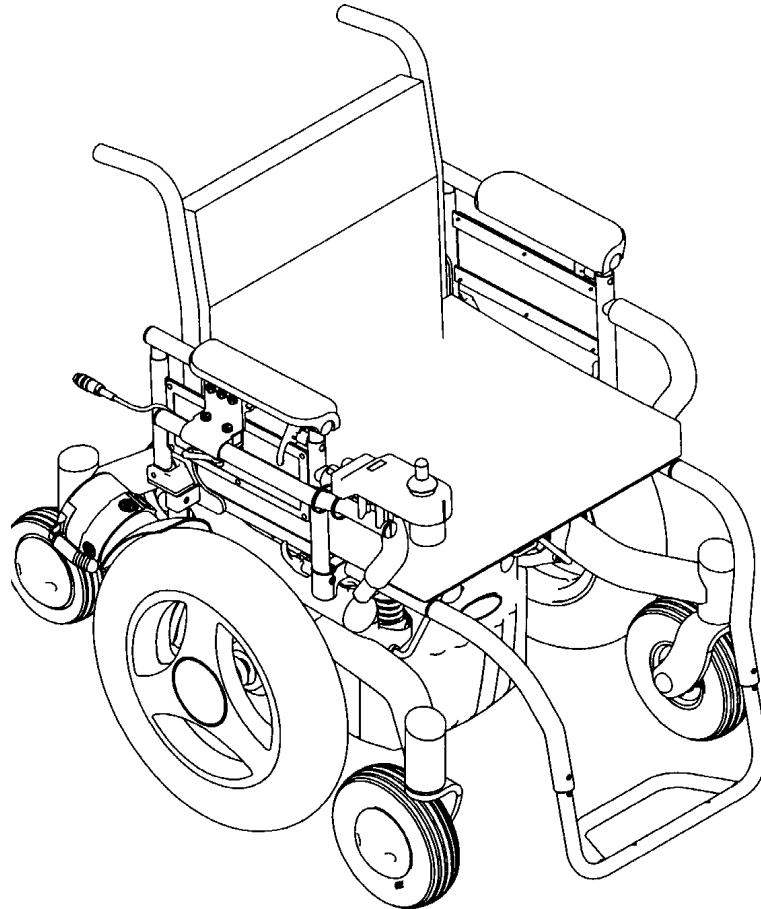


Owner's Operator And Maintenance Manual

Invacare[®] Xterra[™] GT[™] Power Wheelchair



DEALER: THIS MANUAL MUST BE GIVEN TO THE USER OF THE WHEELCHAIR.

USER: BEFORE USING THIS WHEELCHAIR, READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE.



WARNING

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

THE INITIAL SET UP OF THIS WHEELCHAIR MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

SECTIONS OTHER THAN THOSE DESCRIBED IN THIS MANUAL MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

SAVE THESE INSTRUCTIONS

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SPECIAL NOTES

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

NOTICE

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

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

WHEELCHAIR TIE-DOWN RESTRAINTS AND SEAT POSITIONING STRAPS

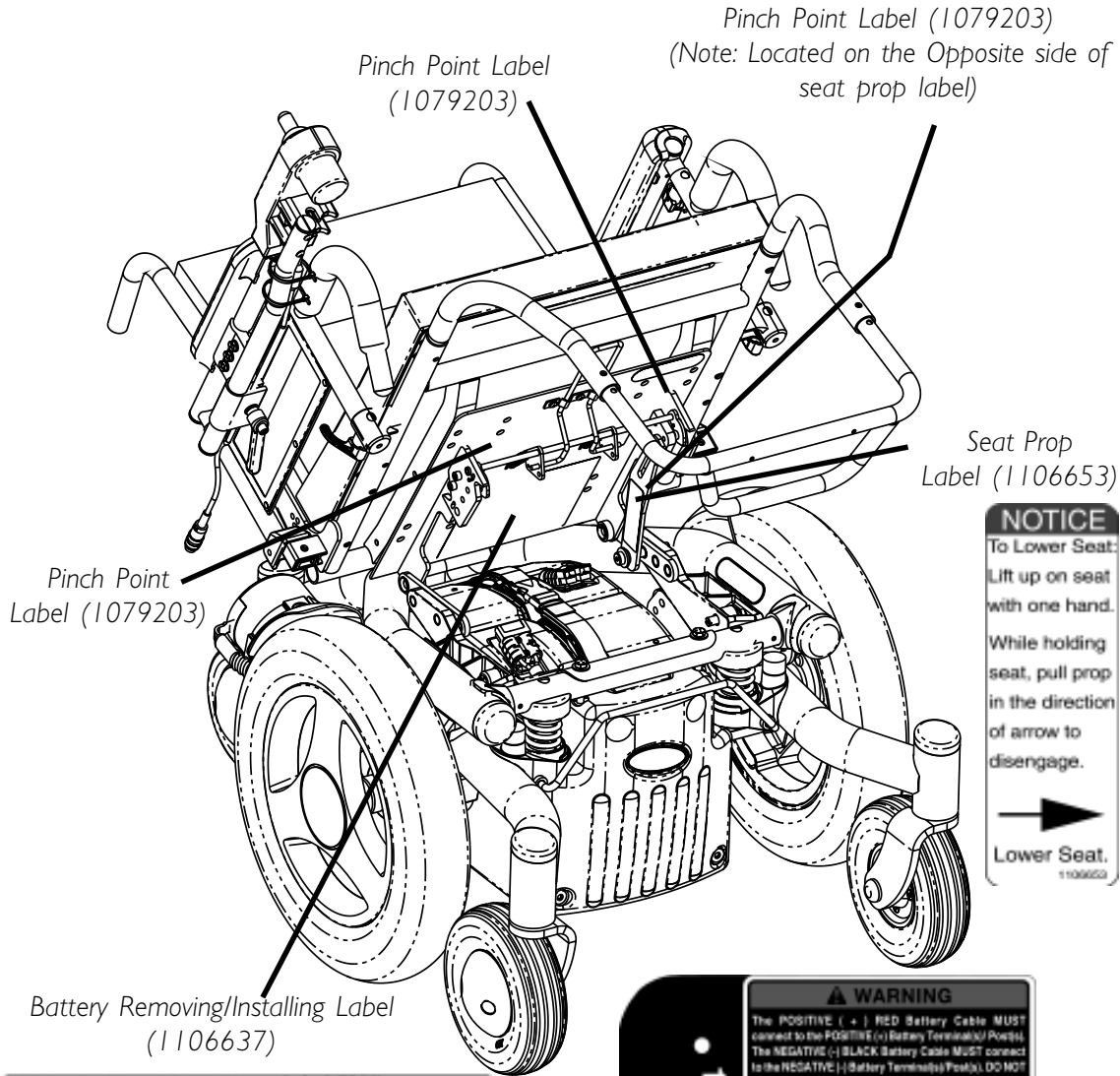
Invacare recommends that wheelchair users **NOT** be transported in vehicles of any kind while in wheelchairs. As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type.

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

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

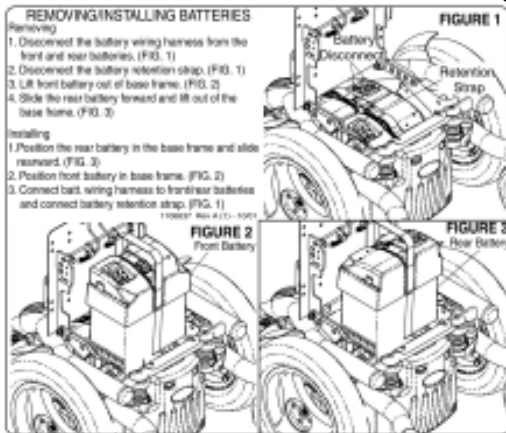
LABEL LOCATIONS

LABEL LOCATIONS



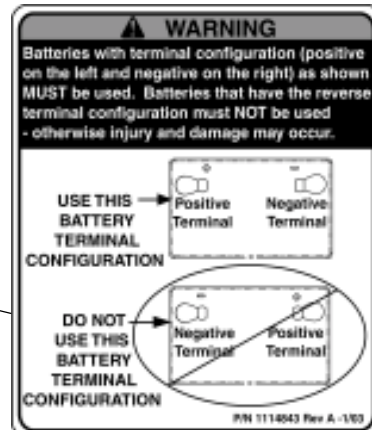
NOTICE
To Lower Seat:
Lift up on seat with one hand.
While holding seat, pull prop in the direction of arrow to disengage.

Lower Seat.
1106653



1108007 located on inside of Battery Box

1114843 located on top of Battery Box



SPECIFICATIONS

Seat Width Range: *14 to 20-inches

Battery Type: 22NF batteries

Seat Depth Range: *14 to 20-inches

PHYSICAL DIMENSIONS

Casters w/Precision Sealed Bearings

Semi-Pneumatic

Front: 8 x 2 - inches
Rear: 6 x 2 - inches

Back Height Range: *14 to 22-inches

Footrests: Telescoping Front Rigging Supports, Swing-Away (Std), Heavy Duty (Opt.), 2-in. and 4-in. longer Pivot Slide Tube (Opt), Cage

Back Angle Range: 80° to 115°

Armrests: Flip Back, Fixed or Adjustable Height (Desk and Full Length)

Seat-to-Floor (approximate)**
18-inches @ 3° 17.1-inches @ 0°

***A.S.B.A. - Seat Angle Adjustment:** Adjustable (0° and 3°)

Overall Width of Base: (w/o joystick)** 25-1/2-inches

A.S.B.A. - Back Angle Adjustment: Adjustable (80° to 115° in 5° increments)

Overall Height:** 36-11/16-inches (w/ 18-inch back height)

A.S.B.A. - Seat Cushion: Cushion (Optional)

A.S.B.A. - Chair Upholstery Options: Nylon and Vinyl.

Overall Length:***
35-11/16-inches
39-13/16-inches (16" Deep w/ cage riggings)
48-inches (20-inch deep w/ 70° footrests and adjustable angle footplate)

VAN - Cloth and Vinyl

Operating Temperature:
0 - 122 degrees F

Storage Temperature:
-10 - 152 degrees F

Curb Climbing: 2-inches

Weight Limitations: 250 lbs.

Weight

4-Pole Motor

Without Batteries: 205 lbs +/- 10 lbs.

With Batteries: 280 lbs +/- 10 lbs.

NOTE: * A.S.B.A. stands for Adjustable Seat and Back Angle.

Drive Wheels/Tires: (Foam Filled or Pneumatic)
16 x3-inches (Pneumatic -std)
16 x 3-inches (flat free - opt)

PERFORMANCE

RATING	SPEED	RANGE
250 LBS	Up to 7.4 M.P.H.	Up to 14 Miles

Range will vary with battery conditions, surface, terrain and operator's weight.

* in 1-inch increments
** Dimensions +/-1/4-inch
*** Dimensions +/-1/2-inch

<i>This SECTION Includes the Following:</i>	
<i>Repair or Service Information</i>	<i>Safety/Handling of Wheelchairs</i>
<i>Operating Information</i>	

REPAIR OR SERVICE INFORMATION

Set-up of the Electronic Control Unit is to be performed **ONLY** by individuals certified by Invacare. The final tuning adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur under these circumstances. If non-certified individuals perform 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 SECTION. If the wheelchair does **NOT** perform to specifications, turn the wheelchair **OFF** immediately and reenter set-up specifications. Repeat this SECTION until the wheelchair performs to specifications.

DO NOT operate on roads, streets or highways.

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

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

DO NOT attempt to drive over curbs or obstacles greater than 2-inches in height. Doing so may cause your wheelchair to turn over and cause bodily harm or damage to the chair.

Always stop before climbing an obstacle. Approach slowly until casters contact the obstacle. Apply power and the action of the Sure-Step™ feature will lift the casters over the obstacle. Weight is transferred to the drive wheels providing traction and motor strength to power the chair over the obstacle.

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

DO NOT leave the power button **ON** when entering or exiting your wheelchair.

DO NOT stand on the frame of the wheelchair.

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

ALWAYS wear your seat positioning strap.

GENERAL WARNINGS (CONTINUED)**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.

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.

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.

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

RAIN TEST

INVACARE has tested its power wheelchairs in accordance with **ISO 7176 Part 9 “Rain Test”**. This provides the end user or his/her attendant sufficient time to remove his/her power wheelchair from a rain storm and retain wheelchair operation.

DO NOT leave power wheelchair in a rain storm of any kind.

DO NOT use power wheelchair in a shower or leave it in a damp bathroom while taking a shower.

DO NOT leave power wheelchair in a damp area for any length of time.

Direct exposure to rain or dampness will cause the chair to malfunction electrically and mechanically; may cause the chair to prematurely rust.

Check to ensure that the battery covers are secured in place, joystick boot is **NOT** torn or cracked where water can enter and that all electrical connections are secure at all times.

DO NOT use the joystick if the boot is torn or cracked. If the joystick boot becomes torn or cracked, replace **IMMEDIATELY**.

GENERAL WARNINGS (CONTINUED)**WEIGHT TRAINING**

Invacare **DOES NOT** recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have **NOT** been designed or tested as a seat for any kind of weight training. If occupant uses said wheelchair as a weight training apparatus, **INVACARE SHALL NOT BE LIABLE FOR BODILY INJURY AND THE WARRANTY IS VOID.**

SAFETY/HANDLING OF WHEELCHAIRS

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

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

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

Stability and Balance

WARNING

ALWAYS wear your seat positioning strap.

To assure stability and proper operation of your wheelchair, you must at all times maintain proper balance. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you do not move beyond the center of gravity. DO NOT lean forward out of the wheelchair any further than the length of the armrests. The Xterra GT was designed with a new approach to climbing, handling uneven terrain and making transitions and climbing obstacles - the SureStep suspension. The frame is allowed to flex and pivot around a spring suspension. The high torque of the new motors lifts the front wheels to facilitate the change in pitch or climbing obstacles. Weight is transferred to the drive wheels, providing both traction and motor strength to power the user and chair over the obstacle. The six wheels of the GT remain in contact with the ground for maximum stability, safety and traction when negotiating uneven terrain.

COPING WITH EVERYDAY OBSTACLES

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

A NOTE TO WHEELCHAIR ASSISTANTS

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

WARNING

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

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

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

PERCENTAGE OF WEIGHT DISTRIBUTION

WARNING

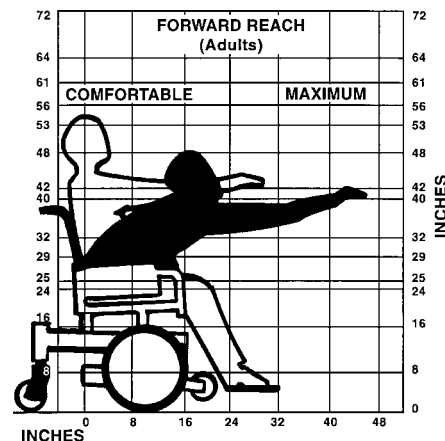
DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

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

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

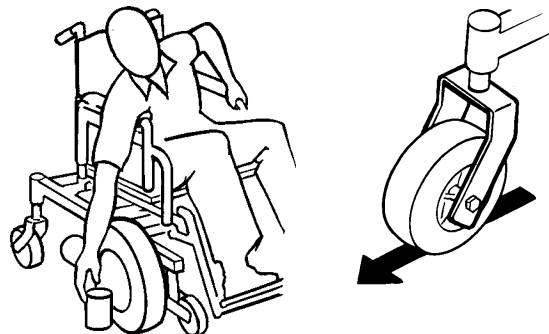
FUNCTIONAL REACH FROM A WHEELCHAIR

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



REACHING, LEANING, BENDING AND BENDING - FORWARD

Position the casters so that they are extended away from the drive wheels and engage wheel locks. **DO NOT ATTEMPT TO REACH OBJECTS IF YOU HAVE TO MOVE FORWARD IN THE SEAT OR PICK THEM UP FROM THE FLOOR BY REACHING DOWN BETWEEN YOUR KNEES.**



REACHING, BENDING - BACKWARD**WARNING**

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

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

**STAIRWAYS****WARNING**

DO NOT attempt to move an occupied power wheelchair between floors using a stairway. Use an elevator to move an occupied power wheelchair between floors. If moving a power wheelchair between floors by means of a stairway, the occupant MUST be removed and transported independently of the power wheelchair.

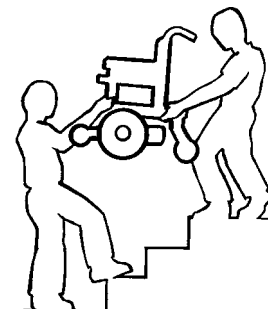
Extreme caution is advised when it is necessary to move an **UNOCCUPIED** power wheelchair up or down the stairs. Invacare recommends using two (2) assistants and making thorough preparations. Make sure to use **ONLY** secure, non-detachable parts for hand-hold supports.

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

The weight of the wheelchair without the user and without batteries is 179 lbs. Use proper lifting techniques (lift with your legs) to avoid injury.

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

1. Remove the occupant from the wheelchair.
2. Remove battery box(es) from wheelchair. Refer to INSTALLING/REMOVING BATTERY BOXES in SECTION 8 of this manual.
3. Bend your knees and keep your back straight.
4. Using non-removable (non-detachable) parts of the wheelchair, lift the wheelchair off of the ground and transfer the wheelchair up or down the stairs.
5. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been carried away from the stairway.

**ESCALATORS? SORRY!**

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

TRANSFERRING TO AND FROM THE WHEELCHAIR**WARNING**

ALWAYS turn the wheelchair power **OFF** and engage the motor locks/ clutches to prevent the wheels from moving **BEFORE** attempting to transfer in or out of the wheelchair. Also make sure every precaution is taken to reduce the gap distance. Align both casters parallel with the object you are transferring onto.

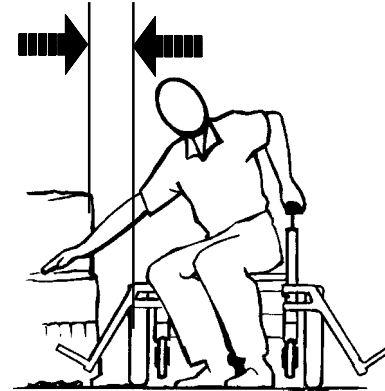
CAUTION

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

NOTE: Adequate mobility and upper body strength is required to perform this activity independently.

1. Position the wheelchair as close as possible along side the seat to which you are transferring, with the casters aligned parallel with the object.
2. Engage motor locks and wheel locks. Refer to DISENGAGING/ENGAGING MOTOR LOCK LEVERS in SECTION 9 of this manual. Shift body weight into seat with transfer.
3. Flip back or remove armrest (SECTION 5)
4. During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

**MINIMIZE
GAP
DISTANCE**



WARNING

CAUTION: IT IS VERY IMPORTANT THAT YOU READ THIS INFORMATION REGARDING THE POSSIBLE EFFECTS OF ELECTROMAGNETIC INTERFERENCE ON YOUR POWERED WHEELCHAIR.

Electromagnetic Interference (EMI) From Radio Wave sources

Powered wheelchairs and motorized scooters (in this text, both will be referred to as powered wheelchairs) may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios, and cellular phones. The interference (from radio wave sources) can cause the powered wheelchair to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each powered wheelchair can resist EMI up to a certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI. This powered wheelchair model as shipped, with no further modification, has an unknown immunity level.

WARNING

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.

The sources of radiated EMI can be broadly classified into three types:

- 1) Hand-held Portable transceivers (transmitters-receivers with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, "walkie talkie," security, fire and police transceivers, cellular telephones, and other personal communication devices. ****NOTE: Some cellular telephones and similar devices transmit signals while they are ON, even when not being used**
- 2) Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances, and taxis. These usually have the antenna mounted on the outside of the vehicle; and
- 3) Long-range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

NOTE: Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your powered wheelchair.

Powered Wheelchair Electromagnetic Interference (EMI)

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the powered wheelchair's control system while using these devices. This can affect powered wheelchair movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered wheelchair.

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect powered wheelchairs and motorized scooters. Following the warnings listed below should reduce the chance of unintended brake release or powered wheelchair movement which could result in serious injury.

- 1) Do not operate hand-held transceivers (transmitters receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the powered wheelchair is turned ON;

WARNING

- 2) Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them;
- 3) If unintended movement or brake release occurs, turn the powered wheelchair **OFF** as soon as it is safe;
- 4) Be aware that adding accessories or components, or modifying the powered wheelchair, may make it more susceptible to EMI (Note: There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair); and
- 5) Report all incidents of unintended movement or brake release to the powered wheelchair manufacturer, and note whether there is a source of EMI nearby.

Important Information

- 1) 20 volts per meter (V/m) is a generally achievable and useful immunity level against EMI (as of May 1994) (the higher the level, the greater the protection);
- 2) The MCC MKIV controller for this application has an unknown immunity level.

Modification of any kind to the electronics of this wheelchair as manufactured by Invacare may adversely affect the RFI immunity levels.

This SECTION Includes the Following:

**Safety Inspection Checklist
Troubleshooting - Mechanical/Electrical**

**Checking Battery Charge Level
Using Hydrometer To Check Battery Cells**

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

SAFETY INSPECTION CHECKLIST

Initial adjustments should be made to suit personal body structure/user capability and preference. Thereafter follow these maintenance sections:

ITEM	Initially	Inspect/ Adjust Weekly	Inspect/ Adjust Monthly	Inspect/ Adjust Periodically
GENERAL				
● Wheelchair rolls straight (no excessive drag or pull to one side).	X			X
● Motor brushes & motor gearbox coupling (4 pole)	(Replace every 18 months)			X
CLOTHING GUARDS				
● Ensure all fasteners are secure.	X			X
ARMS - (SECTION 4)				
● Secure but easy to release; adjustment levers engage properly.	X			X
● Adjustable height arms operate and lock securely.	X			X
ARMRESTS - (SECTION 4)				
● Inspect for rips in upholstery.	X			X
● Arm rest pad sits flush against arm tube.	X			X
SEAT AND BACK UPHOLSTERY				
● Inspect for rips or sagging.	X			
DRIVE WHEELS				
● Axle nut and wheel mounting nuts are secure.	X		X	X
● No excessive side movement or binding when lifted and spun when disengaged (free-wheeling).	X			X
CASTERS				
● Inspect wheel/fork assembly for proper tension by spinning caster; caster should come to a gradual stop.	X	X		
● Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.	X		X	
CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.				

SAFETY INSPECTION CHECKLIST

Initial adjustments should be made to suit personal body structure/user capability and preference. Thereafter follow these maintenance sections:

ITEM	Initially	Inspect/ Adjust Weekly	Inspect/ Adjust Monthly	Inspect/ Adjust Periodically
CASTER/WHEEL/FORK/HEAD TUBE ● Ensure all fasteners are secure.	X	X		
TIRES ● Inspect for flat spots and wear. ● If pneumatic tires check for proper inflation. CAUTION: As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.	X X	X X		
CLEANING ● Clean upholstery and armrests.	X			X

TROUBLESHOOTING - MECHANICAL

Chair Veers Left/Right	Sluggish Turn/Performance	Casters Flutter	Squeaks and Rattles	Solutions
X	X	X		If pneumatic, check tires for correct and equal pressure.
X	X	X	X	Check for loose stem nuts/bolts.
X		X		Check that casters contact ground at the same time.

Looseness in Chair	Chair 3 Wheels	Solutions
X	X	If pneumatic, check tires for correct and equal pressure.
		Check for loose stem nuts/bolts.

TROUBLESHOOTING - ELECTRICAL

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Batteries draw excessive current when charging.	Battery failure. Electrical malfunction.	Check batteries for shorted cell. Replace if necessary (SECTION 8). Contact Dealer/Invacare for Service.
Battery indicator flashes the charge level is low—immediately after recharge.	Battery failure. Malfunctioning battery charger. Electrical malfunction.	Check batteries for shorted cell. Replace if necessary (SECTION 8). Contact Dealer/Invacare for Service. Poor connections between charger / wheelchair. Contact Dealer/Invacare.
Battery indicator flashes the charge level is low—too soon after being recharged.	Batteries not charged. Weak batteries.	Have charger checked. Replace batteries if necessary. Contact Dealer/Invacare for Service.
Motor “chatters” or runs irregular.	Electrical malfunction.	Contact Dealer/Invacare for Service.
Only one (1) drive wheel turns.	Electrical malfunction. One motor lock is disengaged.	Contact Dealer/Invacare for Service. Engage motor lock (SECTION 9).
Joystick erratic or does not respond as desired.	Damaged motor coupling. Electrical malfunction. Controller Programed improperly.	Contact Dealer/Invacare for Service. Contact Dealer/Invacare for Service. Reprogram controller (Refer to MCC-MK5 controller manual supplied with wheelchair).
Wheelchair does not respond to commands. Power indicator OFF—even after recharging.	Poor battery terminal connection. Electrical malfunction. Blown Fuse	Clean terminals (SECTION 8). Contact Dealer/Invacare for Service. Replace the fuse in SECTION 10.

NOTE: For additional troubleshooting information and explanation of error codes, refer to the individual ELECTRONICS MANUAL supplied with each wheelchair.

NOTE: For additional troubleshooting information and explanation of electrical symptoms, refer to additional sections in this section of the manual.

TROUBLESHOOTING - ELECTRICAL (CONTINUED)

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Chair slows or stops while driving AND one (1) of the following occurs: RII Joystick - orange LED flashes A Joystick - Rightmost 2 bars flash A+ Joystick - "HOT" is displayed	Current rollback. Chair has been driving under a heavy load for an extended period of time.	Adjust driving parameters to match driving environment. Leave the joystick powered ON and allow time for the electronics to cool down. (Light Duty Use) Re-configure to eliminate front loading

CHECKING BATTERY CHARGE LEVEL

The following "Do's" and "Don'ts" are provided for your convenience and safety.

DON'T	DO
Don't perform any installation or maintenance without first reading this manual.	Read and understand this manual and any service information that accompanies a battery and charger before operating the wheelchair.
Don't perform installation or maintenance of batteries in an area that could be damaged by battery spills.	Move the wheelchair to a work area before checking the fluid level, adding distilled water, cleaning terminals, or opening battery box.
Don't make it a habit to discharge batteries to the lowest level.	Recharge as frequently as possible to maintain a high charge level and extend battery life.
Don't use randomly chosen batteries or chargers.	Follow recommendations in this manual when selecting a battery or charger.
Don't put new batteries into service before charging.	Fully charge a new battery before using.
Don't tip or tilt batteries.	Use a carrying strap to remove, move or install a battery.
Don't use ordinary tap water.	ONLY use distilled water to refill.
Don't overfill cells.	Keep the liquid level in the cells at the "split ring" level.
Don't use uneven levels of distilled water in the cells.	Maintain the liquid in all cells at the "split ring" level.
Don't tap on clamps and terminals with tools.	Push battery clamps on the terminals. Spread clamps wider if necessary.
Don't mismatch your battery and chargers.	Use ONLY a GEL charger for a GEL or sealed battery and a regular charger for regular batteries.

USING HYDROMETER TO CHECK BATTERY CELLS (LEAD ACID) (FIGURE 1)

NOTE: Perform this SECTION 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 chemical goggles or face shields 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.

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) from the wheelchair. Refer to REMOVING/INSTALLING BATTERY BOXES in SECTION 7 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.

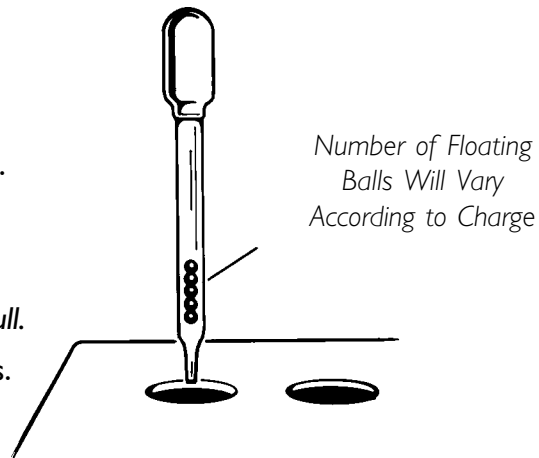


FIGURE 1 - USING A HYDROMETER TO CHECK BATTERY CELLS (LEAD ACID)

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 doesn't charge.
9. Flush the hydrometer in cold running water by allowing the water to rise into the hydrometer as far as possible. Do this several times to guard against burn damage.
10. Replace the battery caps.
11. Reinstall the battery box(es). Refer to REMOVING/INSTALLING BATTERY BOXES in SECTION 8 of this manual.

This SECTION Includes the Following:

Wheelchair Operation

WHEELCHAIR OPERATION

A JOYSTICK - SWITCHES AND INDICATORS (FIGURE 1)

DRIVE SELECT/ON/OFF SWITCH -

A three (3) position toggle switch is located at the back of the joystick housing. The DRIVE SELECT position is momentary.

This switch allows the operator to select the type of operation or performance which best suits a particular control need or situation. The DRIVE 1 program uses performance values which are independent of those used for the DRIVE 2 or 3 or 4 program. As an example, an operator may have a control need for spasticity in the morning and a very different need in the afternoon. DRIVE 1 can be programmed for higher speeds and quicker response while DRIVE 2 can be programmed for slower speeds and less responsiveness or vice versa. The other two drive programs could be indoor and outdoor versions of DRIVE 1 and DRIVE 2.

- To select DRIVE 1 mode, move the toggle Up and release. DRIVE 1 indicator becomes lighted.
- To select DRIVE 2 mode, move the toggle UP and release again. DRIVE 2 indicator becomes lighted.
- To select DRIVE 3 mode, move the toggle UP and release again. DRIVE 3 indicator becomes lighted.
- To select DRIVE 4 mode, move the toggle UP and release again. DRIVE 4 indicator becomes lighted.
- Move the toggle UP and release one more time to select DRIVE 1.

SPEED CONTROL - Rotary knob is located at the back of the joystick housing. Turning the knob clockwise increases the maximum speed of the chair.

JOYSTICK - Proportional drive control located at the front of the control provides smooth control of speed and direction.

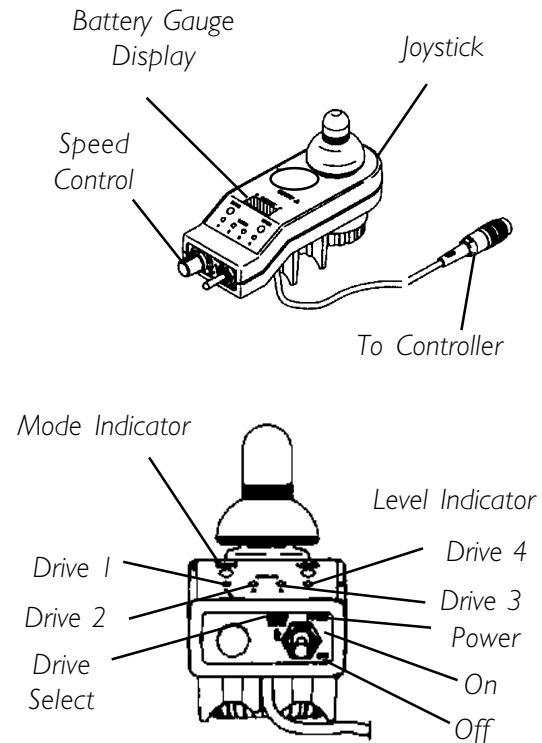


FIGURE 1 - A JOYSTICK

BATTERY GAUGE DISPLAY (BGD) -Located at the rear of the control provides information on the remaining charge in the batteries. At full charge the two left segments and the farthest right segment of the bar graph are lighted. As the battery becomes discharged the farthest right segment will progressively move to the left until only the last two bars are lighted; at this level the last two (2) bars will start to flash on and off to indicate the user should charge the batteries as soon as possible. If the two left segments are flashing and one bar remains lit to the right, the display is indicating a reduced speed or power output.

The BGD also serves as a system diagnostic device when a fault is detected by the control module. A specific number of bars (up to eight (8) bars) will start to flash on and off to indicate the type of fault detected. A chart of the diagnostic indications is given in the DIAGNOSTIC CODE Section of this manual.

MODE and LEVEL INDICATORS - Two LED indicators are located on either side of the battery bar graph display.

The Mode light is ON (operational) with no options attached and Level indicators are only operational when the optional ECU/Recliner Control or optional joysticks are utilized or the Reset switch is activated. These indicators provide information of the status of the control system and the environmental controls. The GREEN Mode indicator shows one of five control states.

<u>MODE (GREEN LED)</u>	<u>INDICATION</u>
Drive	Continuously on
Attendant	Flashing (twice/second)
E.C.U. or Recliner Control	Off
Stand-by	Flashing rapidly (four/second)
Remote Drive Selection	Slow Flashing (once/second)

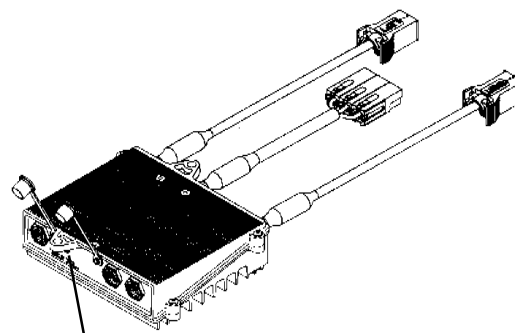
The RED Level indicator provides information on the control level within each mode. Its operation changes with each mode:

- In Latched, Proportional and Attendant modes, the Level indicator is always OFF.
- In Momentary mode the Level indicator shows the selected speed level: OFF – slowest speed, FLASHING – medium speed, RAPID FLASHING – fastest speed.
- In ECU mode the Level indicator shows which output is active: OFF – ECU (Level) ONE and THREE, ON – ECU (Level) TWO and FOUR. Flashing indicates recliner control.
- In RIM mode the Level indicator shows the direction the chair will move when a forward command is given: OFF – chair moves forward, ON – chair moves reverse.

Emergency Stop Switch (Reset) -The emergency stop switch is used to stop the chair and to select the operating mode for the chair. The switch input is located on the control module next to the joystick input connector. An emergency stop switch is needed whenever any of the following operating modes are programmed.

- Environmental Controls (E.C.U.) including recliner controls
- 3 Speed Mode in Momentary Latched Modes
- Pneumatic Control
- Stand-by Mode
- RIM Control
- Remote Drive Selection Mode

If any of the above modes are selected, the control will require activation of the switch immediately after the power switch is turned on in order to enter the drive mode. The GREEN mode indicator will be flashing rapidly. A second after the switch is released, the GREEN LED will light continuously to indicate the drive mode is active.



Emergency Stop Switch

FIGURE 2 - EMERGENCY STOP SWITCH

RII JOYSTICK - SWITCHES AND INDICATORS (FIGURE 3)

The following switches and indicators are located on the joystick housing:

ON/OFF SWITCH - The on/off switch is located on the BACK of the joystick housing. This two (2) position toggle switch is used for turning the wheelchair ON and OFF (DETAIL "B").

SPEED CONTROL KNOB - The speed control knob is located on the BACK of the joystick housing. This rotary knob is used for controlling the maximum speed of the wheelchair. Turning the knob clockwise INCREASES the maximum speed of the wheelchair. Turning the knob counter-clockwise DECREASES the maximum speed of the wheelchair (DETAIL "B").

BATTERY DISCHARGE INDICATOR (BDI) - The battery discharge indicator is located at the FRONT of the joystick housing. It provides information on the remaining charge in the batteries. At full charge the BDI will be Green. As the battery becomes discharged, the BDI will become Yellow (Amber), then Red and finally the BDI will flash ON and OFF Red. At this level, the user should charge the batteries as soon as possible (DETAIL "C").

The BDI will flash ON and OFF Yellow to indicate a reduced speed or power output. The BDI also serves as a system diagnostic device when a fault is detected by the control module. A specific number of Green flashes will indicate the type of fault detected. For more information on using the battery discharge indicator as a system diagnostic device, contact a qualified technician.

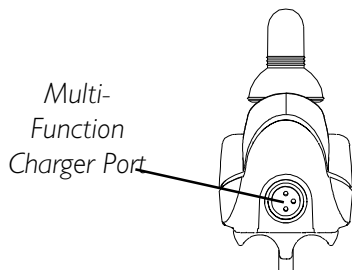
NOTE: When reading the Battery Discharge Indicator (BDI), the joystick MUST be in the NEUTRAL position for an accurate reading.

MULTI FUNCTION CHARGER PORT- The multi function charger port is located at the front of the joystick housing. It provides access for charging the wheelchair batteries using an INDEPENDENT battery charger, refer to CHARGING BATTERIES in SECTION 8 of this manual. This port also serves as the Remote Programmer/AVS communication connection and is used for setting-up/programming the electronic control unit (DETAIL "A").

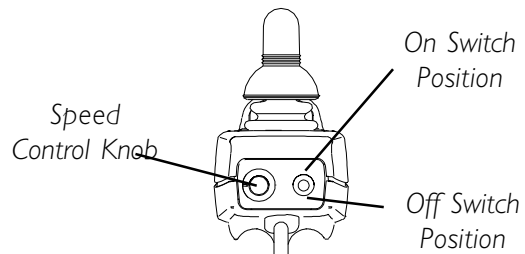
WARNING

Set-up/programming of the Electronic Control Unit is to be performed ONLY by a qualified technician. The fine tuning adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur under these circumstances. If unqualified individuals perform any work on these units, the warranty is void.

DETAIL "A" - FRONT VIEW



DETAIL "B" - REAR VIEW



DETAIL "C"

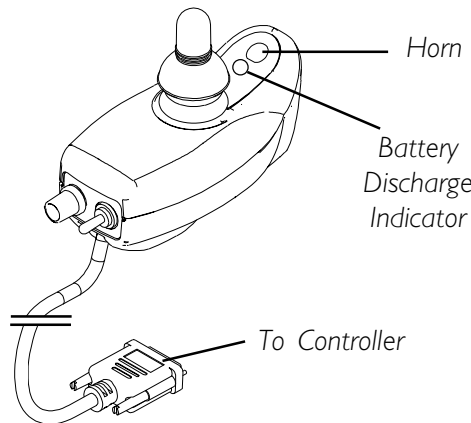


FIGURE 3 - WHEELCHAIR OPERATION - SWITCHES/INDICATORS

USING THE JOYSTICK TO DRIVE THE CHAIR (FIGURE 4)

The joystick is located at the front of the joystick housing and provides smooth control of speed and direction. It is equipped with 360 degrees of mobility for ease of operation. The joystick is spring-loaded, and automatically returns to the upright (neutral) position when released. Pushing the joystick in a given direction causes the chair to move in that direction.

The joystick has proportional drive control, meaning that the further it is pushed from the upright (neutral) position, the faster the wheelchair moves. Your top speed, however, is limited by the setting of the speed-control knob.

To slow the wheelchair to a stop, simply release the joystick. The wheelchair has automatic speed and direction compensation to minimize corrections.

When first learning to drive, select a SLOW speed and try to drive the wheelchair AS SLOWLY as possible by pushing the joystick slightly forward. This exercise will help you learn to utilize the full potential of the proportional control and allow you to start and stop smoothly.

To operate the wheelchair, perform the following:

1. Adjust speed control knob to the appropriate setting.
2. Position the ON/OFF switch into the ON position.
3. Maneuver the joystick in the following manner:
 - A. To move **FORWARD** - Push forward on the joystick.
 - B. To move in **REVERSE**- Pull back on the joystick.
 - C. To turn **RIGHT**- Move the joystick RIGHT.
 - D. To turn **LEFT**- Move the joystick LEFT.
 - E. To **STOP** - Release the joystick and the wheelchair will quickly slow down.

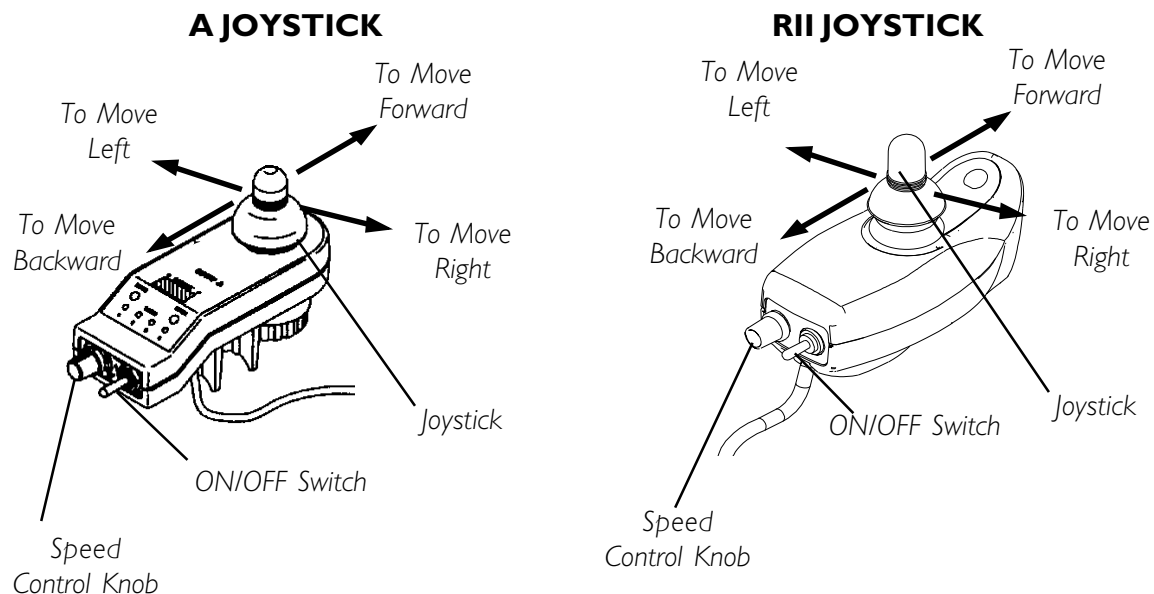


FIGURE 4 - WHEELCHAIR OPERATION - USING THE JOYSTICK TO DRIVE THE CHAIR

This SECTION Includes the Following:**Installing/Removing Footrests****Footrest Height Adjustment****Adjusting/Replacing Telescoping Front****Rigging Support****Installing Adjustable Angle Flip-up****Footplate Hinge****Installing/Adjusting Adjustable Angle****Flip-up Footplates****Composite/Articulating Footplate Heel****Loop Replacement****Installing/Removing Elevating Legrests****Raising/Lowering Elevating Legrests and/
or Adjusting Calfpads****Removing/Installing/Adjusting the Cage
Footrest****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.

INSTALLING/REMOVING FOOTRESTS 70°/ 70° TAPER PIN STYLE (FIGURE 1)

1. Turn the footrest to the side (open footplate is perpendicular to wheelchair).
2. Install the hinge plates on the footrest onto the hinge pins on the wheelchair frame.
3. Push the footrest towards the inside of the wheelchair until it locks into place.

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

4. Repeat STEPS 1-3 for other footrest assembly.
5. To remove the footrest, push the footrest release lever inward, rotate footrest outward.
6. Refer to **FOOTREST HEIGHT ADJUSTMENT** in this SECTION of the manual.

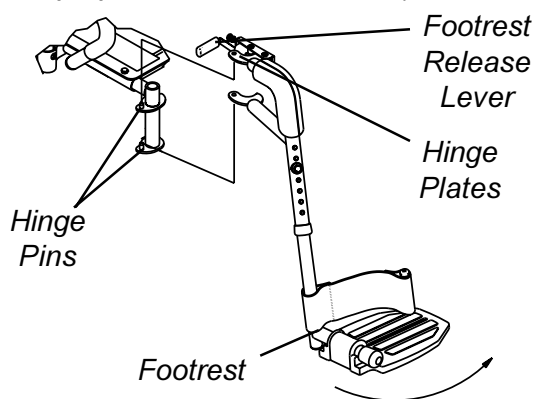


FIGURE 1 - INSTALLING/REMOVING FOOTRESTS - 70°/ 70° TAPER PIN STYLE

60°, 70°, 70° TAPER (FIGURE 2)

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

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

4. Repeat STEPS 1- 3 for the other footrest assembly.
5. To remove the footrest, push the footrest release lever inward, rotate footrest outward.
6. Refer to FOOTREST HEIGHT ADJUSTMENT in this SECTION of the manual.

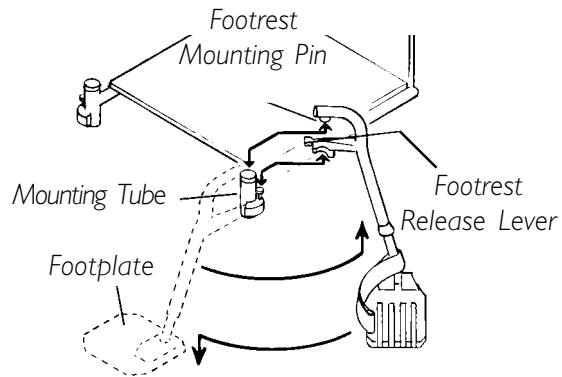


FIGURE 2 - INSTALLING/REMOVING FOOTRESTS - 60°, 70°, 70° TAPER

FOOTREST HEIGHT ADJUSTMENT**60°, 70°, PW93 (FIGURE 3)**

1. Remove any accessory from the footrest(s).
2. Remove the footrest from the wheelchair. Refer to INSTALLING/REMOVING FOOTRESTS in this SECTION of the manual.

NOTE: Lay the footrest on a flat surface to simplify this SECTION.

3. Remove the mounting screw, washers and locknut that secure the lower footrest to the footrest support.
4. Reposition the lower footrest to the desired height.
5. Reinstall the mounting, washers and locknut that secure the lower footrest to the footrest support and tighten securely.
6. Repeat STEPS 1-5 for the opposite side of the wheelchair footrest, if necessary.
7. Reinstall the footrest(s) onto the wheelchair. Refer to INSTALLING/REMOVING FOOTRESTS in this SECTION of the manual.
8. Reinstall any accessory onto the footrest(s).

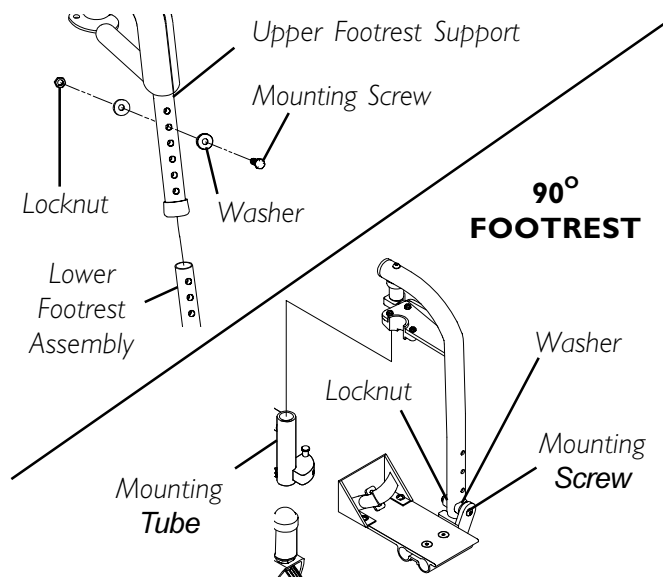


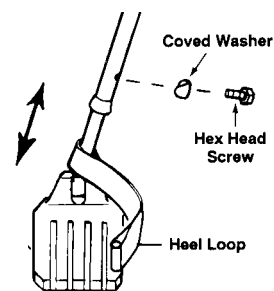
FIGURE 3 - FOOTREST HEIGHT ADJUSTMENT - 60°, 70°, PW93

70° TAPER (FIGURE 4)

1. Remove any accessory from the footrest(s).
2. Remove the footrest from the wheelchair. Refer to INSTALLING/REMOVING FOOTRESTS in this SECTION of the manual.

NOTE: Lay the assembly on a flat surface to simplify this SECTION.

NOTE: Note the position of spacers before disassembly.



3. Remove the mounting screw and covered spacer that secures the lower footrest assembly.
4. Position the footrest assembly to the desired height.
5. Secure lower footrest assembly with existing mounting screw and covered spacer. Securely tighten.

FIGURE 4 - FOOTREST HEIGHT ADJUSTMENT - 70° TAPER

NOTE: Make sure spacers are positioned properly when reassembling so not to damage frame mounting tubes.

6. Reinstall the footrest(s) onto the wheelchair. Refer to INSTALLING/REMOVING FOOTRESTS in this SECTION of the manual.
7. Reinstall any accessory onto the footrest(s).

ADJUSTING/REPLACING TELESCOPING FRONT RIGGING SUPPORT (FIGURE 5)

1. Remove the two (2) mounting screws, spacers and locknuts that secure the telescoping front rigging support to the seat frame.
2. Perform one (1) of the following:
 - A. Slide existing telescoping front rigging support to one (1) of three (3) depth positions.
 - B. Remove existing telescoping front rigging support and install NEW telescoping front rigging support.

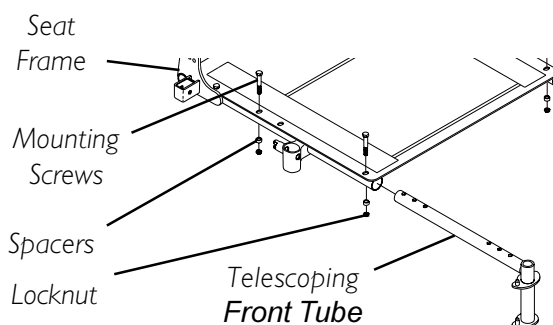


FIGURE 5 - ADJUSTING/REPLACING TELESCOPING FRONT RIGGING SUPPORT

3. Secure telescoping front rigging at desired depth with existing two (2) mounting screws, spacers, and locknuts. Securely tighten.

NOTE: The two (2) telescoping front rigging supports can be positioned at different depths depending on the need of the user.

INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE (FIGURE 6)

1. Position adjustable angle flip-up footplate (**footplate**) hinge on the footrest support tube at the desired height.
2. Position mounting screw, washers, spacer, and locknut on the footrest support as shown in FIGURE 6.
3. Flip the footplate hinge to the UP position.

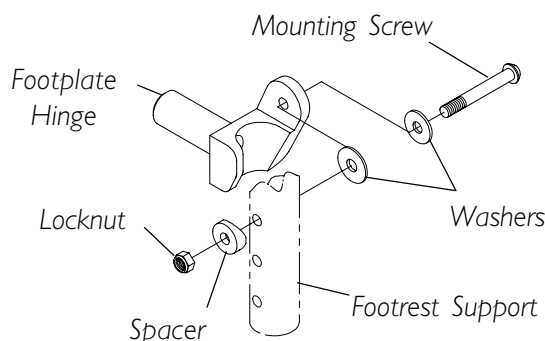


FIGURE 6 - INSTALLING ADJUSTABLE ANGLE FLIP-UP FOOTPLATE HINGE

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

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

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

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

6. Adjust footplate. Refer to INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES in this SECTION of the manual.

INSTALLING/ADJUSTING ADJUSTABLE ANGLE FLIP-UP FOOTPLATES

INSTALLING (DETAIL "A" IN FIGURE 7)

1. Slide the half clamp over the footplate hinge.
2. Loosely tighten the two (2) flat screws that secure the footplate to the half clamp.
3. Adjust the footplates to the necessary angle and depth for the user. Refer to ADJUSTING ADJUSTABLE FLIP-UP FOOTPLATES in this SECTION of the manual.

ADJUSTING (DETAIL "A" IN FIGURE 7)

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

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

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

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

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

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

- Refer to ADJUSTABLE ANGLE FLIP-UP FOOTPLATE ANGLE ADJUSTMENT or ADJUSTABLE ANGLE FLIP-UP FOOTPLATE PERPENDICULAR AND/OR INVERSION/EVERSION ADJUSTMENT in this SECTION of the manual.

ADJUSTABLE ANGLE FLIP-UP FOOTPLATE ANGLE ADJUSTMENT (DETAILS “A” AND “B” IN FIGURE 7)

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

ADJUSTABLE ANGLE FLIP-UP FOOTPLATE PERPENDICULAR AND/OR INVERSION/EVERSION ADJUSTMENT (DETAILS “A” AND “C” IN FIGURE 7)

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

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

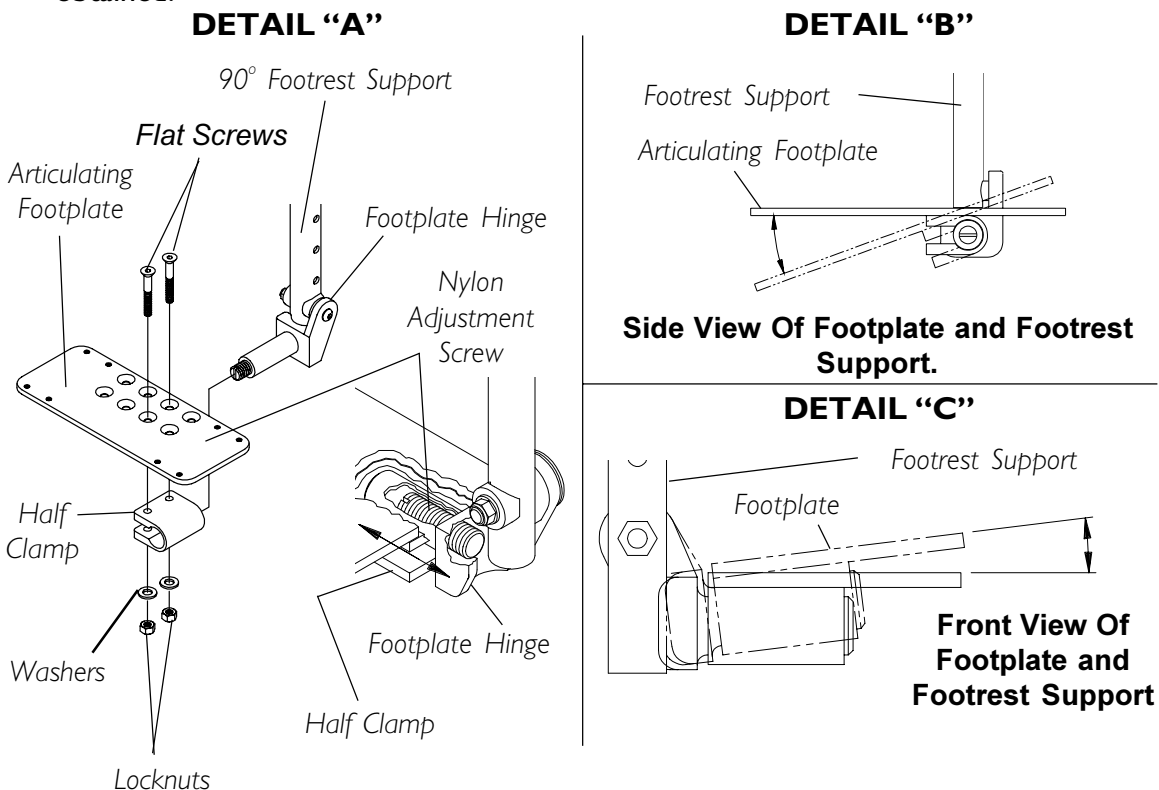


FIGURE 7 - ADJUSTABLE ANGLE FLIP-UP FOOTPLATES

COMPOSITE/ARTICULATING FOOTPLATE HEEL LOOP REPLACEMENT (FIGURE 8)

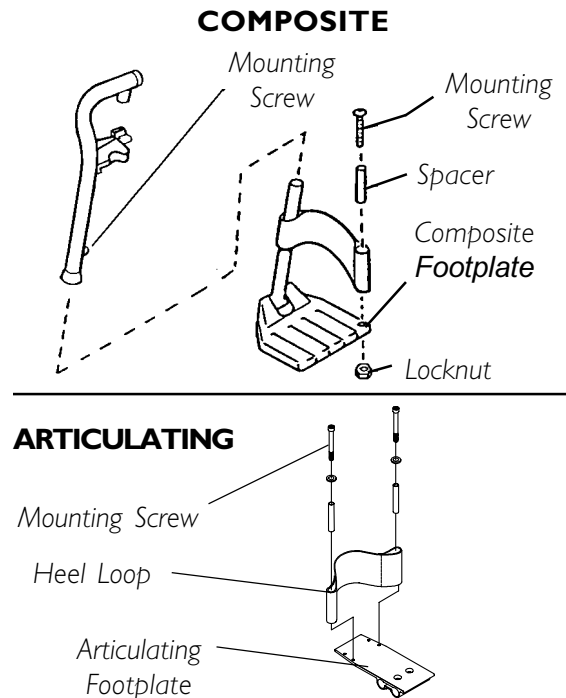
DISASSEMBLY

Composite.

1. Remove the mounting screw and covered washer that secures the lower half of the footrest to the swingaway footrest assembly.
2. Remove the lower footrest assembly.
3. Remove the mounting screw and locknut that secure the heel loop to the footrest.
4. Slide heel strap over cane of footrest assembly.

Articulating.

1. Remove the two (2) mounting screws that secure the heel loop to the articulating footplate.



**FIGURE 8 - COMPOSITE/
ARTICULATING FOOTPLATE HEEL
LOOP REPLACEMENT**

REASSEMBLY

1. Replace heel strap/loop.
2. Reverse preceding steps to reassemble.

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

INSTALLING/REMOVING ELEVATING LEGRESTS (FIGURE 9)

INSTALLING

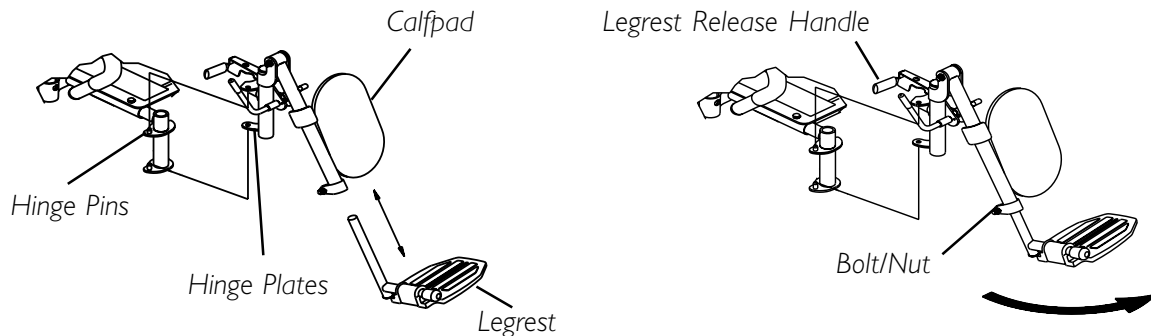
1. Turn legrest to side (open footplate is perpendicular to wheelchair) and position mounting holes in the legrest hinge plates with hinge pins on the wheelchair frame.
2. Install the legrest hinge plates onto the hinge pins on the wheelchair frame.
3. Rotate legrest toward the inside of the wheelchair until it locks in place.

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

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

REMOVING

1. Push the legrest release handle toward the inside of the wheelchair (facing the front of the wheelchair) and swing the legrest to the outside of the wheelchair.
2. Lift up on the legrest and remove from the wheelchair.
3. Repeat STEPS 1-2 for opposite side of wheelchair.

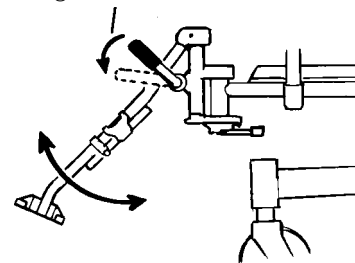
**FIGURE 9 - INSTALLING/REMOVING ELEVATING LEGRESTS****RAISING/LOWERING ELEVATING LEGRESTS AND/OR ADJUSTING CALFPADS (FIGURE 10)****RAISING/LOWERING ELEVATING LEGRESTS**

1. Perform one (1) of the following:

RAISING - Pull back on the release lever until the leg is at the desired height.

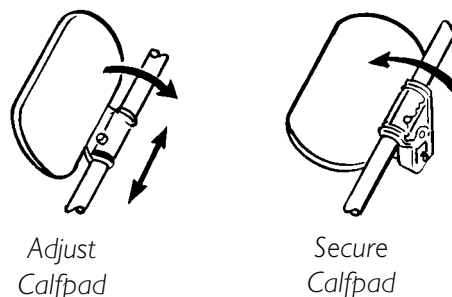
LOWERING - Support leg with one (1) hand and push release lever downward with other hand.

Legrest to Normal Position

**ADJUSTING CALFPADS**

1. Turn the calfpad towards the outside of the wheelchair.
2. Slide the calfpad up or down until the desired position is obtained.

NOTE: If one (1) of the top two (2) calfpad adjustment positions is being used, the legrest will need to be raised to avoid interference with the front stabilizers while going over obstacles or going up and down ramps. Refer to **RAISING/LOWERING ELEVATING LEGRESTS** in this SECTION of the manual.

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

REMOVING/INSTALLING/ADJUSTING THE CAGE FOOTREST (FIGURE 11)

REMOVING/INSTALLING/DEPTH ADJUSTMENT

1. Remove the cushion.
2. Remove the four (4) mounting screws, spacers, and locknuts that secure the cage footrest to the seat frame.
3. Perform one (1) of the following:
 - A. To remove cage footrest, pull footrest out of the seat assembly.
 - B. To adjust depth, adjust mounting tubes to desired depth and reinstall mounting screws. Securely tighten.
4. To install, slide footrest into seat assembly to desired depth and reinstall mounting screws. Securely tighten.
5. Reinstall cushion.

HEIGHT ADJUSTMENT

1. Remove the two (2) mounting screws, tube clamps, and locknuts that secure the anti-rattle, slide tube and footrest to upright tubes.
2. Adjust the footrest to desired position.
3. Reinstall the two (2) mounting screws, tube clamps, and locknut that secure the anti-rattle, slide tube and footrest to upright tubes. Securely tighten.

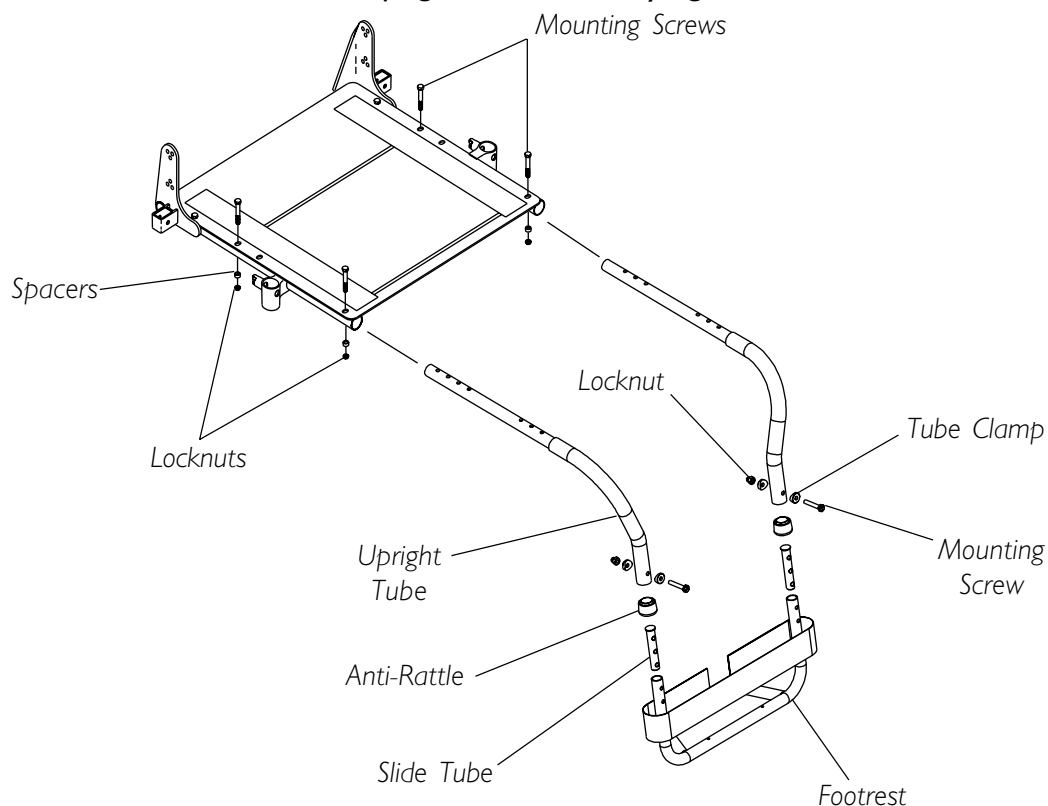


FIGURE 11 - THE CAGE FOOTREST

This SECTION Includes the Following:

Installing/Removing Flip Back Armrests

Adjusting Flip Back Armrests

Adjusting Captain's Van Seat Armrests

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.

INSTALLING/REMOVING FLIP BACK ARMRESTS (FIGURE 1)

WARNING

Make sure the flip back armrest release and height adjustment levers are in the locked position before using the wheelchair.

NOTE: Flip back armrest release lever must be in the unlocked (UP- HORIZONTAL) position when placing the armrest into the arm sockets.

INSTALLING

1. Visually inspect to ensure flip back armrest release lever is in the unlocked HORIZONTAL position.
2. Slide the flip back armrest into the arm sockets on the seat frame.
3. Install the quick release pin through the rear arm socket and flip back armrest.
4. Lock the flip back armrest by pressing the flip back armrest release lever into the VERTICAL position.
5. Repeat STEPS 1-4 for the opposite flip back armrest.

REMOVING

1. Unlock the flip back armrest by positioning the flip back armrest release lever into the HORIZONTAL position.
2. Remove the quick release pin that secures the flip back armrest to the rear arm socket.
3. Pull up on the flip back armrest and remove the armrest from the arm sockets.
4. Repeat STEPS 1-3 for the opposite flip back armrest, if necessary.

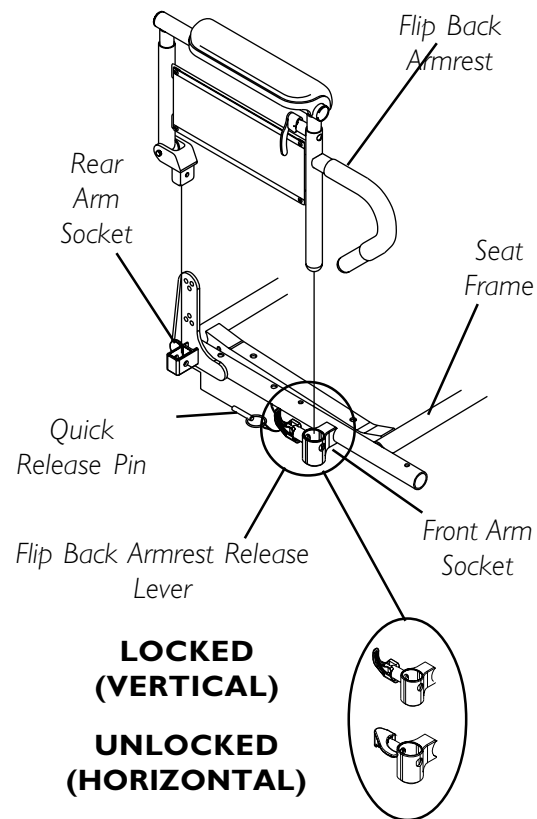


FIGURE 1 - INSTALLING/REMOVING FLIP BACK ARMRESTS

ADJUSTING FLIP BACK ARMRESTS (FIGURE 2)

WARNING

Make sure the flip back armrest release and height adjustment levers are in the locked position before using the wheelchair.

Positioning Flip Back Armrests for User Transfer

1. Unlock the flip back armrest by pulling the armrest release lever into the HORIZONTAL position.

WARNING

Armrest release lever must remain in the horizontal position during transfer, otherwise injury may result.

2. Pull up on the flip back armrest and remove the armrest from the front arm socket.
3. Continue to pull up on the flip back armrest until the armrest is out of the way.
4. Repeat STEPS 1-3 for opposite flip back armrest, if necessary.

Positioning Flip Back Armrests for Use

1. Make sure the flip back armrest release lever is in the HORIZONTAL position.
2. Install the flip back armrest into the front arm socket.
3. Lock flip back armrest by pressing flip back armrest release lever into the VERTICAL position.
4. Lift up on flip back armrest to make sure the armrest is locked in place.
5. Repeat STEPS 1-4 for opposite flip back armrest, if necessary.

Adjusting

1. Unlock top of flip back armrest by pulling height adjustment lever into the HORIZONTAL position.
2. Adjust top of the flip back armrest to the desired height.
3. Lock top of flip back armrest by pushing height adjustment lever into the VERTICAL position.

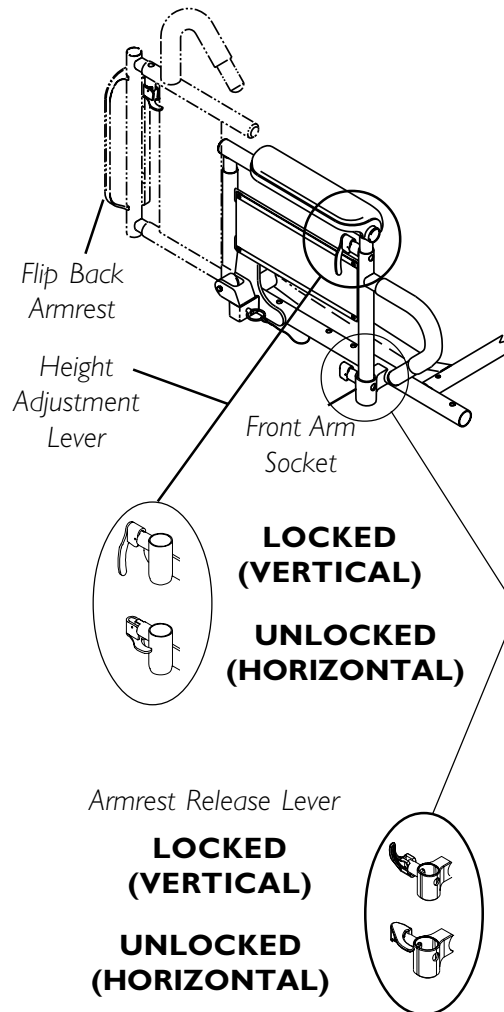


FIGURE 2 - ADJUSTING FLIP BACK ARMRESTS

ADJUSTING CAPTAIN'S VAN SEAT ARMRESTS

ANGLE (FIGURE 3)

1. Lift-up the armrest and loosen the jam nut.
2. Adjust the mounting screw up or down to the desired arm angle position.
3. Tighten the jam nut.
4. Repeat STEPS 1-3 for opposite armrest.

NOTE: To determine the same angle for the opposite armrest, count the exposed threads after the jam nut has been tightened.

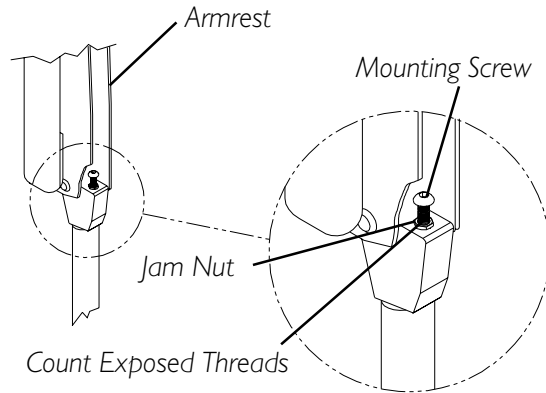


FIGURE 3 - ADJUSTING CAPTAIN'S VAN SEAT - ANGLE

HEIGHT (FIGURE 4)

1. Remove the mounting screw that secures the armrest to the van seat frame.
2. Adjust the armrest to one (1) of four (4) positions.
3. Reinstall the mounting screw that secures the armrest to the van seat frame and tighten securely.

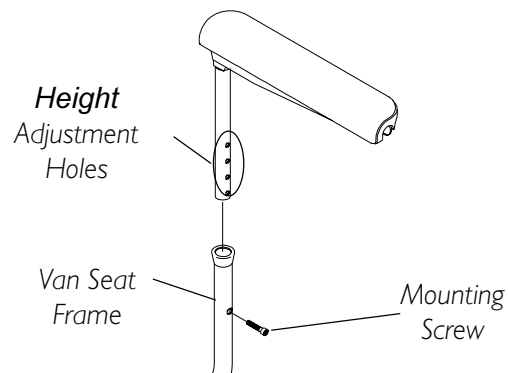


FIGURE 4 - ADJUSTING CAPTAIN'S VAN SEAT - HEIGHT

This SECTION Includes the Following:

Replacing Seat Positioning Strap

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 (FIGURE 1)

STANDARD/ADJUSTABLE SEAT FRAMES

1. Remove the seat cushion from the seat pan.
2. Move the flip back armrests out of the way. Refer to USING/ADJUSTING FLIP BACK ARMRESTS in SECTION 5 of this manual.
3. Remove the two (2) mounting screws, quick release pin tabs, spacers, and locknuts that secure the seat pan and seat positioning straps to the seat frame.
4. Remove the two (2) halves of the seat positioning strap from the rear seat frame.

NOTE: Quick release pin tabs are positioned underneath the seat positioning strap.

5. Reposition the two (2) NEW seat positioning strap halves underneath seat rails.
6. Reinstall the two (2) mounting screws, quick release pin tabs, spacers, and locknuts that secure the seat pan and seat positioning straps to the seat frame and torque to 75-inch pounds.
7. Reinstall the seat cushion onto the seat pan.

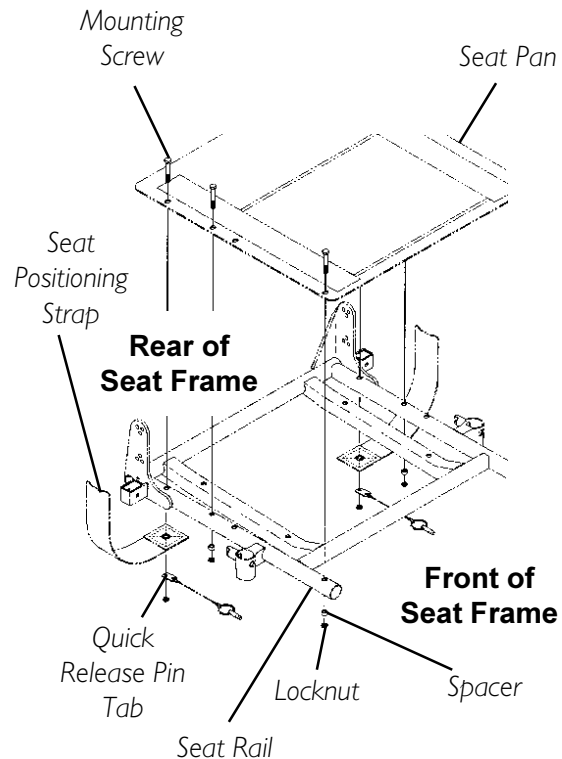


FIGURE 1 - REPLACING SEAT POSITIONING STRAP

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

<i>Adjusting Captains Van Seat</i>

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 CAPTAINS VAN SEAT (FIGURE 1)

LOW BACK CAPTAINS VAN SEATS

1. Lift up on the release handle and move the back to the desired position

High Back Captains Van Seats

ANGLE.

WARNING

HIGH BACK CAPTAINS VAN SEATS ONLY - 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. Have the limit switch adjusted by an authorized Invacare dealer or qualified technician.

When using high back captains van seat, the motor/gearbox or motor **MUST** use the **MOST** rearward mounting holes on the suspension arm assembly.

1. Lift up on the release handle and move the back to the desired position.
2. Check the angle of the back **RELATIVE TO THE SEAT FRAME**.
3. If necessary, have the limit switch adjusted by an authorized technician.

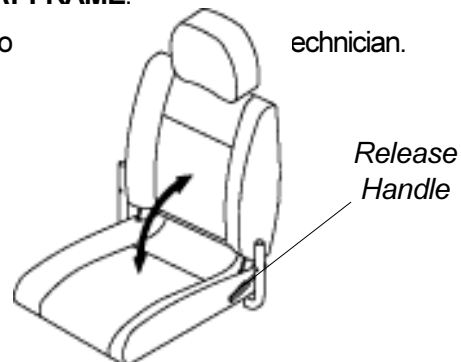


FIGURE 1 - ADJUSTING CAPTAINS VAN SEAT

This SECTION Includes the Following:

*Using the Proper Batteries
Installing/Removing Batteries
Disconnecting Battery Cables
Connecting Battery Cables*

*When to Charge Batteries
Charging Batteries
Replacing Batteries*

WARNING

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

The use of rubber gloves and chemical goggles 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.

This SECTION **MUST** be performed while the wheelchair is unoccupied.

USING THE PROPER BATTERIES (FIGURE 1)

1. Place battery on ground/flat surface.
2. Visually draw a horizontal and vertical centerline through the middle of battery.
3. Position the battery so that the terminals are above the horizontal centerline.
4. Visually inspect the battery to ensure the following:
 - A. The **POSITIVE** battery terminal/post is located in the upper left corner.
 - B. The **NEGATIVE** battery terminal/post is located in the upper right corner.

WARNING

Batteries with terminal configuration (positive on the left and negative on the right) as shown below **MUST** be used. Batteries that have the reverse terminal configuration **MUST** not be used - otherwise injury and damage may occur.

PROPER BATTERY TO BE USED

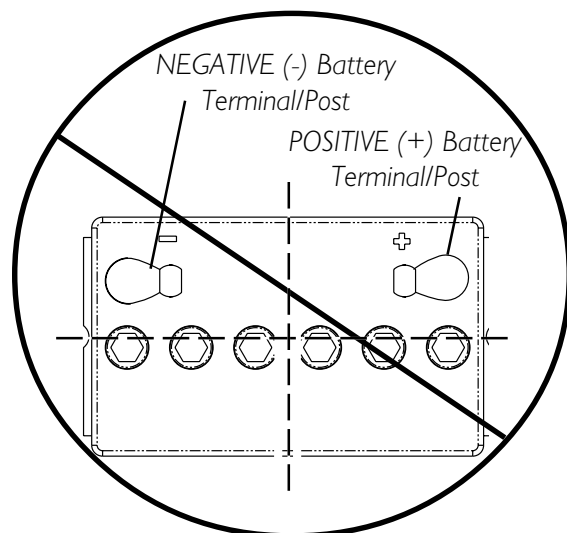
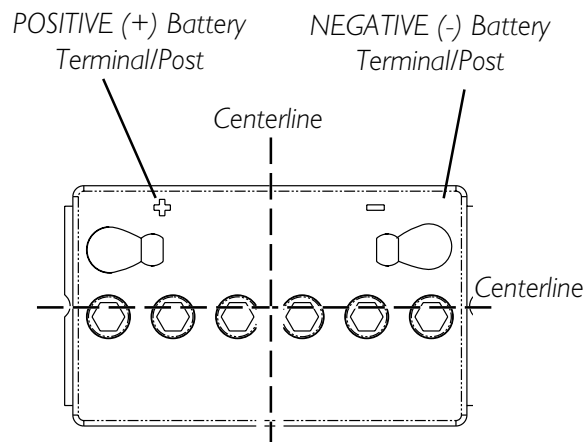


FIGURE 1 - USING THE PROPER BATTERIES

REMOVING/INSTALLING BATTERY ASSEMBLIES (FIGURES 2 AND 3)

WARNING

Each battery weighs 35 pounds. Use proper lifting techniques (lift with your legs) to avoid injury.

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

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.

NOTE: If there is battery acid in the bottom of the battery tray or on the sides of the 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 tray or battery(ies).

REMOVING

1. Place the wheelchair in a well ventilated area where work can be performed without risking damage to carpeting or floor covering.
2. Verify the joystick ON/OFF switch is in the OFF position.
3. Pull release lever located underneath the front of the seat to disengage as shown in FIGURE 2 .
4. Tilt seat backward and lock seat in upward position with seat prop as shown in FIGURE 2.
5. Disconnect the battery wiring harness from the front battery as shown in FIGURE 2.
6. Disconnect battery wiring harness from the rear battery in FIGURE 2.
7. Disconnect the battery retention strap in FIGURE 2.
8. Lift the front battery assembly out of the base frame. Refer to DETAIL “A” in FIGURE 3).
9. Slide rear battery assembly forward and lift out of base frame as shown in DETAIL “B” in FIGURE 3.

INSTALLING

1. Install the rear battery assembly into the base frame in the orientation shown in DETAIL “B” in FIGURE 3 .
2. Slide the rear battery assembly rearward.
3. Install the front battery assembly into the base frame in the orientation shown in DETAIL “A” in FIGURE 3 .
4. Connect the battery retention strap as shown in FIGURE 2.
5. Connect the battery wiring harness to the rear battery as shown in FIGURE 2.
6. Connect the battery wiring harness to the front battery as shown in FIGURE 2.

WARNING

When lowering the seat, ensure that hands and fingers are clear from underneath seat before lowering, otherwise, injury may result.

After lowering seat, ensure that seat is locked securely in place before operating chair, otherwise serious personal injury, damage to the wheelchair and/or damage to surrounding property may occur.

- To lower seat: Lift up on seat with one hand. While holding seat, pull prop toward the front of the seat. Lower seat.

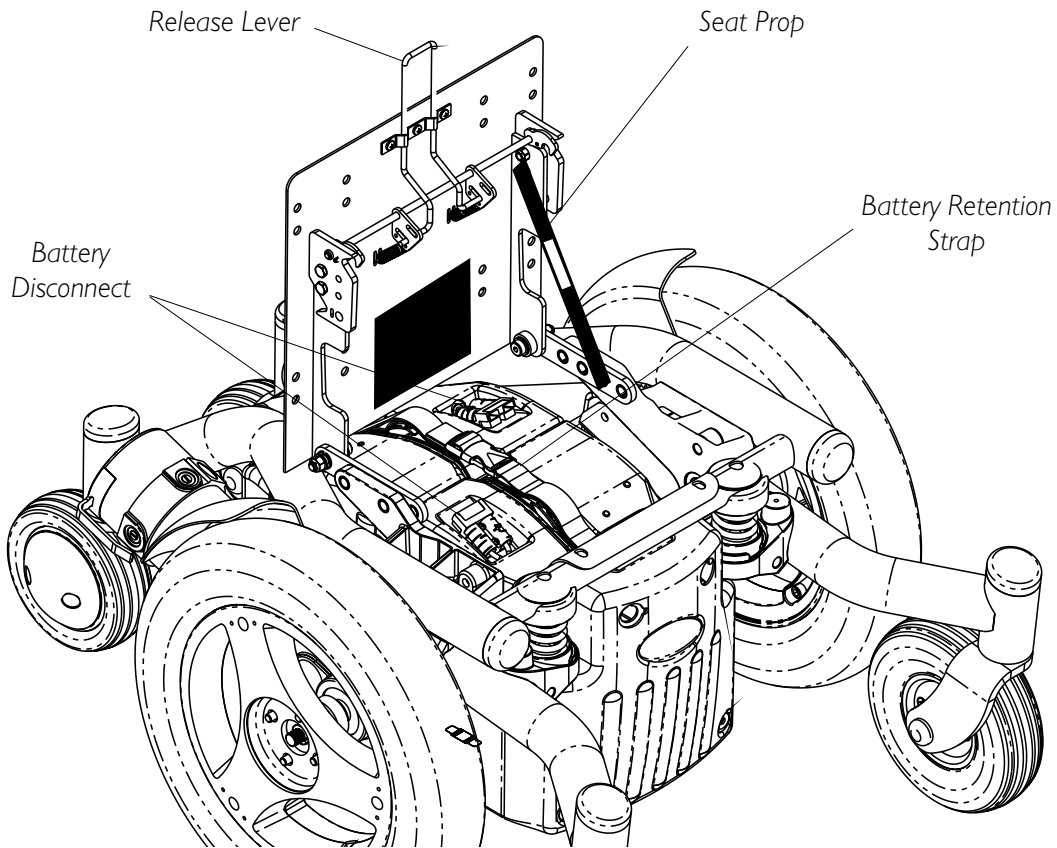


FIGURE 2 - REMOVING/INSTALLING BATTERY ASSEMBLIES

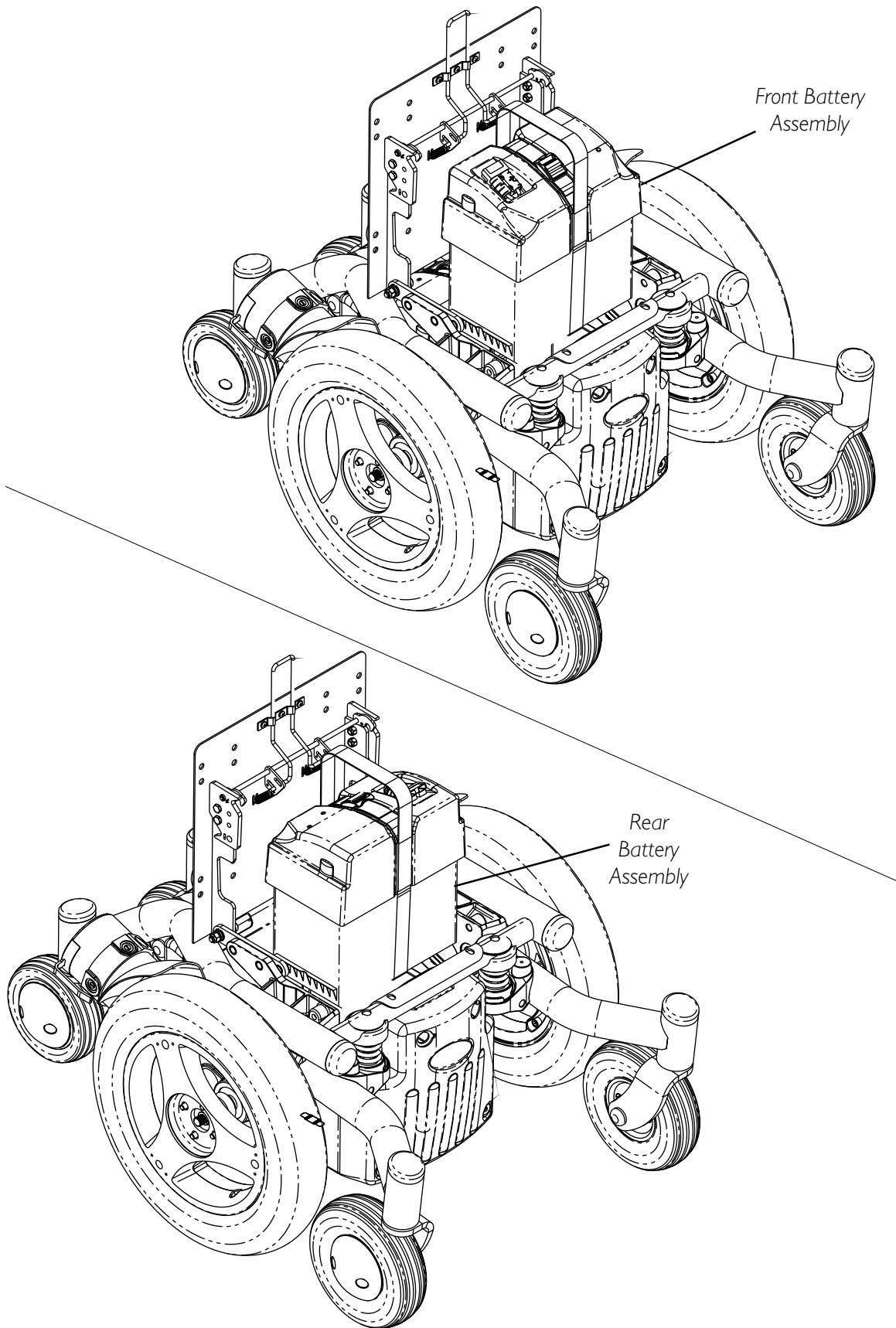


FIGURE 3 - REMOVING/INSTALLING BATTERY ASSEMBLIES

DISCONNECTING BATTERY CABLES (FIGURE 4)**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 chemical goggles is recommended when working with batteries.

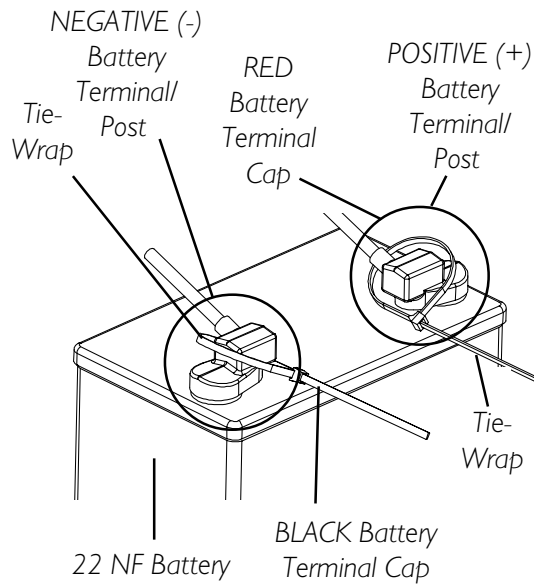
NOTE: Perform this SECTION on one (1) battery and battery box at a time. Repeat SECTION for other battery box.

1. Disconnect the strap that secures the lid to the battery.
2. Lift up on battery box lid to expose underlying cables.
3. Cut the tie wraps that secure the battery covers to the terminals.
4. Perform one (1) of the following:
 - A. **Direct Mount Method** - Peel back battery covers to expose ring terminal on each battery cable as follows:
 - RED battery cover from RED battery cable.
 - BLACK battery cover from BLACK battery cable.
 - B. **Battery Clamp Method** - Peel back battery covers to expose battery clamp on each battery cable as follows:
 - RED battery clamp cover from RED battery cable.
 - BLACK battery clamp cover from BLACK battery cable.
3. Perform one (1) of the following:
 - A. **Direct Mount Method**
 - Remove the hex screw and locknut that secures the NEGATIVE (-) black battery cable to the negative battery terminal/post.
 - Remove the hex screw and locknut that secures the POSITIVE (+) red battery cable to the positive battery terminal/post.
 - B. **Battery Clamp Method**
 - Remove the hex screw that secures the NEGATIVE (-) black battery cable to the battery clamp of the positive battery terminal/post.
 - Remove the hex screw that secures the POSITIVE (+) red battery cable to the battery clamp of the positive battery terminal/post.

NOTE: To transfer battery clamps to new battery, perform the following:

- Remove the hex screw and locknut that secures the battery clamp to the negative battery terminal/post. Remove battery clamp.
- Remove the hex screw and locknut that secures the battery clamp to the positive battery terminal/post. Remove battery clamp.

DIRECT MOUNT METHOD



BATTERY CLAMP METHOD

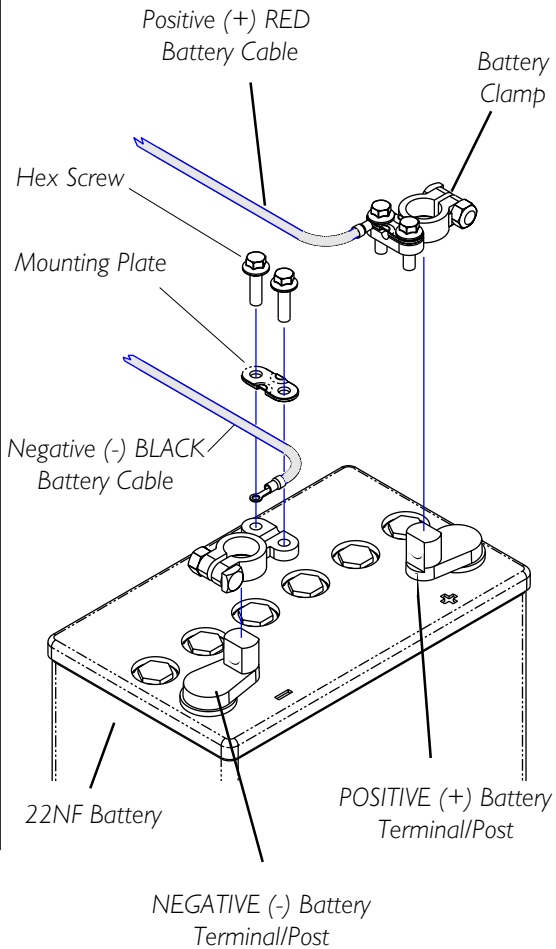
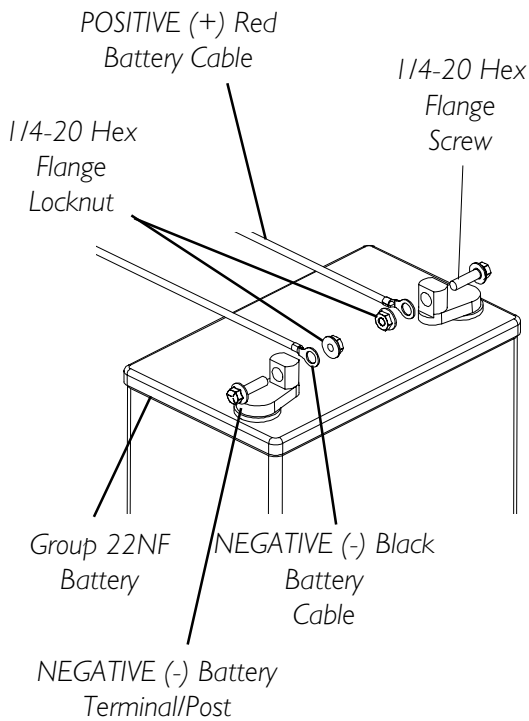
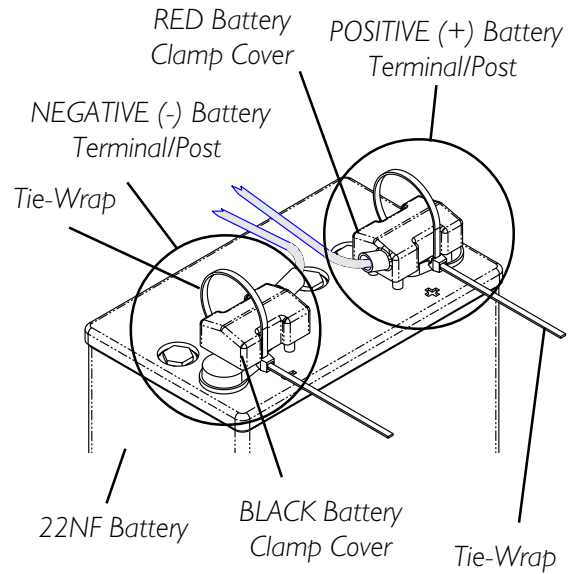


FIGURE 4 - DISCONNECTING BATTERIES

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 chemical goggles is recommended when working with batteries.

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

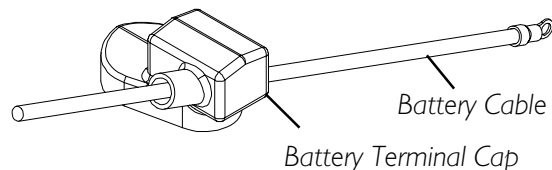
- A. **FOR GROUP 22 NF BATTERIES THAT HAVE MOUNTING HOLES IN THE BATTERY TERMINAL(S)/POST(S)** - Use direct mount method.
- B. **FOR GROUP 22 NF BATTERIES THAT DO NOT HAVE MOUNTING HOLES IN THE BATTERY TERMINAL(S)/POST(S)** - Use battery clamp method.

DIRECT MOUNT METHOD (FIGURES 5 AND 6)

*NOTE: Batteries with proper battery terminal configuration MUST be used. Refer to **USING THE PROPER BATTERIES** in this section of the manual.*

- I. Install battery terminal cap(s) onto battery cable(s) as follows (FIGURE 5):
 - 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 5 - CONNECTING BATTERY CABLES - DIRECT MOUNT METHOD

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 FIGURE 6, otherwise damage to the battery cable may result when installing battery terminal caps.

2. Connect battery cable(s) to battery(ies) terminal(s)/post(s) as follows:
 - 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.
 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.
 6. Secure each terminal cap in place with a tie-wrap (Use tie-wraps 11-1/2-inches long).
- NOTE: It will be necessary to trim excess tie-wrap in order to install the battery box top(s).*
7. Install the battery with lid into the wheelchair. Refer to **INSTALLING/REMOVING BATTERIES** in this SECTION.

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

8. If necessary, charge the battery(ies). Refer to **CHARGING BATTERIES** in this SECTION.

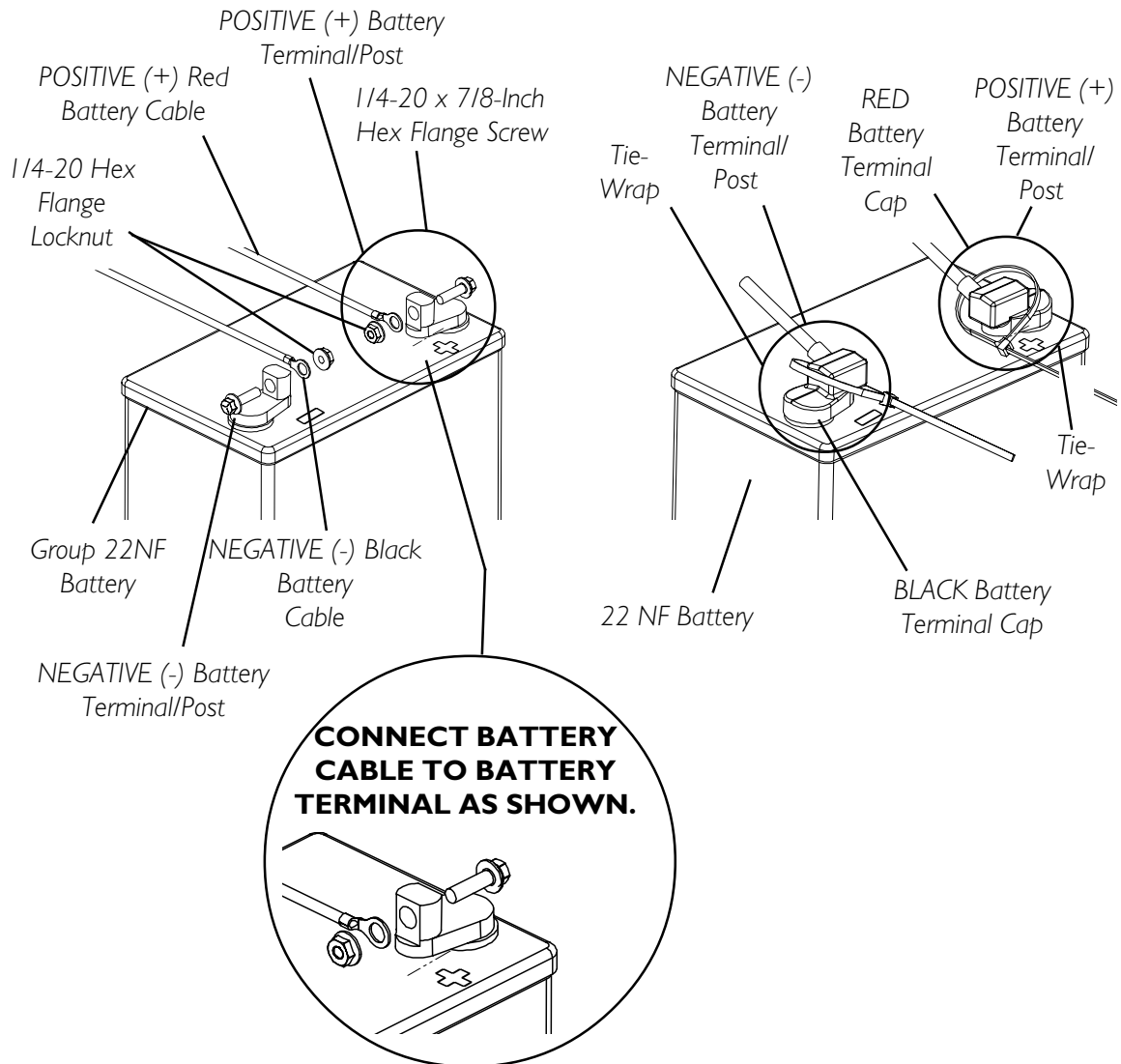


FIGURE 6 - CONNECTING BATTERY CABLES - DIRECT MOUNT METHOD

BATTERY CLAMP METHOD (FIGURES 7, 8 AND 9)

*NOTE: Batteries with proper battery terminal configuration MUST be used. Refer to **USING THE PROPER BATTERIES** in this section of the manual.*

CAUTION

The battery clamps MUST be mounted in the positions shown in FIGURE 7, otherwise the battery box top cannot be installed properly.

1. Perform one (1) of the following:

A. If the battery clamps are **NOT** mounted in the orientation shown in FIGURE 7, perform the following:

- Loosen the hex nut that secures the battery clamp to the battery terminal/post.
- Remove the battery clamp from the battery terminal/post.

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.

- Reposition the battery clamp on the battery terminal/post as shown in FIGURE 7.
- Securely tighten the hex nut that secures the battery clamp to the positive (+) battery terminal/post.

B. If the battery clamps are positioned as shown in FIGURE 7, proceed to STEP 2.

2. Install battery clamp covers onto battery cables as follows: (FIGURE 8)

- 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.

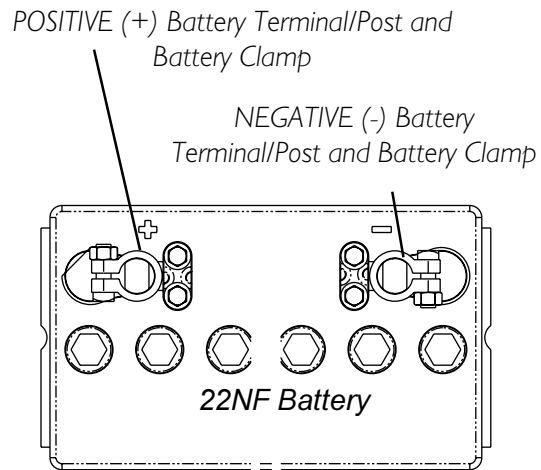


FIGURE 7 - CONNECTING BATTERY CABLES - BATTERY CLAMP METHOD

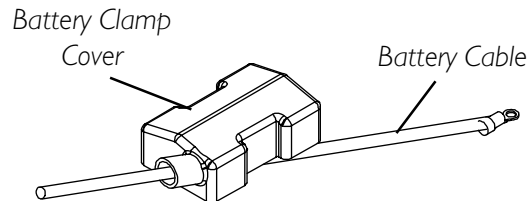
INSTALLING BATTERY CLAMP COVERS

FIGURE 8 - 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” of FIGURE 8, 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”)

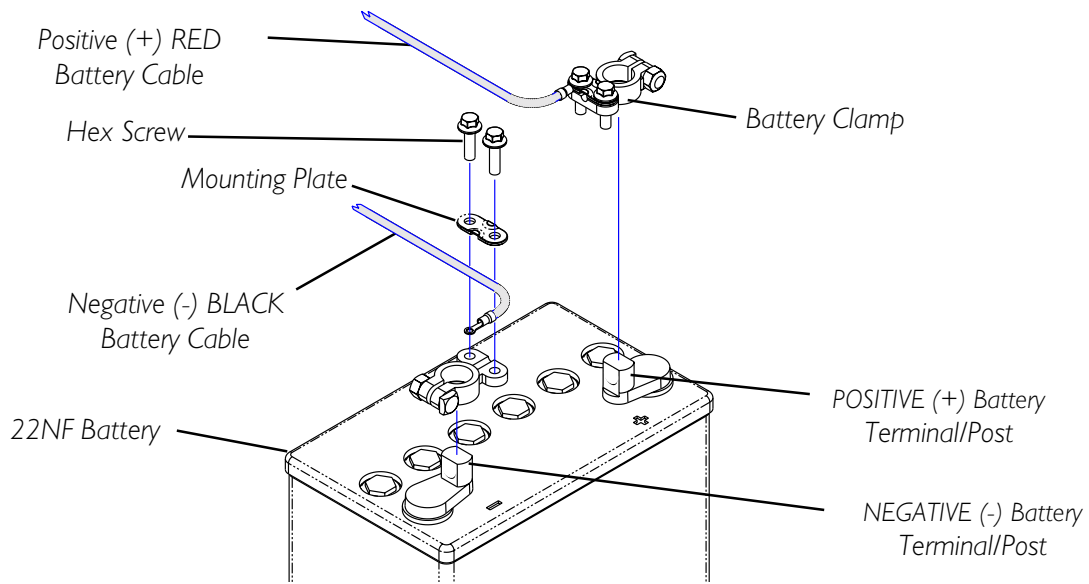
NOTE: It will be necessary to trim excess tie-wrap in order to install the battery box top(s).

8. Install the battery with lid into the wheelchair. Refer to INSTALLING/REMOVING BATTERIES W/ LID INTO WHEELCHAIR in this SECTION.

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 this SECTION.

DETAIL "A"



NOTE: Battery clamps exploded away for clarification purposes only.

DETAIL "B"

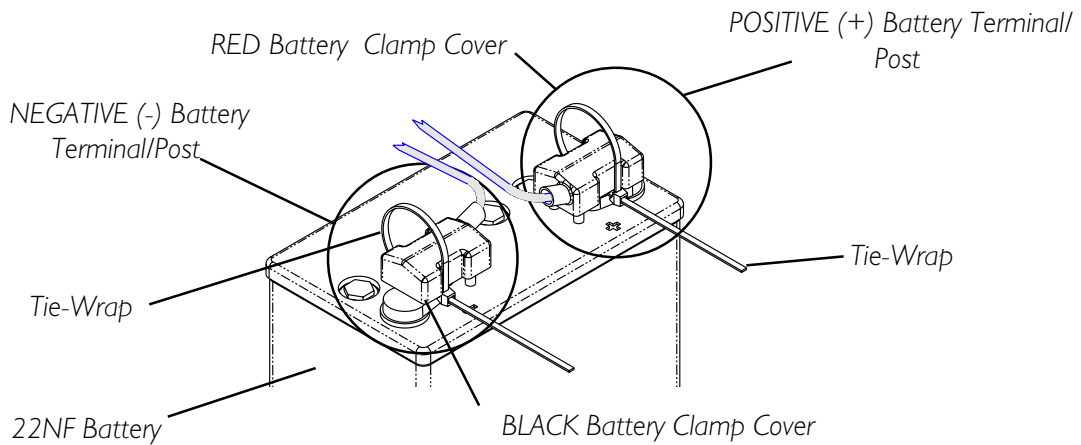


FIGURE 9 - CONNECTING BATTERY CABLES - BATTERY CLAMP METHOD

WHEN TO CHARGE BATTERIES (FIGURE 10)

The Battery Discharge Indicator (BDI) is a bar graph display located on the MKIV 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.

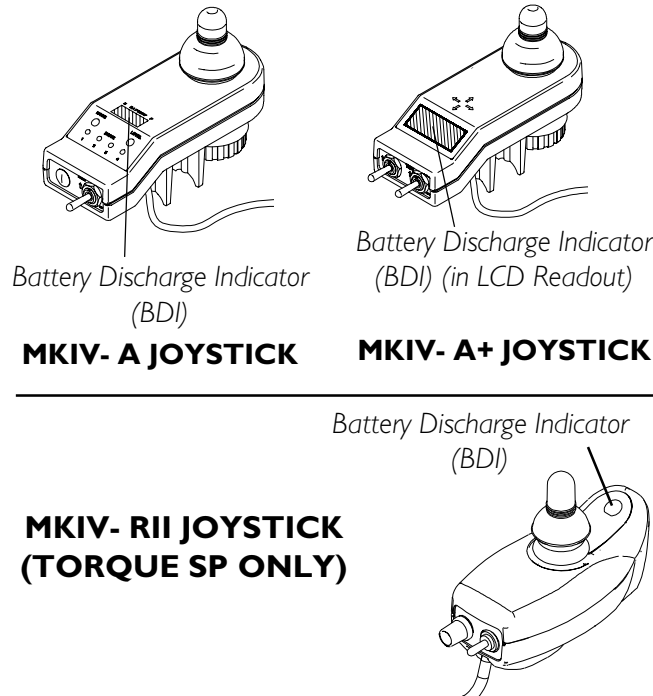


FIGURE 10 - WHEN TO CHARGE BATTERIES

CHARGING BATTERIES (FIGURE 11)

NOTE: New batteries MUST be fully charged prior to initial use of the wheelchair.

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 side of the wheelchair frame or the back of the joystick.

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 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 a long period of time.

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

DESCRIPTION AND USE OF BATTERY CHARGERS

The charger automatically reduces the charge from an initially high rate to a zero reading at a fully charged condition. If left unattended, the charger should automatically shut-off when full charge is obtained.

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

The amount of electrical current drawn within a given time to charge a battery is called the “charge rate”. If, due to usage, the charge stored in the battery is low, the charge rate is high, as 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. As a charge builds up, the charge rate is reduced, and the green light will stay illuminated for a longer period of time followed by a shorter off time.

WARNING

NEVER leave the charger unattended when the charger circuit breaker is tripping ON and OFF. A condition between the battery charger and batteries exists. Unplug immediately. Contact an Invacare dealer.

NOTE: If performing the charging SECTIONS 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 SECTIONS.

REQUIRED ITEMS:

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

◆ (3-prong plug, 15 ampere current rating; industrial type)

I. Perform one (1) of the following:

- A. **WHEELCHAIRS EQUIPPED WITH MCC-MARK IV JOYSTICK** - Attach the battery charger connector to the charger cable/battery harness.

NOTE: The battery charger connector is factory installed on the RIGHT side of the wheelchair. It can be positioned on either side of the wheelchair for user convenience.

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

NOTE: If the batteries need to be charged more often or take longer to charge than normal, they

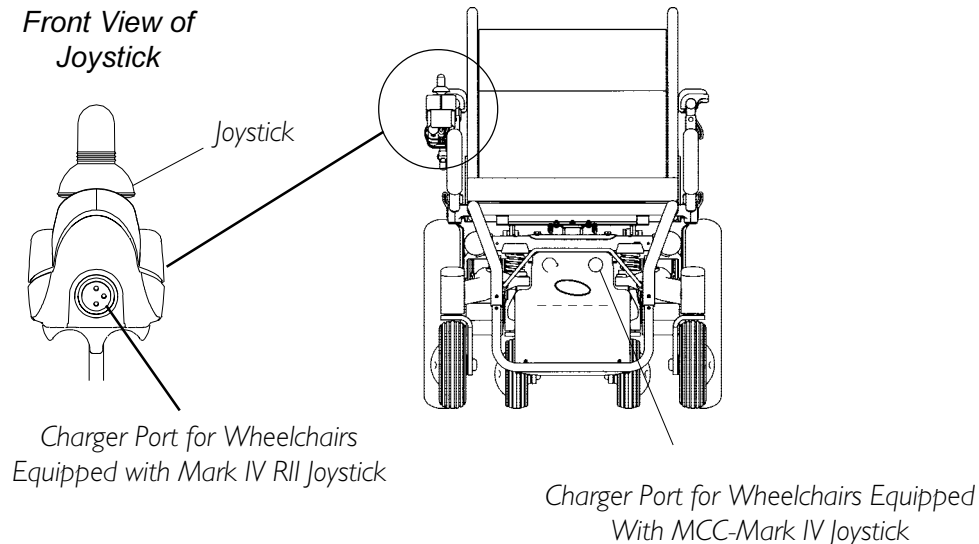


FIGURE 11 - CHARGING BATTERIES

may need to be replaced. Contact an Invacare dealer for service.

CLEANING BATTERY TERMINALS

WARNING

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

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.

1. Examine battery clamps and terminals for corrosion.
2. Verify the plastic caps are in place over battery cell holes.
3. Clean terminals and inside battery clamps by using a battery cleaning tool, wire brush, or medium grade sand paper.

NOTE: Upon completion, areas should be shiny, not dull.

4. Carefully dust off all metal particles.

This SECTION includes the following:

Disengaging/Engaging Motor Lock Levers

Adjusting Forks

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.

CAUTION

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

DISENGAGING/ENGAGING MOTOR LOCK levers

WARNING

DO NOT engage or disengage motor locks until the power switch is in the **OFF** position.

NOTE: Motor lock disengagement/engagement allows free wheeling or joystick controlled operation. Free wheeling allows an assistant to maneuver the wheelchair without power.

4 Pole Motors (FIGURE 1)

1. Perform one (1) of the following:

DISENGAGE (PUSH) - push motor lock levers downward.

ENGAGE (DRIVE) - pull motor lock levers upward

ADJUSTING FORKS (FIGURE 2)

1. Remove the headtube cover from the caster headtube.
2. To properly tighten caster journal system and guard against flutter, perform the following check:
 - A. Tip back the wheelchair to floor.
 - B. Pivot both forks and casters to top of their arc simultaneously.
 - C. Let casters drop to bottom of arc (wheels should swing once to one-side, then immediately rest in a straight downward position).
 - D. Adjust locknuts according to freedom of caster sw
3. Test wheelchair for maneuverability.
4. Readjust locknuts if necessary, and repeat **STEPS 1-3** until correct.
5. Snap headtube cover into the caster headtube.

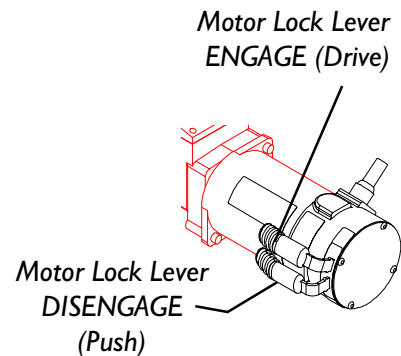
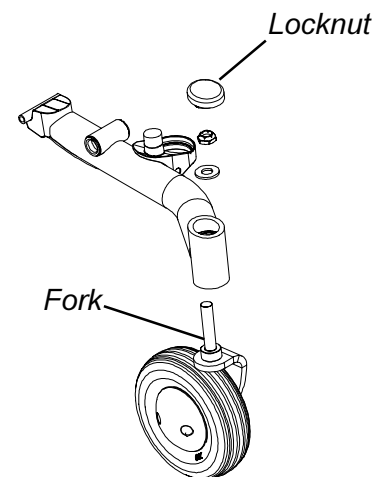


FIGURE 1 - DISENGAGING/ENGAGING MOTOR LOCK LEVERS - MOTOR/GEARBOX ASSEMBLY



NOTE: Components exploded for clarity. There is no need to remove the fork from the base frame.

FIGURE 2 - ADJUSTING FORKS

This SECTION Includes the Following:

Preparing MKIV Joystick for Use

Repositioning MKIV Joystick

WARNING

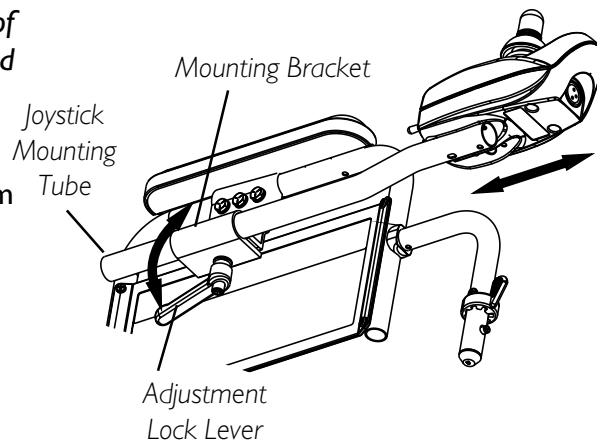
After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may result.

NOTE: Refer to SECTION 1 - GENERAL GUIDELINES which include GENERAL WARNINGS.

PREPARING JOYSTICK FOR USE (FIGURE 1)

NOTE: The joystick is factory installed on the right side of the wheelchair. To reposition the joystick onto the left side of the wheelchair refer to REPOSITIONING JOYSTICK in this SECTION of the manual. The joystick should be repositioned by a qualified technician.

1. Turn the adjustment lock lever to release the joystick mounting tube from the mounting bracket.
2. Slide joystick mounting tube to the desired position.
3. Turn the adjustment lock lever to secure the joystick mounting tube in the mounting bracket.



NOTE: MKIV RII joystick shown, MKIV joystick adjusts the same.

FIGURE 1 - PREPARING JOYSTICK FOR USE

REPOSITIONING JOYSTICK (FIGURE 2)

1. Turn the adjustment lock lever to release the joystick mounting tube from the mounting bracket.
2. Remove the joystick from the wheelchair.
3. Remove the three (3) hex screws that secure the both halves of the mounting bracket to the arm tube.
4. Reposition mounting bracket on opposite arm tube ensuring the threaded plate of the mounting bracket is on the inside of the arm tube as shown in FIGURE 2.
5. Using the three hex mounting screws and washers, secure both halves of the mounting bracket to the arm tube.
6. Slide the joystick mounting tube through the mounting bracket to the desired position.
7. Turn the adjustment lock lever to secure the joystick mounting tube into the mounting bracket.

NOTE: MKIV RII joystick shown,
MKIV joystick repositions the same.

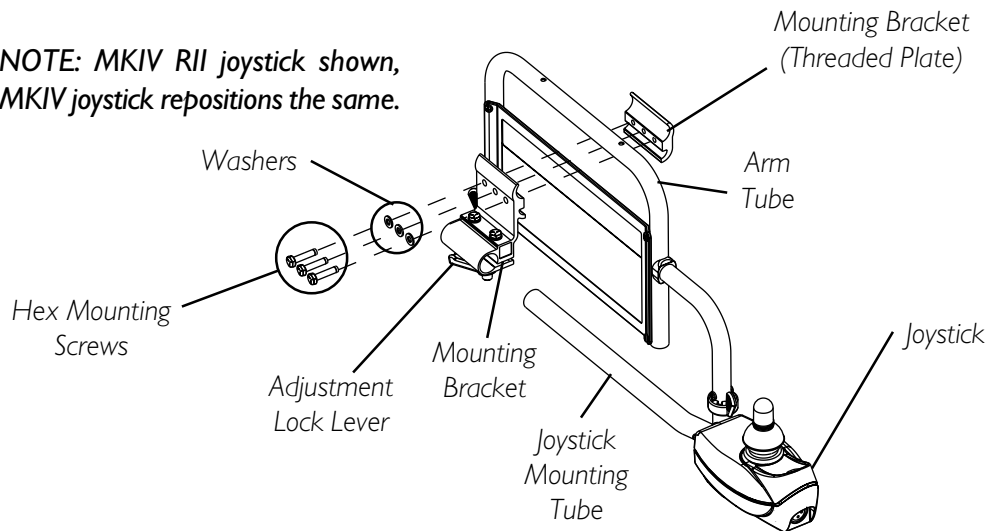


FIGURE 2 - REPOSITIONING JOYSTICK

REPLACING THE FUSE ON THE POWER TAKE OFF BLOCK (FIGURE 3)

1. Remove the fuse from the PTO block. The PTO block is located on the battery wiring harness.
2. Replace with new fuse TYPE - ATM-15.

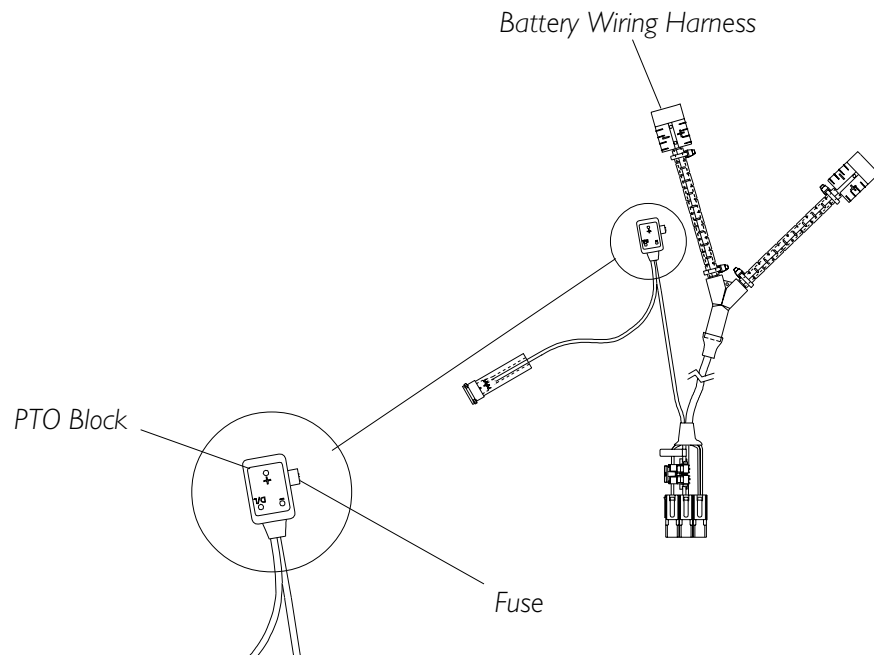


FIGURE 3 - REPLACING THE FUSE ON THE POWER TAKE OFF BLOCK

LIMITED WARRANTY

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

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

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

Invacare warrants seat frame to be free from defects in materials and workmanship for a period of three (3) years from date of purchase; that electrical components are warranted for a period of one (1) year; gearbox/motors for a period of 18 months; and the base frame for the life of the product; all remaining components (including gas cylinders and motor lock pads) for one (1) year from the date of purchase except upholstered materials, padded materials and tires/wheels. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

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

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

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



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