRAME, do not operate the wheelchair. Adjust the limit switch BEFORE using the wheelchair, otherwise injury or damage can occur.

1. Recline the back of the wheelchair until the gas cylinder rod measures 3-21/32 of an inch.
2. Turn the power of the joystick to the ON position.

NOTE: ALL segments of the bar graph on the joystick should start to flash on and off and the wheelchair should not operate.

3. IF the wheelchair operates, proceed to the following steps to adjust the actuator on the gas cylinder pivot block:
 - A. Loosen, but do not remove, the two (2) mounting screws and washers that secure the actuator to the gas cylinder pivot block.

RECLINER

B. Slide actuator UP (towards top of the wheelchair).

CAUTION
DO NOT over tighten the mounting screws that secure the actuator to the pivot block. Damage to the actuator will occur.

- C. Only tighten the two (2) mounting screws and washers that secure the actuator to the gas cylinder pivot block until the actuator does not move.
- D. Repeat STEPS 1 and 2 until the wheelchair does not operate when the gas cylinder rod is 3-21/32-inch long.

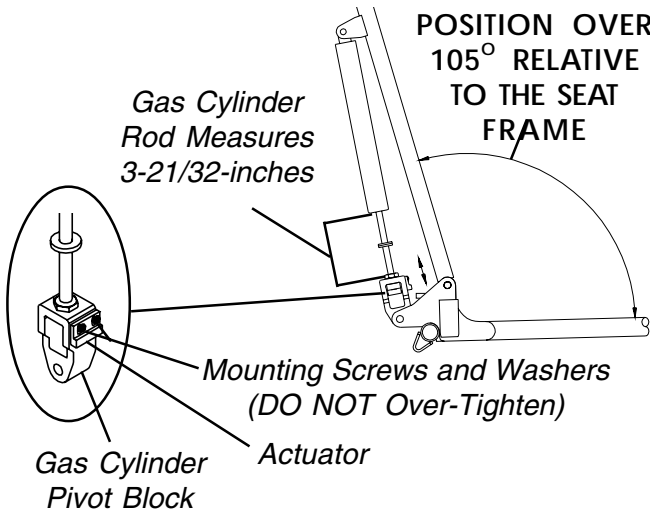


FIGURE 2 - ADJUSTING LIMIT SWITCH

REPLACING RECLINER CABLE ASSEMBLIES (FIGURE 3)

NOTE: There are three (3) different cable lengths depending on back height:

CABLE LENGTH	BACK HEIGHT
Short	18-1/2 and 20-inches
Medium	22 and 24-inches
Long	26-inches

WARNING
Replace ONE (1) recliner cable assembly at a time to avoid injury.

1. Cut the tie wraps that secure the existing recliner cable assembly to the back cane.
2. Remove the pan screw that secures the handle of the existing recliner cable assembly to the back cane.
3. Loosen the jam nut on the gas cylinder rod.
4. Remove the mounting screw, washer, nylon washers and locknut that secure the TOP of the gas cylinder to the mounting bracket on the back cane.
5. Unscrew the gas cylinder from the operator of the existing recliner cable assembly but do not remove the gas cylinder from the pivot block.

6. Remove the operator of the existing recliner cable assembly from the pivot block.
7. Make sure the threads of the gas cylinder rod are flush with the inside of the pivot block.
8. With the operator of the NEW recliner cable assembly on the inside of the recliner seat frame, line up the mounting hole in the operator of the new recliner cable assembly with the gas cylinder rod.

CAUTION
DO NOT force the gas cylinder rod into the operator of the recliner cable assembly.
DO NOT cross thread the operator of the recliner cable assembly with the gas cylinder.
If slack in the recliner cable or movement in the operator of the cable assembly can not be eliminated, DO NOT use the recliner cable assembly.

9. Screw the NEW gas cylinder into the operator of the cable assembly until the jam nut sits on the pivot block, there is no slack in the recliner cable and there is no movement in the operator of the recliner cable assembly.

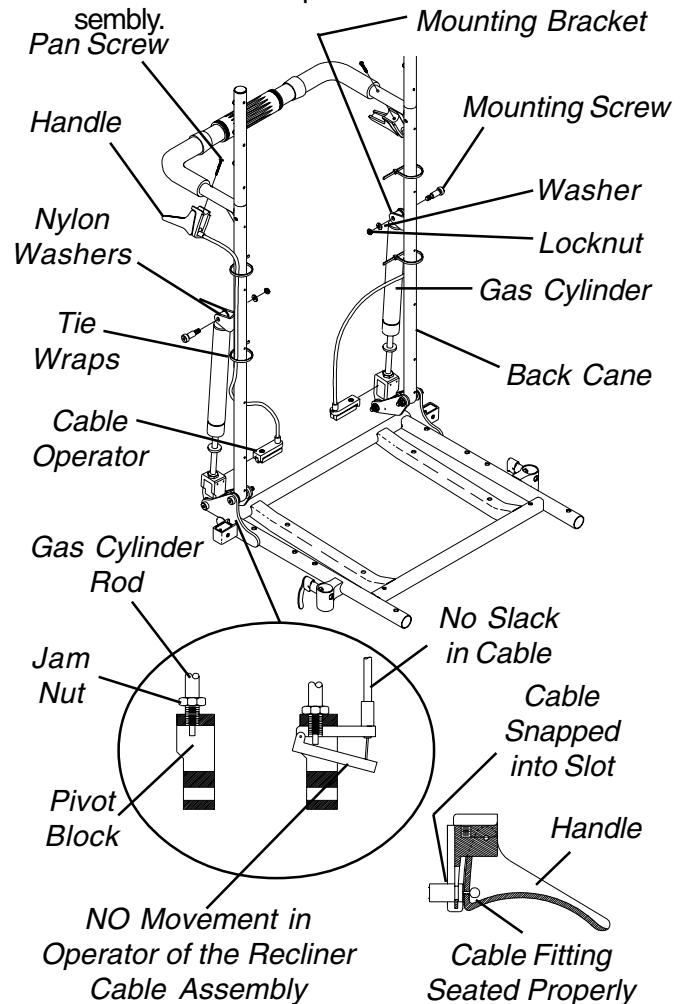


FIGURE 3 - REPLACING RECLINER CABLE ASSEMBLIES

10. Visually inspect the handle to make sure that the cable is snapped completely into slot in handle and cable fitting is seat properly in the handle.
11. Reinstall the mounting screw through the mounting bracket of the back cane, nylon washer, gas cylinder, nylon washer, mounting bracket and washer and securely tighten with the existing locknut. Torque to 75-inch pounds.
12. Line up the mounting hole in the handle of the recliner cable assembly with the mounting hole in the back cane.
13. Insert the pan screw through the handle of the recliner cable assembly and the back cane and torque to 9-inch pounds.
14. Tie wrap the recliner cable assembly to the recliner back cane.
15. Adjust the gas cylinder. Refer to ADJUSTING GAS CYLINDERS in this procedure of the manual.

If slack in the recliner cable or movement in the operator of the cable assembly can not be eliminated, DO NOT use the recliner cable assembly.

6. Screw the NEW gas cylinder into the operator of the cable assembly until the jam nut sits on the pivot block, there is no slack in recliner cable and there is no movement in the operator of the recliner cable assembly.
7. Visually inspect the handle to make sure that the cable is snapped completely into slot in handle and cable fitting is seat properly in the handle.
8. Press the operator of the recliner cable assembly to extend the NEW gas cylinder.
9. Line up the mounting holes of the NEW gas cylinder and the bracket of the back cane.
10. Reinstall the mounting screw through the mounting bracket of the back cane, nylon washer, NEW gas cylinder, nylon washer, mounting bracket and washer and securely tighten with the existing locknut. Torque to 75-inch pounds.
11. Adjust the NEW gas cylinders. Refer to ADJUSTING GAS CYLINDERS in this procedure of the manual.

REPLACING/ADJUSTING GAS CYLINDERS (FIGURE 4)

WARNING

Replace ONE (1) gas cylinder at a time to avoid injury.

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

Replacing Gas Cylinder

1. Remove the mounting screw, washer, nylon washers and locknut that secure the TOP of the gas cylinder to mounting bracket on back cane.
2. Loosen the jam nut on existing gas cylinder rod.
3. Unscrew the existing gas cylinder from the operator of the recliner cable assembly and the pivot block and remove the existing gas cylinder from the wheelchair.
4. Screw cylinder rod of the NEW gas cylinder into the pivot block until the threads of the cylinder rod are flush with inside of pivot block (FIGURE 4).
5. With the operator of the recliner cable assembly on the inside of the recliner seat frame, line up the mounting hole in the operator of the recliner cable assembly with the new gas cylinder rod.

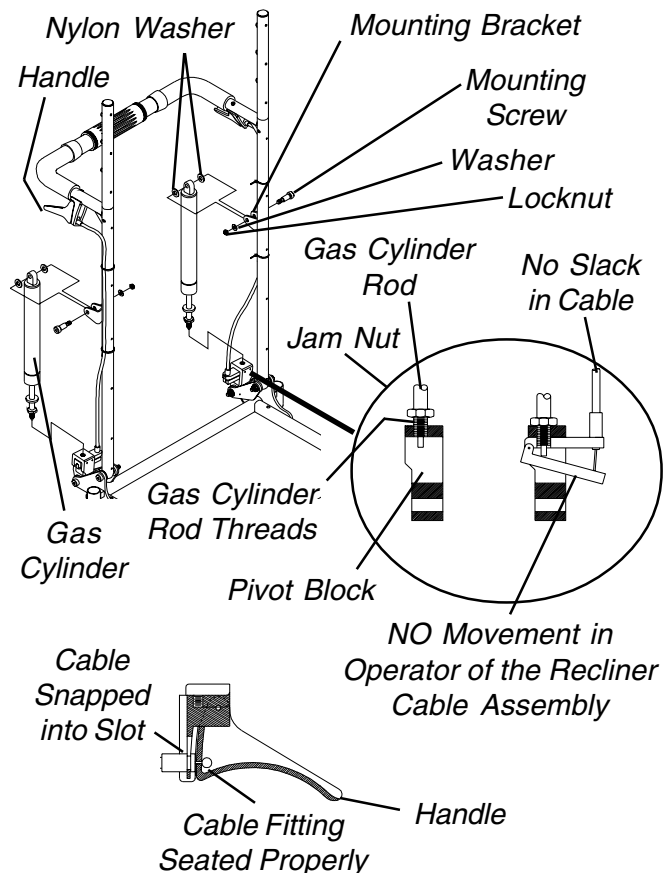


FIGURE 4 - REPLACING/ADJUSTING GAS CYLINDERS

CAUTION

DO NOT force the gas cylinder rod into the operator of the recliner cable assembly.

DO NOT cross thread the operator of the recliner cable assembly with the gas cylinder.

RECLINER

Adjusting Gas Cylinder

1. To adjust the **LEFT** gas cylinder: Squeeze the handle of the **RIGHT** recliner cable assembly and try to recline the back. The back should not recline.
2. If the **LEFT** side of the back releases without squeezing the handle of the **LEFT** recliner cable assembly, perform the following steps:
 - A. Finger tighten the jam nut on the rod of the gas cylinder until it bottoms out on the rod of the cylinder (**FIGURE 4**).
 - B. Turn the jam nut on the **LEFT** gas cylinder **COUNTERCLOCKWISE** approximately one-half (1/2) revolution.
- NOTE: The gas cylinder rod will turn.
- C. Repeat **STEP 1**.
- D. Repeat **STEP B** until the **LEFT** side of the back **DOES NOT** recline.
3. To adjust the **RIGHT** gas cylinder: Repeat **STEPS 1** and **2** for the **LEFT** handle of the cable assembly.

CAUTION

Damage to the gas cylinder rod **WILL** occur if the following steps are **NOT** followed when the jam nut is torqued against the pivot block.

4. Using **NO LARGER** than 1/4-inch wide, fine toothed pliers, wrap masking tape around the teeth of the pliers two (2) or (3) revolutions.
5. Using **NO** excessive force, hold the gas cylinder rod just above the jam nut.
6. While holding the gas cylinder rod and using a 17mm wrench, turn the jam nut **CLOCKWISE** and torque the **RIGHT** and **LEFT** jam nuts against the **RIGHT** and **LEFT** pivot blocks to 156-inch pounds.

CHANGING BACK HEIGHT (FIGURE 5)

1. Press the push pins on the headrest extension tubes in and remove headrest extension from back canes.
2. Remove the recliner cables from the back canes. Refer to **REPLACING RECLINER CABLE ASSEMBLIES** in this procedure of the manual.
3. Remove the mounting screws, washers and locknuts that secure the TOP of the gas cylinders to the mounting bracket on the back canes.
4. Remove the mounting screws, washers and locknuts that secure the back canes to the seat frame.
5. Remove the existing recliner back assembly from the wheelchair.

6. Turn the spreader bar on the existing back canes **CLOCKWISE** (toward back upholstery) and remove the spreader bar from the existing back canes.
7. Loosely install the spreader bar onto the **NEW** back cane handles by rotating the spreader bar **COUNTERCLOCKWISE** (away from the back canes).

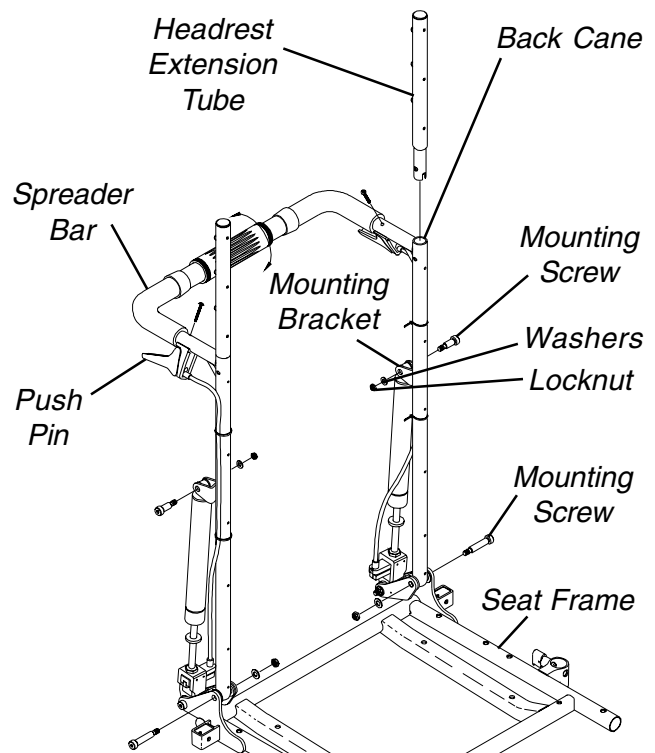
NOTE: If the spreader bar does not thread onto the back canes, do not force. Turn the spreader bar around and repeat **STEP 7**.

8. Line up two (2) bottom mounting holes of back canes with the two (2) mounting holes in the seat frame.

WARNING

The back canes **MUST** be fastened securely to the seat frame **BEFORE** using the wheelchair. Torque mounting screws to 156-inch pounds.

9. Reinstall the mounting screw, washer and locknut through the back cane and seat frame mounting holes and torque to 156-inch pounds.
10. Reinstall the mounting screw through the mounting bracket of the back cane, nylon washer, mounting hole in the TOP of the gas cylinder, nylon washer, mounting bracket and washer and securely tighten with the existing locknut. Torque to 75-inch pounds.
11. Reinstall the recliner cable assemblies onto the back canes. Refer to **REPLACING RECLINER CABLES** in this procedure of the manual.



NOTE: Upholstery not shown for clarity.

FIGURE 5 - CHANGING BACK HEIGHT

NOTE: There are three (3) different cable lengths depending on back height:

BACK HEIGHT (in inches)	18-1/2, 20	22, 24	26
CABLE LENGTH	Short	Medium	Long

NOTE: New recliner cables will be needed if back height is changed to a height not within the length of the original cable.

12. Install the NEW back upholstery onto the back canes.
13. Install the ten (10) or twelve (12) mounting screws (depending on back height) that secure the back upholstery to the recliner back canes.
14. Reinstall headrest extension onto recliner back canes.
15. Adjust the tautness of the back and headrest upholstery. Refer to ADJUSTING BACK OR HEADREST UPHOLSTERY in this procedure of the manual.

CHANGING SEAT DEPTH (FIGURE 6)

To adjust seat depth of wheelchair, use following guidelines:

If the current seat depth is an ODD number, i.e., 17-inches, 19-inches or 21-inches, the seat depth CANNOT be INCREASED without changing the seat frame. Refer to INSTALLING/REPLACING ADJUSTABLE 16 TO 19-INCH DEEP RECLINER SEAT FRAME ONTO in this procedure of the manual.

If the current seat depth is an ODD number, i.e., 17-inches, 19-inches or 21-inches, the seat depth can be DECREASED by 1-inch by installing a 1-inch shorter seat pan. Refer to the following procedures:

If the current seat depth is an EVEN number, i.e., *16-inches, 18-inches, 20-inches or 22-inches, the seat depth CANNOT be DECREASED without changing the seat frame. Refer to INSTALLING/REPLACING ADJUSTABLE 16 TO 19-INCH DEEP RECLINER SEAT FRAME ONTO PRONTO_{R2} BASE FRAME in this procedure of the manual.

*NOTE: 16-inch seat depth is the smallest seat depth available on recliner seat frames.

If the current seat depth is an EVEN number, i.e., 16-inches, 18-inches, 20-inches or *22-inches, the seat depth can be INCREASED by 1-inch by installing a 1-inch deeper seat pan. Refer to the following procedures:

*NOTE: 22-inch seat depth is the deepest seat depth available on recliner seat frames.

Seat Pan Removal/Replacement Procedures:

1. Remove the seat cushion from the wheelchair.
2. Remove the six (6) mounting screws and locknuts that secure seat pan, seat positioning strap to the seat frame.
3. Install new 1-inch deeper/shorter seat pan onto seat frame.
4. Reinstall the mounting screws, spacers and locknuts and torque to 75-inch pounds.
5. Remove the protective strips on the seat pan and reinstall the seat cushion onto the seat pan.

NOTE: Clean upholstery with a warm damp cloth and mild detergent to remove superficial soil.

WARNING

Laundering or moisture will reduce the flame retardation of the upholstery.

RECLINER

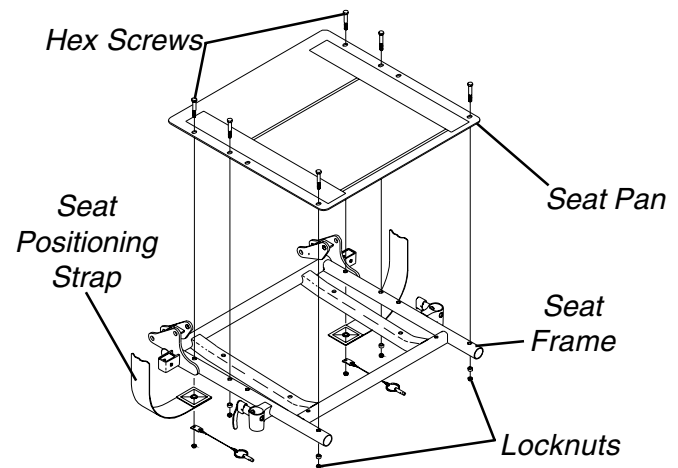


FIGURE 6 - CHANGING SEAT DEPTH

CHANGING SEAT WIDTH

To change seat width, the seat frame must be changed to the desired width. Refer to INSTALLING/REPLACING ADJUSTABLE 16 TO 19-INCH DEEP RECLINER SEAT FRAME ONTO PRONTO_{R2} BASE FRAME in this procedure of the manual.

NOTE: If changing the seat width of the wheelchair, the back and headrest upholstery, seat pan and cushion also need to be changed.

NOTE: If changing the seat width of the wheelchair, the back canes, spreader bar and headrest pillow may also need to be changed. Refer to the following charts:

BACK CANES AND SPREADER BAR SEAT WIDTH RANGES

14-17-INCHES OR 18-24-INCHES

HEADREST PILLOWS SEAT WIDTH RANGES (IN INCHES)

14-15, 16-18, 19-20 OR 21-24

If the seat width required is within the range of the original back canes, spreader bar and headrest pillow, the original components can still be used.

If the seat width required is NOT within the range of the original back canes, spreader bar and headrest pillow, the original components can not be used.

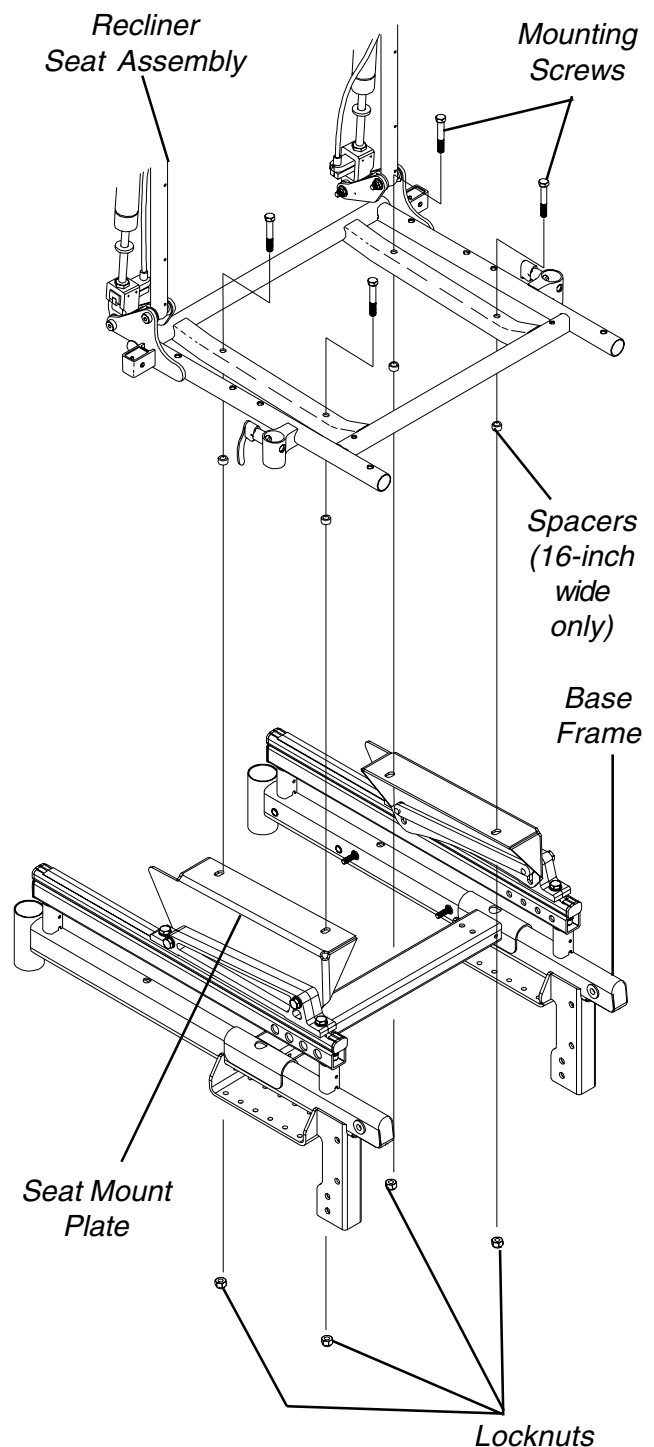
EQUIPMENT OPTION

INSTALLING/REPLACING ADJUSTABLE 16 TO 19-INCH DEEP RECLINER SEAT FRAME (FIGURE 7)

1. Perform one (1) of the following in **PROCEDURE 7** of this manual:
 - A. Remove standard seat. Refer to REMOVING/INSTALLING STANDARD SEAT in **PROCEDURE 6** of this manual.
 - B. Remove Captain's van seat. Refer to INSTALLING/REMOVING CAPTAIN'S VAN SEAT in **PROCEDURE 6** of this manual.
2. Remove seat pan on recliner.
3. Install new recliner seat assembly onto seat mounting plates.
4. Secure recliner seat assembly to seat mounting plates with the mounting screws, spacers (16-inch wide only) and locknuts. Torque the mounting screws to 156-inch pounds.

NOTE: There are two (2) types of seat mounting plates; low and high heights. The seat mount plate shown in this illustration represents the medium height. Refer to MOUNTING PLATE - SEAT ANGLE ADJUSTMENT AND INSTALLATION ORIENTATION in **PROCEDURE 6** of this manual for illustrations of the low and high heights.

5. Position limit switch onto wheelchair. Refer to POSITIONING LIMIT SWITCH in this procedure of the manual.
6. Reinstall recliner seat pan with existing six (6) mounting screws.
7. Install battery box(es). Refer to INSTALLING/REMOVING BATTERY BOXES in **PROCEDURE 11** of this manual.
8. Install shrouds. Refer to INSTALLING SHROUDS in **PROCEDURE 10** of this manual..



**FIGURE 7 - INSTALLING/REPLACING
ADJUSTABLE 16 TO 19-INCH DEEP RECLINER
SEAT FRAME**

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.

With regards to the original purchaser/user only, Invacare warrants the side frames to be free from defects in materials and workmanship for a period of five (5) years from date of purchase; electronics for a period of one (1) year from the date of purchase; motors and gearboxes for a period of eighteen (18) months for Pronto models with motors that have motor locks and a period of twelve (12) months for Pronto models with motors that have clutches from the date of purchase; all remaining components (including gas cylinders for recliners) for one (1) year from the date of purchase except upholstered materials, padded materials and tires/wheels. If within such warranty period any 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 bottom of the back cover. Provide dealer's name address, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECT TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, COMMERCIAL OR INSTITUTIONAL USE, PRODUCTS MODIFIED WITHOUT INVACARE'S EXPRESS WRITTEN CONSENT INCLUDING, BUT NOT LIMITED TO, MODIFICATION THROUGH THE USE OF UNAUTHORIZED PARTS OR ATTACHMENTS; PRODUCTS DAMAGED BY REASON OF REPAIRS MADE TO ANY COMPONENT WITHOUT THE SPECIFIC CONSENT OF INVACARE, OR TO A PRODUCT DAMAGED BY CIRCUMSTANCES BEYOND INVACARE'S CONTROL, AND SUCH EVALUATION WILL BE SOLELY DETERMINED BY INVACARE. THE WARRANTY SHALL NOT APPLY TO PROBLEMS ARISING FROM NORMAL WEAR OR FAILURE TO ADHERE TO THESE INSTRUCTIONS. A CHANGE IN OPERATING NOISE, PARTICULARLY RELATIVE TO MOTORS AND GEARBOXES DOES NOT CONSTITUTE A FAILURE. ALL SUCH DEVICES WILL EXHIBIT A CHANGE IN OPERATING NOISE DUE TO AGING.

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.



Yes, you can.™

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