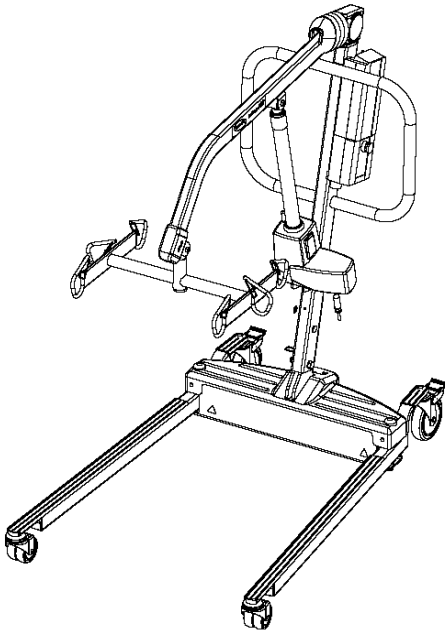


# Invacare® Reliant™ 450/600

RPL450-2, RPL600-2

en-us

## Battery-Powered Patient Lift User Manual



This manual **MUST** be given to the user of the product.

**BEFORE** using this product, this manual **MUST** be read and saved for future reference.

**PROVIDER:** Keep this manual.

The procedures in this manual **MUST** be performed by a qualified technician.



**Yes, you can.**

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# 1 General

## 1.1 Symbols

### 1.1.1 Warnings

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

**DANGER!**

-Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING!**

-Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**ATTENTION!**

-Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.



-Indicates a hazardous situation that could result in damage to property if it is not avoided.



Gives useful tips, recommendations and information for efficient, trouble-free use.

### 1.1.2 Other Symbols



Date of fabrication

## 1.2 Service Life

Lift—the expected service life is eight years, presuming the product is used daily and in accordance with safety instructions and maintenance instructions stated in this manual.

Sling—refer to the Sling User Manual for expected service life information.

## 1.3 Limited Warranty



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

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

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

Invacare warrants the products manufactured to be free from defects in materials and workmanship for a period of three years on the lift and one year on the slings, hydraulic pump / electric components from the date of purchase. If within such warranty period any such product shall be proven to be defective, such product shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address on the back cover, provide dealer's name, address, date of purchase, indicate nature of the defect.

Invacare Corporation will issue a serialized return authorization. The defective unit or parts MUST be returned for warranty inspection using the serial number, when applicable as identification within 30 days of return authorization date. Do not return products to our factory without our prior consent.

C.O.D. shipments will be refused; please prepay shipping charges.

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

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, IF ANY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESSED WARRANTY PROVIDED HEREIN AND THE REMEDY FOR VIOLATIONS OF ANY IMPLIED WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PURSUANT TO THE TERMS CONTAINED HEREIN. INVACARE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER. SOME STATES DO NOT ALLOW EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSIONS AND LIMITATIONS MAY NOT APPLY TO YOU. THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE OR PROVINCIAL LAWS AND REQUIREMENTS.

## 2 Safety

The Safety section contains important information for the safe operation and use of this product.

### 2.1 General Guidelines

**WARNING!**

DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manuals, service manuals or instruction sheets supplied with this product or optional equipment. If you are unable to understand the warnings, cautions or instructions, contact a healthcare professional, provider or technical personnel before attempting to use this equipment; otherwise, injury or damage may occur.

**ACCESSORIES WARNING**

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



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

Check all parts for shipping damage before using. In case of damage, DO NOT use the equipment. Contact the Dealer for further instructions.



## 2.2 Operating Information

### 2.2.1 General



#### **WARNING!**

- The Invacare patient lift is NOT a transport device. It is intended to transfer an individual from one resting surface to another (such as a bed to a wheelchair).
- DO NOT attempt any transfer without approval of the patient's physician, nurse, or medical assistant. Thoroughly read the instructions in this user manual, observe a trained team of experts perform the lifting procedures, and then perform the entire lift procedure several times with proper supervision and a capable individual acting as a patient.
- Use common sense in all lifts. Special care MUST BE taken with people with disabilities who cannot cooperate while being lifted.
- Invacare slings and patient lift accessories are specifically designed to be used in conjunction with Invacare patient lifts. Slings and accessories designed by other manufacturers are not to be utilized as a component of the Invacare patient lift system.
- If the patient lift is exposed to extreme temperature (above 100°F or below 32°F), high humidity, and/or becomes wet prior to use, ensure the handgrips do not twist on the patient lift handle; otherwise, damage or injury may occur.

## 2.2.2 Pinch Points and Positioning



### WARNING!

- Be aware of pinch points, such as between the boom and hanger bar and at the base of the lift, to prevent pinching fingers.
- When positioning the lift, be aware of the position of the hanger bar and the patient. Injury could occur.

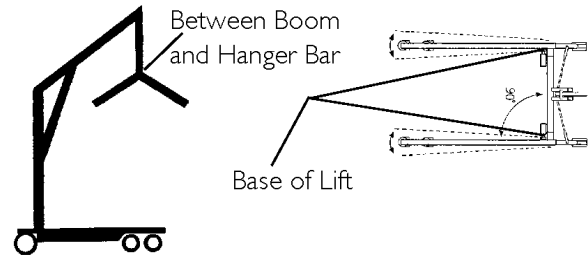


Fig. 2-1

## 2.2.3 Lift Assembly



### WARNING!

- DO NOT overtighten the mounting hardware. This will damage the mounting brackets.

## 2.2.4 Lift Operation



### WARNING!

- Although Invacare recommends that two assistants be used for all lifting preparation and transferring-from and transferring-to procedures, our equipment will permit proper operation by one assistant. The use of one assistant is based on the evaluation of the healthcare professional for each individual case.
- Make sure there is an audible click when mounting the battery on the battery charger to confirm proper mounting; otherwise, injury or damage may occur.
- DO NOT exceed the maximum weight limitation of the patient lift. The weight limitation for the RPL450-2 is 450 lb; the weight limitation for the RPL600-2 is 600 lb.
- ALWAYS keep hands and fingers clear of moving parts to avoid injury.

## 2.2.5 Using the Sling



### **WARNING!**

- Use an Invacare-approved sling recommended by the individual's doctor, nurse or medical assistant for the comfort and safety of the individual being lifted.
- DO NOT use any kind of plastic-back incontinence pad or seating cushion between the patient and the sling material that may cause the patient to slide out of the sling during transfer.
- After each laundering (in accordance with instructions on the sling), inspect the sling(s) for wear, tears, and loose stitching.
- Bleached, torn, cut, frayed, or broken slings are unsafe and could result in injury. Discard them immediately.
- DO NOT alter the slings.
- Be sure to check the sling attachments each time the sling is removed and replaced to ensure it is properly attached before the patient is removed from a stationary object (bed, chair, or commode).
- If the patient is in a wheelchair, secure the wheel locks in place to prevent the chair from moving forward or backward.
- When connecting slings equipped with color-coded straps to the patient lift, the shortest of the straps MUST be at the back of the patient for support. Using the long section will leave little or no support for the patient's back. The loops of the sling are color coded and can be used to place the patient in various positions. The colors make it easy to connect both sides of the sling equally. Make sure there is sufficient head support when lifting a patient.

### 2.2.6 Lifting the Patient

**WARNING!**

- When using an adjustable-base lift, the legs MUST be in the maximum Opened/Locked position before lifting the patient.
- When elevating a few inches off the surface of the stationary object (wheelchair, commode, or bed) and before moving the patient, check again to make sure the sling is properly connected to the hooks of the hanger bar. If any attachments are not properly in place, lower the patient back onto the stationary object (wheelchair, commode, or bed) and correct the attachments.
- Adjustments for safety and comfort should be made before moving the patient. The patient's arms should be inside of the straps.
- Invacare slings are made specifically for use with Invacare patient lifts. For the safety of the patient, DO NOT intermix slings and patient lifts of different manufacturers. The warranty will be voided.
- Check the sling attachments each time the sling is removed and replaced to ensure it is properly attached before the patient is removed from a stationary object (bed, chair or commode).
- During transfer, with the patient suspended in a sling attached to the lift, DO NOT roll the caster base over uneven surfaces that could cause the patient lift to tip over. Use the steering handle on the mast at all times to push or pull the patient lift.
- Invacare does not recommend locking the rear casters of the patient lift when lifting an individual. Doing so could cause the lift to tip and endanger the patient and assistants. Invacare does recommend leaving the rear casters unlocked during lifting procedures to allow the patient lift to stabilize itself when the patient is initially lifted from a chair, bed, or any stationary object.

## 2.2.7 Transferring the Patient



### **WARNING!**

To reduce the risk of injury or damage:

- When elevated a few inches off the surface of the stationary object (wheelchair, commode, or bed) and before moving the patient, check again to make sure the sling is properly connected to the hooks of the hanger bar. If any attachments are not properly in place, lower the patient back onto the stationary object (wheelchair, commode, or bed) and correct the attachments.
- Wheelchair wheel locks **MUST** be in a locked position before lowering the patient into the wheelchair for transport.
- Before transferring, check that the wheelchair weight capacity can withstand the patient's weight.
- Be sure to check the sling attachments each time the sling is removed and replaced to ensure it is properly attached before the patient is removed from the bed or chair.
- The mast pivot under the rubber boot must be tight to ensure safe use of the patient lift. The bolt must be checked at least every six months in conjunction with periodic maintenance.

## 2.2.8 Maintenance



### **WARNING!**

- Maintenance **MUST** be performed **ONLY** by qualified personnel.
- The pump is sealed at the factory. **DO NOT** attempt to open the pump or obtain local service as this will **VOID** the warranty and might result in damage. Consult your dealer or contact Invacare for more information.
- After the first year of use, the hooks of the hanger bar and the mounting brackets of the boom should be inspected every three months to determine the extent of wear. If these parts become worn, they must be replaced.
- Casters and axle bolts must be inspected every six months to check for tightness and wear. After the first 12 months of operation, inspect the hanger bar and the eye of the boom to which it attaches for wear. If the metal is worn, the parts **MUST** be replaced. Repeat this inspection every six months thereafter.
- Regular maintenance of patient lifts and accessories is necessary to assure proper operation.
- DO NOT** overtighten the mounting hardware. This will damage the mounting brackets.
- After the first six months of operation, inspect all pivot points and fasteners for wear. If the metal is worn, the parts **MUST** be replaced. Repeat this inspection every six months.

### 2.2.9 Electrical and Grounding

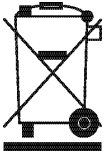


#### **WARNING!**

##### 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. When a two-prong wall receptacle is encountered, it is the personal responsibility and obligation of the customer to contact a qualified electrician and have the two-prong receptacle replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code. If you must use an extension cord, use ONLY a three-wire extension cord having the same or higher electrical rating as the device being connected. In addition, Invacare has placed RED/ORANGE warning tags on some equipment. DO NOT remove these tags.
- Carefully read the battery/battery charger information prior to installing, servicing, or operating the patient lift.

### 2.2.10 Disposal



#### **WARNING!**

- This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE.
- The device contains lead-acid batteries. DO NOT dispose of the batteries in normal household waste; they MUST be taken to a proper disposal site. Contact your local waste management company for information.
- This product may contain substances that could be harmful to the environment if disposed of in places (such as landfills) that are not appropriate according to legislation.
- Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

## 2.3 Radio Frequency Interference




### **WARNING!**

#### **Risk of Injury or Damage**

-Most electronic equipment is influenced by Radio Frequency Interference (RFI). CAUTION should be exercised with regard to the use of portable communication equipment in the area around such equipment. If RFI causes erratic behavior, PUSH the Red Power Switch OFF IMMEDIATELY. DO NOT turn the Power Switch ON while transmission is in progress.

# 3 Product Labeling

**⚠ WARNING**



**BEFORE using the Patient Lift, READ and UNDERSTAND the Owner's Manual for proper operation and safety procedures.**

**⚠ WARNING**

**WEIGHT LIMITATION 450 lbs.**

The Invacare Patient Lift is NOT a transport device.

**DO NOT** roll casters/base over uneven surfaces that may cause the Patient Lift to tip over.

**DO NOT** lock the casters of the Patient Lift when lifting an individual. Casters **MUST** be left unlocked to allow Patient Lift to stabilize during lifting procedure.


**USE ONLY** Invacare slings and lift accessories.

For maintenance and replacement, use only components designed for this patient lift model. See the product label for model information.

Customer Service  
1-800-333-6800

107388B Rev C

**⚠ WARNING**



**BEFORE using the Patient Lift, READ and UNDERSTAND the Owner's Manual for proper operation and safety procedures.**

**⚠ WARNING**

**WEIGHT LIMITATION 600 lbs.**

The Invacare Patient Lift is NOT a transport device.

**DO NOT** roll casters/base over uneven surfaces that may cause the Patient Lift to tip over.

**DO NOT** lock the casters of the Patient Lift when lifting an individual. Casters **MUST** be left unlocked to allow Patient Lift to stabilize during lifting procedure.

**USE ONLY** Invacare slings and lift accessories.

For maintenance and replacement, use only components designed for this patient lift model. See the product label for model information.

Customer Service  
1-800-333-6900

107395B Rev B


**⚠ WARNING**

Most pivot **MUST** be tight to ensure safe use of your patient lift. Bolt **MUST** be checked at least every six (6) months in conjunction with periodic maintenance. See Owner's Manual.


PHI 110600 Rev. 0

**Label Located on Sling**

**Comfort Sling without Commode Opening**



**WARNING INSTRUCTIONS**  
Wash temperature of 130°F (55°C). **DO NOT** bleach, dry or dry at low temperature. Project with caution.




Customer Service  
1-800-333-6800

Max. capacities:

Size	Spacer	Net	Weight Limitation
S	2445654	2480503	400 lb (182 kg)
M	2445777	2480508	500 lb (227 kg)
L	2445778	2480570	600 lb (272 kg)
XL	2451089	2480547	750 lb (340 kg)

**⚠ WARNING**



**WEIGHT LIMITATIONS:** The maximum weight limitation of the sling and patient lift may differ. **DO NOT** exceed the maximum weight limitation of the sling or patient lift. **BEFORE** using the Sling, **READ** and **UNDERSTAND** the Owner's Manual for proper operation and safety procedures.

Use only on Invacare Lifts. Damaged, torn, cut, frayed or broken slings are unsafe and could result in injury. **Discontinue IMMEDIATELY.** **DO NOT** reuse slings.

Customer Service  
1-800-333-6800

**Comfort Sling without Commode Opening**

Netwt:

107488 Rev B

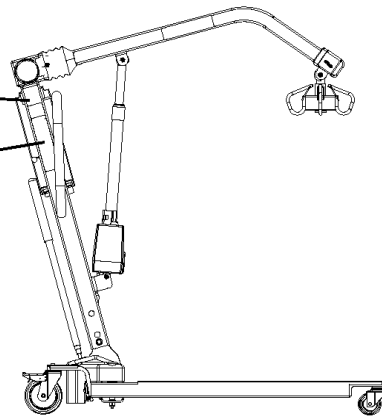


Fig. 3-1



## 4 Technical Data

### 4.1 Patient Lift

	450 LB	600 LB
	Low Profile RPL450-2	Low Profile RPL600-2
Height at Sling Hookup—Maximum	74 inches	68 inches
Height at Sling Hookup—Minimum	24 inches	28 inches
Base Width—Open	41.0 inches	
Base Width—Closed	26.5 inches	
Base Height (Clearance)	4.5 inches	
Base Length	48.0 inches	
Caster Size (Front/Rear)	3.0/5.0 inches	
Sling Options	3 styles	1 style
Weight Capacity	450 lb	600 lb
Weight IN Carton	136 lb	141 lb
Weight OUT of Carton	109 lb	115 lb
Battery	24V DC (RCHBL)	
Charger Input	100-240V AC	
Charger Output/Charging Time	29.5V DC maximum 6 hours	
Accessories	Digital Scale	

Audio Low Battery Alarm	Yes
Motor Safety Devices	Anti-Entrapment
Approximate Lifts per Charge (varies depending upon load and stroke)	100-200 cycles per charge
Warranty Pump/Electronics	1 year

## 4.2 Full-Body, Divided-Leg, and Toileting Slings

Specification	Full Body			Full Body w/ Commode			Divided Leg				Toileting	Heavy Duty w/o Commode	Heavy Duty w/ Commode
	R110 R112*	R111 R113*	R114	R115	R116	R117*	R100P	R100	R101	R102	R121	R140*	R141*
Size	M	L	XL	M	L	XL	P	M	L	XL	L	N/A	N/A
Width	41.5	45.5	45.5	41.5	45.4	45.5	33	37.5	41	44.5	36	45	45
Commode Opening	N/A	N/A	N/A	8	8	9	N/A	N/A	N/A	N/A	N/A	N/A	13
Length	54.7	60.5	65.3	54.7	60.5	65.3	59.8	62.8	67.8	72.3	37	55	55
Commode Opening	N/A	N/A	N/A	11	11	13	N/A	N/A	N/A	N/A	N/A	N/A	13
Back	N/A	N/A	N/A	N/A	N/A	N/A	29.2	35.7	41.7	43.2	N/A	N/A	N/A
Weight Capacity (lb)	450	450	450	450	450	450	450	450	450	450	450	600	600



\*Slings are made of a mesh material. All dimensions are in inches except where noted.

### 4.3 Reliant Scale RLS6

Weight Range	Up to 600 lb (272.7 kg)
Resolution	+/- 0.2 lb (0.1 kg)
Display	Liquid Crystal Digital
Automatic Power Down	Two (2) minutes
Size	5 3/4 in L X 3 5/8 in W X 4 in H (14.6 X 9.2 X 10.2 cm)
Weight	.55 lb (.25 kg)
Power	Nine (9) volt alkaline battery (included)
Battery Life	Approximately 1500 readings
Temperature Range	50° to 104°F (10° to 40°C)

## 5 Assembly

### 5.1 Assembling the Patient Lift

**WARNING!**

-Use only Invacare parts in the assembly of the patient lift. The base legs, the mast, boom, pump assembly, and the hanger bar are manufactured to specifications that assure correct alignment of all parts for safe, functional operation.

#### 5.1.1 Unpacking the Patient Lift

1. Unpack the components from the shipping carton.



DO NOT remove the plastic wrap that secures the boom to the mast in place. The plastic wrap will be removed in 5.1.3 *Assembling the Boom Actuator*, page 22.

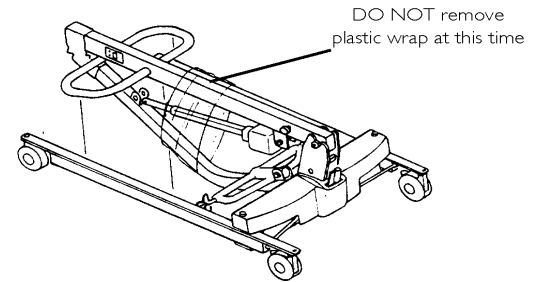


Fig. 5-1

### 5.1.2 Assembling the Mast to the Base

1. If locking-type casters are on the patient lift, lock them.
2. Remove the shoulder bolt, nut, and washer that secure the mast in the U-shape cutout of the base.
3. Position the mast in an upright position, and place the mast into the U-shaped cutout of the base.
4. Insert the shoulder bolt with washers through the base and mast.
5. Secure with a nut.

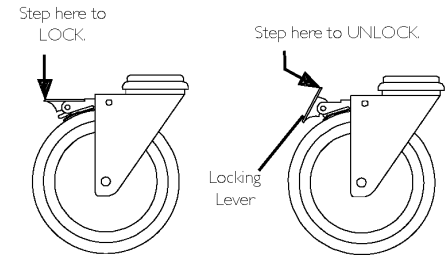
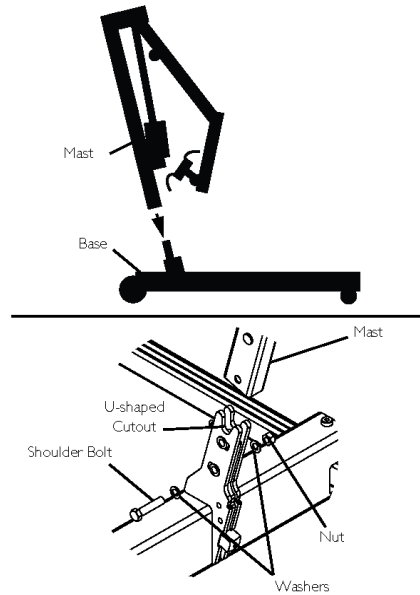


Fig. 5-2



*Fig. 5-3*



**WARNING!**

The mast may be removed from the base for storage or transport. Each time the mast is removed and returned to the base, the mast **MUST** be properly secured to the base assembly.

**5.1.3 Assembling the Boom Actuator**



**CAUTION!**

**DO NOT** overtighten the nut and bolt. This damages the mounting bracket.

1. Remove the shoulder bolt, washer, and nut from the mounting bracket on the boom assembly. Ensure the pre-installed bushings are in the actuator rod eye.
2. Unpack the pinch guard from the patient lift carton.
  - 📌 The bottom of the boom actuator assembly will already be assembled to the mast mounting bracket.
3. Cut the plastic wrap that secures the boom and mast together.
4. Lift up on the boom and place it on your left shoulder.
5. Let the boom actuator rest on your shoulder and rotate the shaft extension of the actuator assembly until it lines up with the mounting holes in the boom assembly.

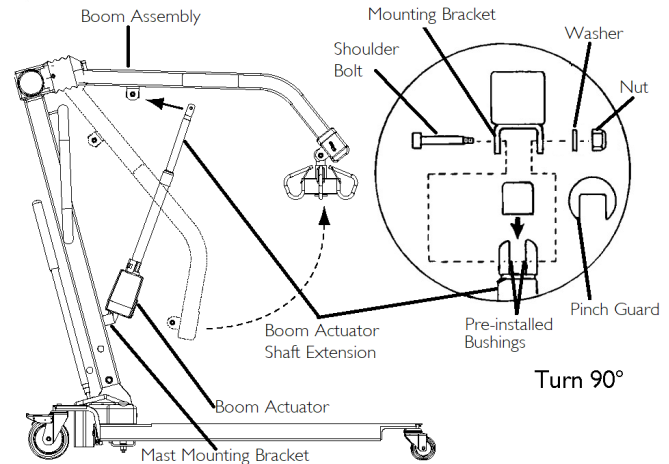
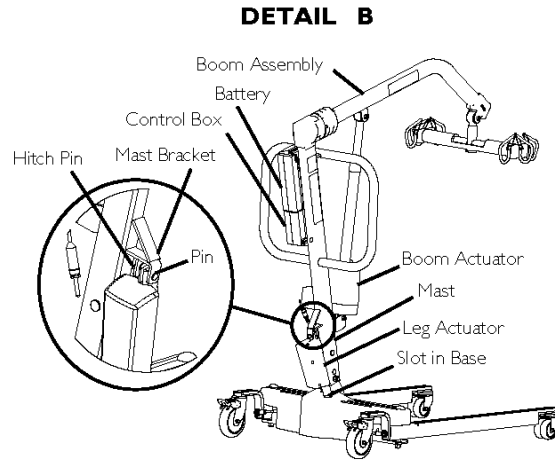


Fig. 5-4

6. Place the pinch guard over the shaft extension of the actuator.
7. Align the holes of the boom assembly mounting bracket with the actuator holes, and insert the bolt. Secure with a nut.
  - 📌 Ensure the bolt is completely through the holes of the boom assembly mounting bracket and the actuator assembly. The boom assembly will pivot easily if the mounting hardware is aligned properly when the boom assembly is secured to the mast.

### 5.1.4 Installing the Leg Actuator to the Base

1. Slide the leg actuator into the slot in the base of the patient lift (Detail B).



*Fig. 5-5*

2. To secure the leg actuator to the pivot bracket (Detail A):



**WARNING!**

Ensure there is sufficient room to turn the patient lift on its side and the floor area is clear of debris; otherwise, injury to personnel or damage to the patient lift may occur.



## DETAIL A - SIDE VIEW OF PATIENT LIFT

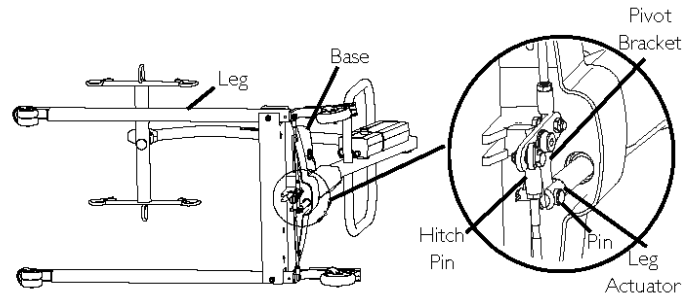


Fig. 5-6

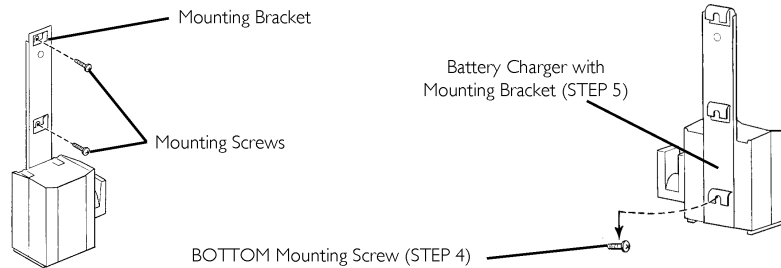
- A. Turn the patient lift on its side.
  - B. Position the slot in the leg actuator over the pivot bracket.
  - C. Install the pin through the leg actuator and pivot bracket and secure with a hitch pin.
  - D. Return the patient lift to the upright position.
3. To secure the leg actuator to the mast bracket:
    - A. Position the leg actuator between the mast brackets.
    - B. Move the legs to align the holes in the leg actuator with the holes in the mast bracket.
    - C. Install the pin through the holes of the leg actuator and mast bracket and secure with a hitch pin.
  4. Plug the hand control (not shown) into the bottom of the control box.

### 5.1.5 Mounting the Battery Charger



Refer to your local regulations concerning proper mounting procedures.

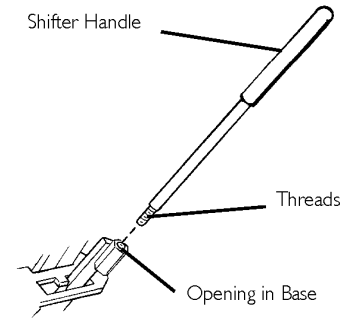
1. Place the battery charger with the mounting bracket on the wall at the desired position.
2. With a pencil, mark the middle hole position.
3. Measure 6 1/2 inches below the pencil mark, and drill one mounting hole.
4. Install the bottom mounting screw until there is an approximate 1/8-inch gap between the screw head and the wall.
5. Install the battery charger with mounting bracket onto the bottom mounting screw.
6. Drill the remaining two mounting holes.
7. Install the two remaining mounting screws through the mounting bracket and into the wall. Tighten securely.
8. Plug the battery charger into the wall electrical outlet.
9. Verify ON is illuminated.



*Fig. 5-7*

## 5.2 Installing the Shifter Handle

1. Remove the shifter handle from the packaging carton.
2. Align the shifter handle threads with the threaded opening in the base.
3. Turn the shifter handle clockwise and securely tighten into the base.



*Fig. 5-8*

## 6 Operation

### 6.1 Operating the Patient Lift

**WARNING!**

- DO NOT attempt any transfer without approval of the patient's physician, nurse, or medical assistant. Thoroughly read the instructions in this Owner's Manual, observe a trained team of experts performing the lifting procedures, and then perform the entire lift procedure several times with proper supervision and a capable individual acting as a patient.
- The legs of the lift must be in the maximum open position and the shifter handle locked in place for optimum stability and safety. If it is necessary to close the legs of the lift to maneuver the lift under a bed, close the legs of the lift only as long as it takes to position the lift over the patient and lift the patient off the surface of the bed. When the legs of the lift are no longer under the bed, return the legs of the lift to the maximum open position and immediately lock the shifter handle.



Although Invacare recommends that two assistants be used for all lifting preparation and transferring from and transferring to procedures, the equipment will permit proper operation by one assistant. The use of one assistant is based on the evaluation of the healthcare professional for each individual case.

#### 6.1.1 Using the Hand Control Buttons

**WARNING!**

DO NOT lock the rear casters of the patient lift when lifting an individual. Locking the rear casters could cause the patient lift to tip and endanger the patient and assistants.

The hand control is used to raise/lower the boom or to open/close the legs of the base for stability when lifting a patient.

## Raising/Lowering the Boom

To raise the patient lift, press the Boom Up button (Up arrow) to raise the boom and the patient.

To lower the patient lift, press the Boom Down button (Down arrow) to lower the boom and the patient.

## Opening/Closing the Legs

To open the legs, press the Legs Open button.

To close the legs, press the Legs Closed button.

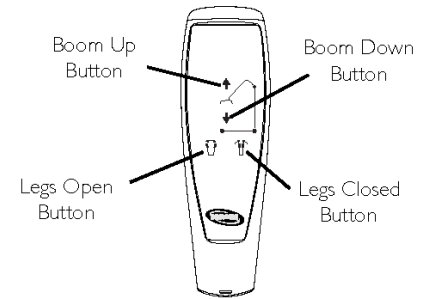


Fig. 6-1

## 6.1.2 Activating a Mechanical Emergency Release

### Primary Emergency Release

To activate the primary emergency release, insert a pen into the hole labeled “emergency” on the control box of the lift and push down on the boom at the same time.

All lift actuators are equipped with a mechanical emergency release. The mechanical release enables the actuator to retract without power. The actuator will retract only while under load and the mechanical emergency release is pulled. The release is colored reddish orange with the word "Emergency" spelled out in white.

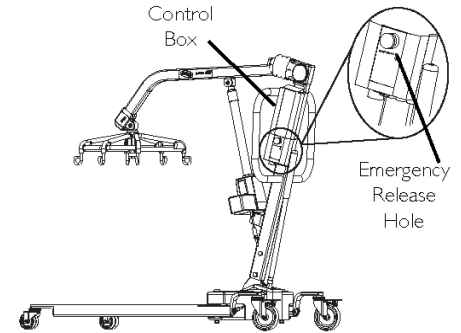



Fig. 6-2

### Secondary Emergency Release

 It is recommended that the primary emergency release be used first. The secondary emergency release is only a backup to the primary emergency release.

In cases where the primary release is either not functioning or is unreachable, a secondary emergency release may be used.

To activate the secondary release, pull up on the EMERGENCY grip and push down on the boom at the same time.

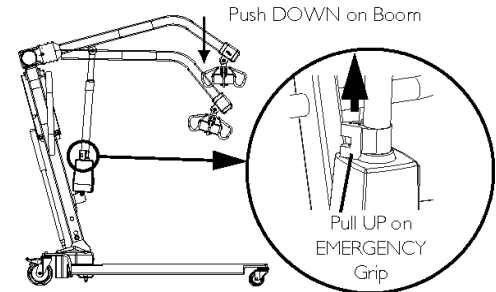


Fig. 6-3

### 6.1.3 Performing an Emergency Stop

Press the RED/ORANGE emergency button on the control box to stop the lift arms and the patient from raising or lowering. Rotate the RED/ORANGE emergency stop button clockwise to disengage the emergency stop.

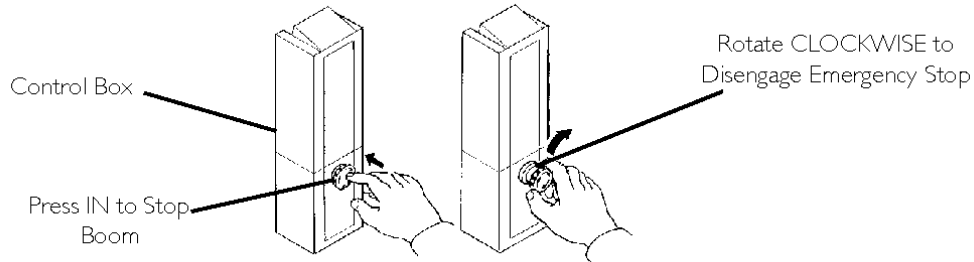



Fig. 6-4

## 6.2 Mounting the Battery Charger Charging the Battery

 Invacare recommends the battery be recharged daily to prolong battery life. An audible alarm will sound (horn will beep) when the battery is low.


1. Lift up on the handle on the back of the battery.
2. Lift the battery up and out, away from the control box.



### CAUTION!

-Make sure there is an audible click when mounting the battery on the battery charger to confirm proper mounting; otherwise, injury or damage may occur.

3. Place the battery on the battery charger as shown. Make sure there is an audible click.

 The charge LED will illuminate. When charging is complete, the charge LED will stop illuminating. A full recharge will take approximately four hours.

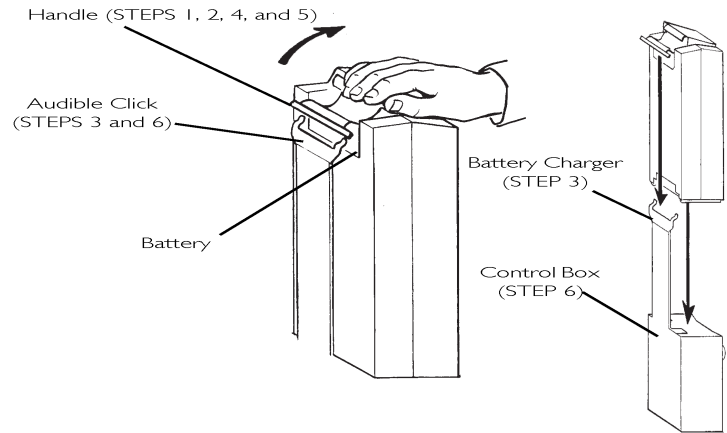


Fig. 6-5



4. Lift up on the handle on the back of the battery.
5. Lift the battery up and out, away from the battery charger.



**CAUTION!**

-Make sure there is an audible click when mounting the battery on the battery charger to confirm proper mounting; otherwise, injury or damage may occur.


6. Reinstall the battery onto the control box as shown. Make sure there is an audible click.




The battery mounts to the control box and battery charger as shown.

## 7 Patient Lifting

### 7.1 Preparing the Lift for Use

 Although Invacare recommends that two assistants be used for all lifting preparation, transferring from and transferring to procedures, our equipment will permit proper operation by one assistant. The use of one assistant is based on the evaluation of the healthcare professional for each individual case.

#### 7.1.1 Positioning the Lift for Use

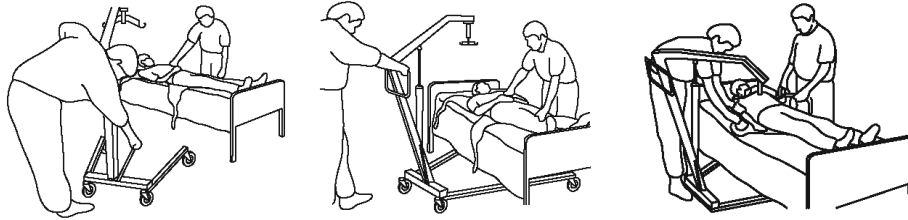
 Refer to 2 *Safety, page 8* before proceeding and observe all warnings indicated. Before positioning the legs of the patient lift under a bed, make sure the area is clear of any obstructions.



#### **WARNING!**

-The legs of the lift must be in the maximum open position for optimum stability and safety. If it is necessary to close the legs of the lift to maneuver the lift under a bed, close the legs of the lift only as long as it takes to position the lift over the patient and lift the patient off the surface of the bed. When the legs of the lift are no longer under the bed, return the legs of the lift to the maximum open position and immediately lock the shifter handle.

1. Press the Legs Open button on the hand control to open the legs of the patient lift to maximum.
2. Position the patient lift using the steering handle.
3. Press the Boom Down button on the hand control to lower the boom for easy attachment of the sling.



*Fig. 7-1*

### **7.1.2 Attaching Slings to the Lift**

1. Place the straps of the sling over the hooks on the hanger bar.
2. Match the corresponding colors on each side of the sling for an even lift of the patient.

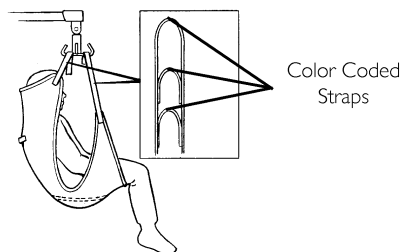


Model Nos. R110–R117 Full Body Slings and Model No. R121 Toileting Sling have four sling straps. Model Nos. R100–R102 have six sling straps.

Invacare Lift Hanger Bars have three hookup points per side. The middle hookup is used **ONLY** for slings that have three sets of straps per side.

3. Use the lift. Refer to 7.2 *Lifting/Moving the Patient*, page 36.

**DETAIL A - FULL BODY OR HEAVY DUTY  
SLING WITH OR WITHOUT COMMODE  
OPENING (FOUR STRAPS ONLY)**



**DETAIL B - DIVIDED LEG SLING WITH  
COMMODE OPENING (SIX STRAPS)**

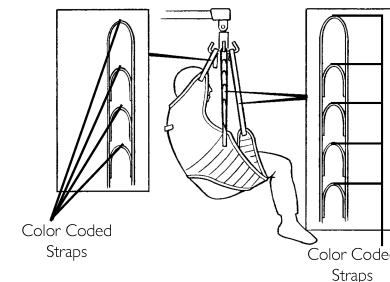



Fig. 7-2

## 7.2 Lifting/Moving the Patient




**WARNING!**

- DO NOT lock the rear casters of the patient lift when lifting an individual. Locking the rear casters could cause the patient lift to tip and endanger the patient and assistants.
- DO NOT move the patient if the sling is not properly connected to the hooks of the hanger bar. When the sling is elevated a few inches off of the stationary surface and before moving the patient, check again to make sure the sling is properly connected to the hooks of the hanger bar. If any attachments are NOT properly in place, lower the patient back onto the stationary surface and correct this problem; otherwise, injury or damage may occur.
- Adjust for safety and comfort before moving the patient.
- DO NOT use slings and patient lifts from different manufacturers. Invacare slings are made specifically for use with Invacare patient lifts. Injury or damage may occur.

1. Press the boom UP (  ) button to raise the patient high enough to clear the bed. The patient's weight will be fully supported by the patient lift.



The boom will stay in position until the boom DOWN (  ) button is pressed.



When the patient is lifted from the bed (with the patient's head supported by the sling and/or an assistant), he/she will be raised to a sitting position (Detail A).

2. Place the patient's arms inside the sling.





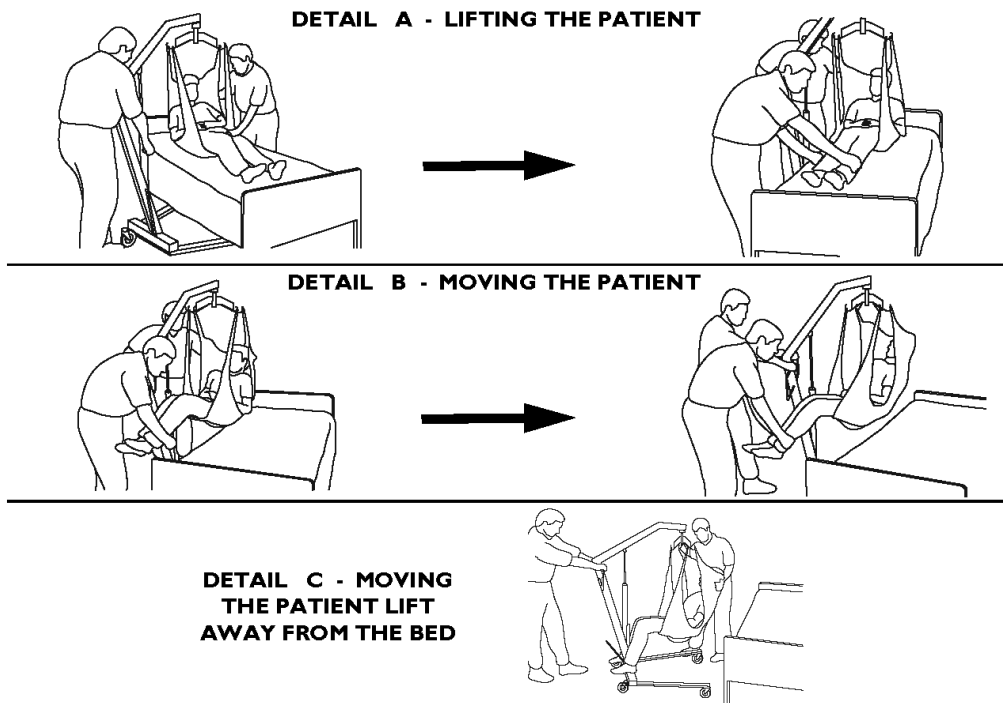
**WARNING!**

-When the sling is elevated a few inches off the surface of the bed and before moving the patient, check again to ensure the sling is properly connected to the hooks of the hanger bar. If any attachments are NOT properly in place, lower the patient back onto the stationary surface and correct this problem; otherwise, injury or damage may occur.

-Adjustments for safety and comfort should be made before moving the patient. The patient's arms should be inside of the straps.

-Invacare slings are made specifically for use with Invacare Patient Lifts. For the safety of the patient, DO NOT use slings and patient lifts from different manufacturers.

3. When the patient is clear of the bed surface, swing his/her feet off the bed (Detail B).
4. Using the steering handle, move the lift away from the bed.
5. When moving the patient lift away from the bed, turn the patient so he/she faces the assistant operating the patient lift (Detail C).
6. Press the DOWN (  ) button to lower the patient until his/her feet rest on the base of the lift.  
 The lower center of gravity provides stability, which makes the patient feel more secure and the lift easier to move.
7. Pull the patient lift away from the bed, and then push it from behind with both hands firmly on the steering handle.



*Fig. 7-3*

## 8 Patient Transferring

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### 8.1 Transferring the Patient for Using a Commode Chair or Standard Commode

Slings with commode openings are designed to be used with either a commode chair or standard commode.



Invacare recommends that the sling remain connected to the hanger bar hooks during the patient's use of either the commode chair or a standard commode.

Although Invacare recommends that two assistants be used for all lifting preparation, and transferring-from and transferring-to procedures, our equipment will permit proper operation by one assistant. The use of one assistant is based on the evaluation of the healthcare professional for each individual case.

**WARNING!**

- DO NOT attempt any transfer of a patient without approval of the patient's physician, nurse, or medical assistant.
- DO NOT move the patient if the sling is not properly connected to the hooks of the hanger bar. When the sling is a few inches off the stationary surface and before moving the patient, check to make sure the sling is properly connected to the hooks of the hanger bar. If any attachments are NOT properly in place, lower the patient back onto the stationary surface and correct this problem; otherwise, injury or damage may occur.
- Adjust for safety and comfort before moving the patient. The patient's arms should be inside the straps.
- DO NOT use slings and patient lifts from different manufacturers. Invacare slings are made specifically for use with Invacare patient lifts. Otherwise, injury or damage may occur.
- Be sure to check the sling attachments each time the sling is removed and replaced to ensure it is properly attached before the patient is removed from a bed or chair.
- DO NOT lock the rear casters of the patient lift when lifting an individual. Doing so could cause the lift to tip and endanger the patient and assistants. Invacare DOES recommend that the rear casters be left unlocked during lifting procedures to allow the patient lift to stabilize itself when the patient is initially lifted from a chair, bed, or any stationary object.
- Note the legs of the lift must be in the maximum open position for optimum stability and safety. If it is necessary to close the legs of the lift to maneuver the lift under a bed, close the legs of the lift only as long as it takes to position the lift over the patient and lift the patient off the surface of the bed. When the legs of the lift are no longer under the bed, return the legs of the lift to the maximum open position.



### 8.1.1 Transferring to a Commode Chair

1. Before lifting the patient from the bed, refer to 7.1.2 *Attaching Slings to the Lift*, page 35. For operation of the patient lift, refer to 6 *Operation*, page 28.
2. Lift the patient from the bed. Refer to 7.2 *Lifting/Moving the Patient*, page 36.
3. Press the Boom Up button to elevate the patient high enough to clear the commode chair arms and have his/her weight supported by the patient lift.
4. With the help of both assistants, guide the patient onto the commode chair.
5. Press the Boom Down button to lower the patient onto the commode chair, and leave the sling attached to the hanger bar hooks.
6. When complete, recheck for correct attachments.
7. Press the Boom Up button to raise the patient off the commode chair.
8. When the patient is clear of the commode surface, use the steering handles to move the lift away from the commode chair.
9. To return the patient to bed, reverse the procedures for lifting the patient, operation, and sling attachment.
10. To return or place the patient in a wheelchair, refer to 8.3 *Transferring the Patient to a Wheelchair*, page 43.

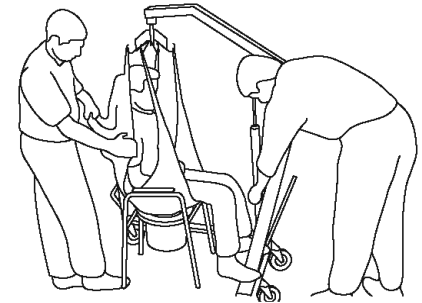
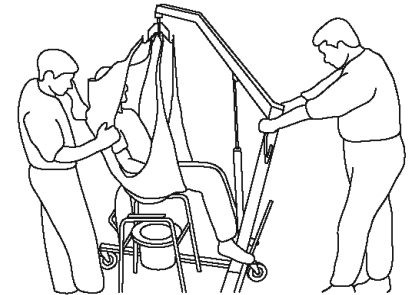


Fig. 8-1

### 8.1.2 Transferring to a Standard Commode



Although Invacare recommends two assistants be used for all lifting preparation and transferring from and transferring to procedures, the equipment will permit proper operation by one assistant. The use of one assistant is based on the evaluation of the healthcare professional for each individual case.

The Invacare patient lift is NOT intended as a transport device. If the bathroom facilities are NOT near the bed or if the patient lift cannot be easily maneuvered toward the commode, the patient MUST be transferred to a wheelchair and transported to the bathroom facilities before using the patient lift again to position the patient on a standard commode.

Refer to *8.3 Transferring the Patient to a Wheelchair, page 43*.

Before transferring the patient, the patient lift should be guided to the bathroom facilities to ensure it can be easily maneuvered toward the commode.

1. Before lifting the patient from the bed, refer to *7.1.2 Attaching Slings to the Lift, page 35*. For operation of the patient lift, refer to *6 Operation, page 28*.
2. Transport the patient to the bathroom facility.
3. Press the Boom Up/Down buttons to elevate the patient high enough to clear the standard commode and have his/her weight supported by the patient lift.
4. With the help of both assistants, guide the patient onto the standard commode.
5. Press the Boom Down button to lower the patient onto the standard commode, and leave the sling attached to the hanger bar hooks.
6. When complete, recheck for correct attachments.
7. Press the Boom Up button to raise the patient off the commode.
8. When the patient is clear of the standard commode surface, use the steering handle to move the lift away from the standard commode.

9. To return or place the patient in a wheelchair, refer to *8.3 Transferring the Patient to a Wheelchair, page 43*.
10. To return the patient to bed, reverse the procedures for patient lift, operation, and sling attachment.

## 8.2 Transferring the Patient to a Bathing Unit



There are many portable bathing apparatuses; this is an example of one. Refer to your particular portable bath instructions and use them in conjunction with this Owner's Manual.

1. Lift the patient from the bed. Refer to *7.2 Lifting/Moving the Patient, page 36*.
2. Press the Boom Up/Down buttons to elevate the patient high enough to clear the bed and be able to slide the portable bathtub under the patient.
3. Press the Boom Down button to lower the patient into the portable bathtub.
4. Detach the sling from the hanger bar hooks, and attach the portable bathtub straps to the patient lift.
5. Press the Boom Up button to raise the sides of the portable bath tub.
6. Bathe the patient.
7. Reverse the steps in this procedure to return the patient to bed.

## 8.3 Transferring the Patient to a Wheelchair

1. Lift the patient from the bed. Refer to *7.2 Lifting/Moving the Patient, page 36*
2. Ensure the legs of the lift (with the patient) are in the open position. Press the Legs Open button until the legs are in the maximum open position.
3. Move the wheelchair into position.

- Engage the rear wheel locks of the wheelchair to prevent movement of the chair.

**WARNING!**

-The wheelchair wheel locks MUST be in a locked position before lowering the patient into the wheelchair for transport; otherwise, injury may occur.

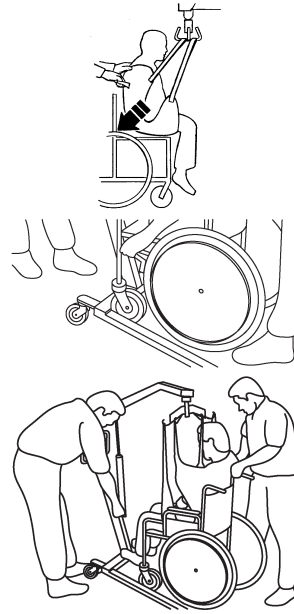


Use the straps or handles on the side and the back of the sling to guide the patient's hips into the seat as far back as possible for proper positioning.

- Position the patient over the seat with his/her back against the back of the chair.
- Begin to lower the patient by opening the control valve or by pressing the DOWN (↓) button.
- With one assistant standing behind the chair and the other operating the patient lift, the assistant behind the chair must pull back on the grab handle (on select models) or sides of the sling to seat the patient well into the back of the chair. This seating position helps to maintain a good center of balance and prevent the chair from tipping forward.
- Leave the sling in place.
  - Remove the sling only if using a divided-leg sling.
- To return the patient to the seating surface, reverse the steps in this procedure for patient lifting, operation and sling attachments.

**WARNING!**

-Be sure to check the sling attachments each time the sling is removed and replaced to ensure it is properly attached before the patient is removed from the bed or chair.



*Fig. 8-2*

## 9 Troubleshooting

### 9.1 Troubleshooting

SYMPTOMS	FAULTS	SOLUTION
Patient lift feels loose.	Mast/Base joint is loose. Tie-rods are loose.	Refer to <i>5 Assembly, page 20</i> . Refer to <i>10.7 Maintaining the Base Adjustment, page 57</i> .
Casters/Brakes noisy or stiff.	Fluff or debris in bearings.	Refer to <i>10.8 Replacing the Casters and Forks, page 58</i> .
Noisy or dry sound from pivots.	Needs lubrication.	Refer to <i>10.2 Lubricating the Lift, page 52</i> .

SYMPTOMS	FAULTS	SOLUTION
Actuator fails to lift or legs fail to open when button is pressed.	Hand control or actuator connector is loose.	Charge the batteries. Refer to <i>6.2 Mounting the Battery Charger Charging the Battery, page 32.</i>
	Battery low.	
	RED emergency stop button pressed IN.	Rotate the RED emergency stop button CLOCKWISE until it pops out.
	Battery not connected properly to control box.	Reconnect the battery to the control box. Refer to <i>6.2 Mounting the Battery Charger Charging the Battery, page 32.</i>
	The connecting terminals are damaged.	Replace the battery pack. Refer to <i>6.2 Mounting the Battery Charger Charging the Battery, page 32.</i>
	Boom or leg actuator requires service or load is too high.	Refer to <i>10.5 Replacing the Boom Actuator, page 535.1.4 Installing the Leg Actuator to the Base, page 24</i> Contact your dealer.
Unusual noise from actuator.	Actuator is worn or damaged or spindle is bent.	Refer to <i>10.5 Replacing the Boom Actuator, page 535.1.4 Installing the Leg Actuator to the Base, page 24</i> Contact your dealer.

SYMPTOMS	FAULTS	SOLUTION
Lift arms will not lower in uppermost position.	Lift arms require a minimum weight load to lower from the uppermost position.	Pull down slightly on the lift arms.
Lift arms will not lower during a power retraction.	Shoulder bolt at the junction of the boom and mast may not be properly installed.	Refer to <i>10.5.1 Checking and Tightening the Mast Pivot Bolt, page 54.</i>



If symptoms are not remedied by the suggested solutions, contact your dealer or Invacare.



## 10 Maintenance

### 10.1 Maintenance Safety Inspection Checklist

PART	TASK	INITIAL INSPECTION	INSTITUTIONAL MONTHLY INSPECTION/ ADJUSTMENT	IN-HOME SIX-MONTH INSPECTION
CASTER BASE	Inspect for missing hardware.	X	X	X
	Ensure the base opens/closes with ease.	X	X	X
	Inspect the casters and axle bolts for tightness.	X	X	X
	Inspect the casters for smooth swivel and roll.	X	X	X
	Inspect and clear the wheels of debris.	X	X	X
	Inspect the pivot joints for wear.	X	X	X
MAST	Inspect the mast—it MUST be securely assembled to the boom.	X	X	X
	Inspect for bends or deflections.	X	X	X
	Inspect the pivot joints for wear.	X	X	X

PART	TASK	INITIAL INSPECTION	INSTITUTIONAL MONTHLY INSPECTION/ ADJUSTMENT	IN-HOME SIX-MONTH INSPECTION
BOOM	Check all hardware and the hanger bar supports.	X	X	X
	Inspect for bends or deflections.	X	X	X
	Inspect bolted joints of boom for wear.	X	X	X
	Inspect to ensure the boom is centered between the base legs.	X	X	X
	Inspect the mast pivot bolt under the rubber boot to ensure the bolt is tightly secured.	X	X	X
	Inspect the pivot joints for wear.	X	X	X
HANGER BAR	Inspect the bolt/hooks for wear or damage.	X	X	X
	Inspect the sling hooks for wear or deflection.	X	X	X
	Inspect the pivot joints for wear.	X	X	X
CLEANING	Clean as necessary.	X	X	X

PART	TASK	INITIAL INSPECTION	INSTITUTIONAL MONTHLY INSPECTION/ ADJUSTMENT	IN-HOME SIX-MONTH INSPECTION
SLINGS AND HARDWARE	CHECK ALL SLING ATTACHMENTS each time the lift is used to ensure proper connection and patient safety.	X	X	X
	Inspect sling material for wear.	X	X	X
	Inspect straps for wear.	X	X	X

The Invacare patient lift is designed to provide a maximum of safe, efficient, and satisfactory service with minimum care and maintenance. All parts of the Invacare lift are made of the best grades of steel, but metal-to-metal contact will cause wear after considerable use.

There is no adjustment or maintenance of either the casters or brakes, other than cleaning, lubrication, and checking the axle and swivel bolts for tightness. Remove all debris and other substances from the wheel and swivel bearings. If any parts are worn, immediately replace these parts.

If you question the safety of any part of the lift, immediately contact your dealer and advise him/her of the issue.

## 10.2 Lubricating the Lift

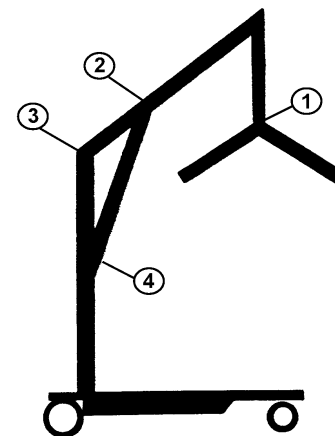
The Invacare lift is designed for minimum maintenance. However, a six-month check and lubrication should ensure continued safety and reliability.

Keep the lift and slings clean and in good working order. Any defect should be noted and reported to your dealer as soon as possible.

The casters **MUST** swivel and roll smoothly. A light grease (waterproof auto lubricant) may be applied to the ball bearing swivel of the casters once a year. Apply more frequently if the casters are exposed to extreme moist conditions.

Refer to the FIGURE for lubrication points. Lubricate all pivot points. Wipe all excess lubricant from lift surface.

1. Hanger Bar
2. Boom Mounting Bracket
3. Boom/Mast Mount
4. Mast Mounting Bracket



*Fig. 10-1*

## 10.3 Detecting Wear and Damage

It is important to inspect all stressed parts, such as slings, the hanger bar, and any pivot for slings for signs of cracking, fraying, deformation, or deterioration.

Replace any defective parts immediately and ensure the lift is not used until repairs are made.

## 10.4 Cleaning the Sling and Lift

Laundering should always be done with dark colors. The sling should be washed regularly in a water temperature not to exceed 180°F (82°C). Refer to the sling user manual for complete cleaning instructions.

A soft cloth, dampened with water and a small amount of mild detergent, is all that is needed to clean the patient lift. The lift can be cleaned with non-abrasive cleaners.

## 10.5 Replacing the Boom Actuator

1. Remove the nut, washer, and shoulder bolt that secure the actuator to the mast mounting bracket.
2. Rest the boom on your shoulder and remove the nut, bolt, and pinch guard from the boom mounting bracket.
3. Remove the boom actuator assembly.
4. Reverse the steps for installation.



### **CAUTION!**

DO NOT overtighten the nut and bolt. This damages the mounting bracket.

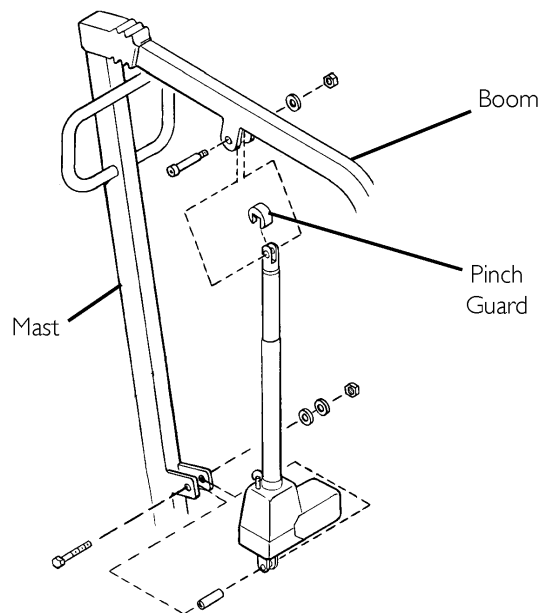


Fig. 10-2

### 10.5.1 Checking and Tightening the Mast Pivot Bolt

1. Lift up the back of the rubber boot and slide it off the mast along the boom.
2. Ensure the bolt is through the bracket and the locknut is tight and secure.

3. If needed, do one or both of the following:
  - Tighten the locknut, and back off the locknut 1/8 of a turn.
  - Replace the locknut.
4. Reposition the rubber boot.

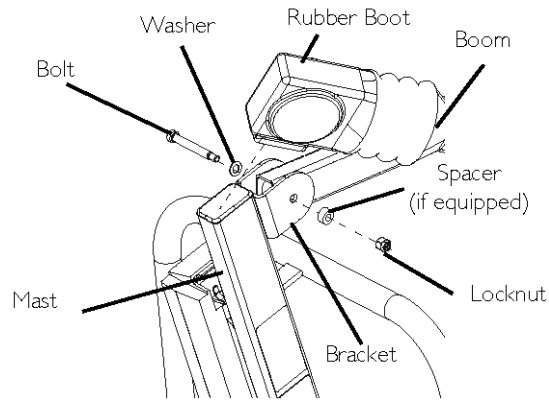


Fig. 10-3

## 10.6 Replacing the Hanger Bar



### **WARNING!**

-After the first year of use, the hooks of the hanger bar and mounting brackets of the boom should be inspected every six months to determine the extent of wear. If these parts become worn, they must be replaced.

1. Note the hanger bar comes attached to the boom with a bolt, nut, washers, and pinch guard.

 Refer to the images in this section for bolt and washer placement.

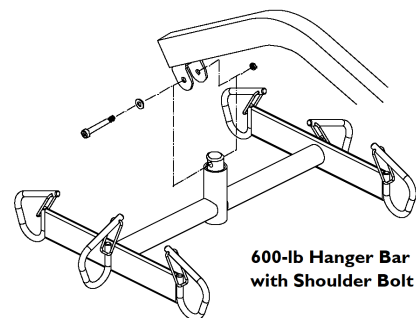
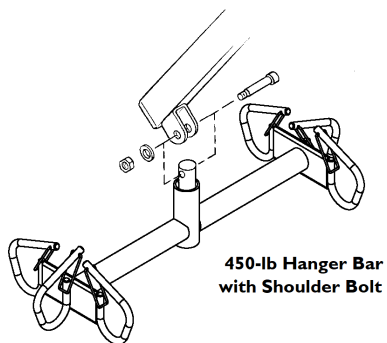
Washers should be placed against both sides of the hanger bar bracket to eliminate damage.

The hanger bar has three hooks on both ends to attach the sling that supports the patient during lifting.

2. Remove the existing hardware and replace the hanger bar.
3. Tighten the locknut onto the bolt until the locknut bottoms out.

**CAUTION!**

-DO NOT overtighten the nut and bolt. This damages the mounting bracket.



*Fig. 10-4*



## 10.7 Maintaining the Base Adjustment

The base adjustment should not require any attention other than:

1. Check the squareness of the legs when in the closed position.
2. Place a square on the inside of the legs and base to determine 90° alignment.
3. Adjust the linkage rods until 90° alignment is achieved.

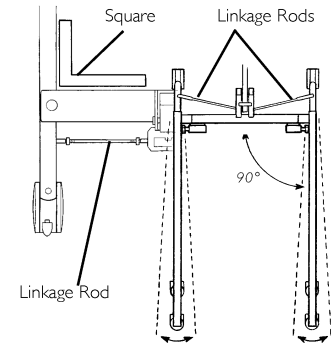



Fig. 10-5

## 10.8 Replacing the Casters and Forks

### 10.8.1 Replacing the Rear Casters

1. Place the lift on its side.
2. Remove the bolt and locknut that secure the existing rear caster to the fork.  
 The bushing will be loose and may fall out of the caster. The existing bushing will be reused. Examine and replace the bushing if it is worn.
3. Install the new/existing bushing into the new rear caster.
4. Align the mounting holes in the new rear caster and the fork.
5. Install the bolt through the fork and new rear caster and tighten securely with the locknut.

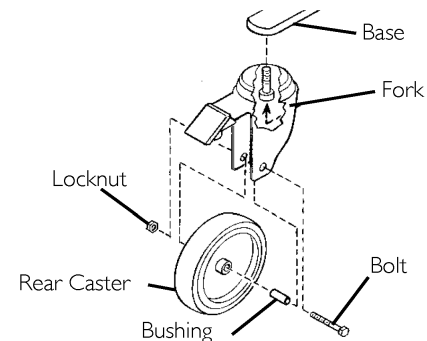



Fig. 10-6

### 10.8.2 Replacing the Front Casters

1. Place the lift on its side.
2. Remove the bolt and locknut that secure the existing front caster assembly to the fork.

 The front caster assembly consists of two casters and a washer in between.

The washer will fall out from between the two casters. The washer can be reused. Examine and replace the washer if it is worn.

3. Position the new or existing washer between the two new casters.
4. Align the mounting holes in the new front caster assembly and the fork.
5. Install the bolt through the fork and the new front caster assembly and tighten securely with the locknut.

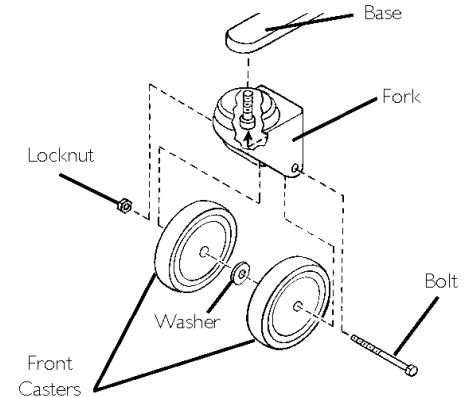


Fig. 10-7

### 10.8.3 Replacing the Forks

1. Place the lift on its side.
2. Remove the front or rear caster from the lift. Refer to *10.8 Replacing the Casters and Forks, page 58*.
3. Unscrew the existing fork from the base.
4. Install the new fork onto the base.
5. Install the front or rear caster onto the lift. Refer to *10.8 Replacing the Casters and Forks, page 58*.

## 11 Accessories

### 11.1 Reliant Scale RLS6

The Reliant Scale is a compact precision scale system designed specifically for the Invacare patient lift system.



#### **DANGER!**

Risk of Death, Injury or Damage

-Improper use of this product may cause death, injury or damage.

-If you are unable to understand the warnings, cautions, or instructions, contact a healthcare professional, dealer, or technical personnel before attempting to use this equipment.

-DO NOT use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manuals, service manuals or instruction sheets supplied with this product or optional equipment.

#### 11.1.1 Removing the Hanger Bar

1. Remove the shoulder bolt, locknut, pinch guard, and washer that secure the hanger bar to the hanger bar bracket.

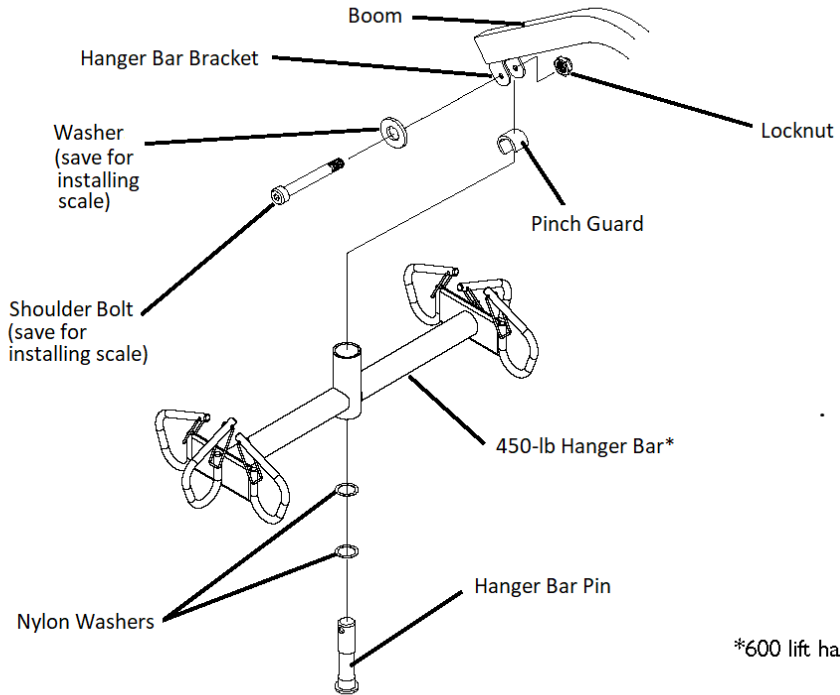


Note the hanger bar hardware varies. For more information, see *10.6 Replacing the Hanger Bar, page 55*



Save the shoulder bolt to secure the Reliant Scale to the boom. The pinch guard will not be used when the scale is installed. Save the pinch guard for future use of the hanger bar without the scale.

Removing the hanger bar hardware will release the hanger bar, two nylon washers and the hanger bar pin. Save the hanger bar pin and the two nylon washers for future use of the hanger bar without the scale.





\*600 lift hanger bar not shown.

Fig. 11-1

### 11.1.2 Installing the Reliant Scale

**WARNING!**

-The patient and sling **MUST** be removed from the lift during ALL installation procedures.

1. Position the load cell assembly of the Reliant Scale into the hanger bar bracket. Refer to Detail A.  
 Use a 1/4-inch nylon washer.
2. Secure the Reliant Scale to the hanger bar bracket with a new locknut and the hardware removed in *11.1.1 Removing the Hanger Bar, page 60*. Refer to Detail A for washer orientation.  
 Ensure the shaft of the shoulder bolt passes through both sides of the hanger bar bracket so the detent balls are visible on the other side of the bracket.
3. Tighten the locknut onto the shoulder bolt until the locknut bottoms out.
4. Insert the hanger bar pin with two nylon washers through the hanger bar. Refer to Detail B.
5. Align the mounting holes in the hanger bar pin with the mounting holes in the load cell assembly. Refer to Detail B.
6. Secure the hanger bar pin to the load cell assembly with the provided mounting screw and locknut. Securely tighten. Refer to Detail B.

**WARNING!**

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

7. Weigh the patient. Refer to 11.2 *Operating the Scale*, page 64 and 11.3 *Weighing the Patient*, page 65.

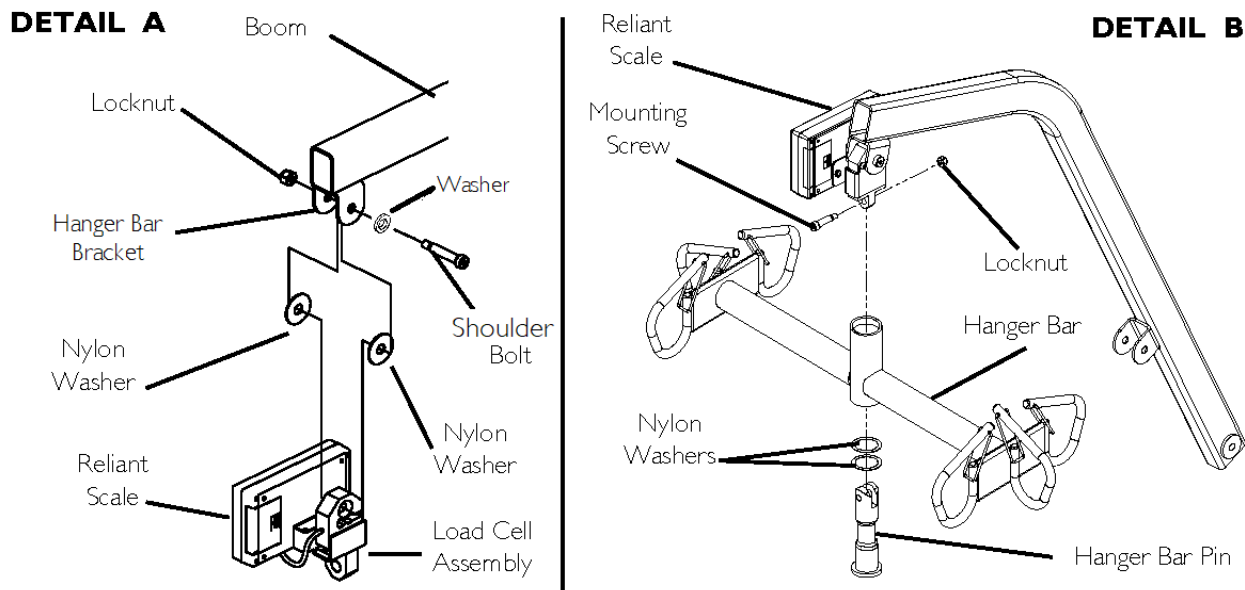



Fig. 11-2

## 11.2 Operating the Scale

### 11.2.1 Keypad Functions

Key	Indicator	Indicator Location	Definition
ON OFF	OFF	Center of the Display Window	Press this key to apply power to the scale and turn on the unit. When the scale is on, press the button to turn it off.
ZERO	ZERO	Lower Left Corner of the Display Window	Press this key when the scale is on to reset the weight in the display window to zero.
UNITS	lb or kg	Upper Right Corner of the Display Window	Press this key to change the unit of measurement from pounds (lb) to kilograms (kg).
LOCK UNLOCK	LOCK	Lower Right Corner of the Display Window	Press this key to lock or unlock a weight value in the display window.  The weight displayed is a STORED weight and not the current weight when the key is used in the lock position.
N/A	LO BAT	Center of the Display Window	Note this indicator appears in the display window when the battery is low.



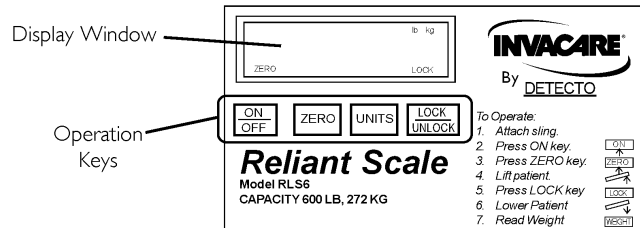


Fig. 11-3

### 11.3 Weighing the Patient



**WARNING!**

- The weight capacity is limited to the lowest-rated capacity of any one of the components in use (for example, the Patient Lift, Sling or Scale). The patient's weight **MUST** not exceed the lowest-rated capacity of any component.
- DO NOT operate key strokes with pointed objects (for example, pencils, pens, or fingernails); otherwise, damage to the keypad will result.

1. Attach the sling straps to the hanger bar. For proper attachment instructions, refer to 7.1.2 *Attaching Slings to the Lift*, page 35.



For improved accuracy on the 450 and 600 Reliant Lifts, attach all sling straps to the center hooks on both sides of the hanger bar. However, patient comfort may require a different configuration of the sling straps.

2. Press the ON/OFF key.



The display will indicate the last weight that was measured. The word “LOCK” displays in the display box.

Press the ZERO key to avoid capturing the weight of the sling and the hardware. If the ZERO key is not pressed, the weight of the sling and the weight of the hardware are included in the weight that displays. FOR AN ACCURATE WEIGHT READING, PRESS THE ZERO KEY.

3. Press the ZERO key. The following occur:

- The scale resets to zero and the word “ZERO” displays.
- The lock function turns off and the word “LOCK” disappears from the display.



The scale is now active and continually updates the weight display.

4. Place the patient in the sling. For patient placement instructions, refer to *6 Operation, page 28*.
5. Activate the lift mechanism to raise the patient until he/she is completely supported by the lift. For patient lifting instructions, refer to *7 Patient Lifting, page 34*.
6. Note the weight display.
7. When the weight display becomes stable, press the LOCK button to lock the weight display. The word “LOCK” displays in the window.



If it is necessary to unlock the weight while the patient is still supported by the lift, the UNLOCK button may be pressed. The weight unlocks, and the word “LOCK” disappears from the display. The weight value will then be updated. Once the weight becomes stable, the weight can be locked again by pressing the LOCK button.

*Stable* is defined as the weight fluctuating two tenths of a pound. For example, for a patient weighing 100 pounds, the scale will fluctuate between 99.8 and 100.2 until the LOCK key is pressed. Weight display fluctuation is normal, as

Press the UNITS button to toggle between pounds and kilograms. The selected unit displays in the window.


8. Lower the lift and remove the sling from the patient.



The patient's weight continues to display in the window. The display will turn off after a two-minute period of non-use (no changes in weight exceeding five pounds [two kilograms]). The time delay for automatic shutoff CANNOT be adjusted.

After the display turns off, press the ON/OFF button to recall the weight. Press the ON/OFF button a second time to turn off the unit.

## 11.4 Replacing the Battery

 The scale is powered by a nine-volt alkaline battery that should provide approximately 1500 readings before needing replacement.

When battery replacement is needed, LO BAT will appear on the display. To replace the battery:

1. Slide the battery door open in the direction of the arrow.
2. Remove the existing battery.
3. Install the new battery.
4. Reinstall the battery door.

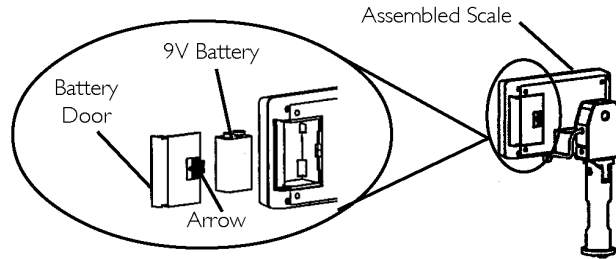



Fig. 11-4

## 11.5 Calibrating the Reliant Scale

 The Reliant Scale will be calibrated at the factory with the load cell. Should it be necessary to recalibrate the scale, complete the following instructions.

1. Remove the patient and the sling from the scale to properly calibrate the Reliant Scale. For patient removal instructions, refer to 6 *Operation, page 28*. For sling detachment instructions, refer to 7 *Patient Lifting, page 34*.
2. With the Reliant Scale on, remove the four screws on the back of the enclosure and remove the front cover to expose the PC board.
3. Press the CAL button on the PC board. The CAL switch is not labeled but is the only button on the PC board and is located in the lower right corner. Once the CAL button is pressed, CAL1 displays in the window.



CAL1 selects the calibration mode using 50 pounds of calibrated weight.

CAL2 selects the calibration mode using 200 pounds of calibrated weight.

Press the UNITS key to toggle between CAL1 and CAL2.

4. When the desired calibration mode displays, press the LOCK/UNLOCK key.




UnLd displays in the window.

5. Ensure there is no load on the scale, and press the ZERO key.
6. Note a dashed line (-----) will scroll across the window and then the word LOAD will display.
7. Perform one of the following:
  - FOR CAL1 OPTION—support 50 pounds of calibrated weight from the scale and press the ZERO key.
  - FOR CAL2 OPTION—support 200 pounds of calibrated weight from the scale and press the ZERO key.
8. Note a dashed line (-----) will scroll across the window, and then the word DONE will display.
9. Remove the weight from the scale and press the LOCK/UNLOCK key.





The unit enters a temporary test mode and does not lock the weight display. This allows weight to be loaded and unloaded to check the calibration.

10. Turn off the unit by pressing the ON/OFF key.
11. Turn on the unit by pressing the ON/OFF key.  
 The scale is now in normal operation.

## 11.6 Troubleshooting

SYMPTOM	PROBABLE CAUSE	SOLUTION
Unit does NOT work properly.	Battery failure	Check the battery. Replace if necessary.
Battery has been replaced and the unit still does NOT work properly.		Contact Invacare for service at 1-800-333-6900.

### 11.6.1 Display Codes

CODE	DESCRIPTION
	Calibration Required—indicates improper stored calibration data. Calibration is necessary.
	Over Capacity—indicates a weight exceeding the capacity has been loaded on the scale.

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## Notes

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**Canada**

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