

IVC™ Bed Series

Full Electric Beds Semi-Electric Beds Manual Beds

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

USER: **BEFORE** using this product, read this manual and save for future reference.

For more information regarding
Invacare products, parts, and services,
please visit www.invacare.com



Yes, you can.®

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 owner's 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, dealer or technical personnel before attempting to use this equipment - otherwise, injury or damage may occur.

The initial set up of this bed must be performed by a qualified technician.

Procedures other than those described in this manual must be performed by a qualified technician.

For Dealers Only - Set-up and Assembly Instructions are in the rear of this manual. These procedures must be performed by a qualified technicians only.

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.

SPECIAL NOTE

For your convenience, the March 2006 version of the FDA's bed safety guidelines are provided in the Appendix. The information from the FDA's brochure, published by Hospital Bed Safety Workgroup, is reproduced verbatim, the latest revision of which is available at <http://www.fda.gov>.

REGISTER YOUR PRODUCT

The benefits of registering include:

1. Safeguarding your investment.
2. Ensuring long-term maintenance and servicing of your product.
3. Receiving updates with product information, maintenance tips and industry news.

Register ONLINE at warranty.invacare.com

Please have your model number and purchase date available to complete your registration.

Any registration information you submit will only be used by Invacare Corporation and protected as required by applicable laws and regulations.

NOTE: Updated versions of this manual are available on www.invacare.com.

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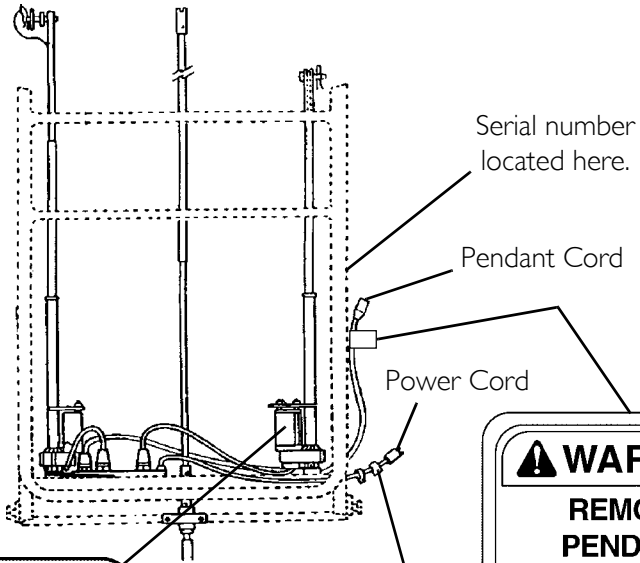
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LABEL LOCATIONS

NOTE: Underside of bed shown.



⚠ CAUTION

CLEANING INSTRUCTIONS
See Owner's Manual

-  1. Unplug product before washing.
-  2. Make sure all electrical parts (motors, junction box and pendant) are not damaged and that all connection ports are plugged.
-  3. Disinfect and wash all components.
-  4. DO NOT power wash or steam clean. Use household water pressure.
-  5. Rinse thoroughly with water (maximum temperature 110°).
-  6. Dry all components before storing.

P/N 1116654

⚠ WARNING

**REMOVE
PENDANT
WHEN NOT IN
USE AND STORE
OUT OF REACH
OF CHILDREN.**

Label P/N - 1118366 - Rev A 03/03

CAUTION

**KEEP SWITCH
CORD CLEAR OF
MOVING PARTS**

⚠ WARNING

**Close cover when
not in use otherwise
personal injury
may occur.**

1117179 Rev A

NOTE: This warning label is located on the gearbox (not shown).

SPECIAL NOTES

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

SIGNAL WORD	MEANING
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.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

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

Pendant Operation

A safety feature of this product includes protection against overheating caused by excessive or extended periods of operation. Depending on the duration, this includes multiple or repeated adjustments or the use of multiple functions at one time. To assure trouble free operation, **ALWAYS** allow a slight pause between multiple adjustments and avoid pressing more than one function button at a time. If thermal protection activation should occur, the bed will not respond to pendant commands. Given this situation, release the pendant button and allow the bed unit to sit for several minutes. This will allow the protection function time to reset and restore bed function. Depending on the severity of the initial overheating, this could take up to 30 minutes.

WARNING

On Full Electric beds, the Hi/Lo crank **MUST be removed before the bed is used. Failure to remove the crank may cause damage or personal injury.**

TYPICAL PRODUCT PARAMETERS

	5410IVC		5310IVC		5307IVC
DESCRIPTION	Full Electric		Semi-Electric Single Crank Hi/Lo		Manual Single Crank-Hi/Lo
SHIPPING WEIGHT	176.5 lbs (80.1 kg)		172 lbs (78.0 kg)		161.5 lbs (73.3 kg)
OVERALL LENGTH	88 in. (223.4 cm)				
OVERALL HEIGHT	36 in. (91.4 cm)				
SPLIT SPRINGS TO ENDS HEAD FOOT	43 in. (109.2 cm) 45 in. (114.3 cm)				
ADJUSTMENT RANGE DECK BED END	15 in. (38 cm) ± 2 in. to 23 in. (58.3 cm) ± 2 in. 26 ¼ in. (66.7 cm) to 33 ¾ in. (85.7 cm)				
	BED COMPONENTS				
	FULL ELECTRIC		SEMI-ELECTRIC		MANUAL
BED NAME (MODEL NUMBER)	5410IIVC	5411IVC Canada	5310IVC	5311IVC Canada	5307IVC
HEAD SPRING (5000IVC)	X	X	X	X	X
UNIVERSAL BED ENDS (530IIVC)	X	X	X	X	X
FOOT SPRING THREE MOTORS (5490IVC)	X				
FOOT SPRING THREE MOTORS CANADA (5491IVC)		X			
FOOT SPRING TWO MOTORS (5890IIVC)			X		
FOOT SPRING TWO MOTORS CANADA (5891IVC)				X	
FOOT SPRING TWO CRANK (5770IVC)					X

SECTION I—GENERAL GUIDELINES

⚠ WARNING

SECTION I - GENERAL GUIDELINES contains important information for the safe operation and use of this product.

Operating Information

DO NOT use near explosive gases.

Keep the product a minimum of 12" away from any direct heat source.

Close supervision is necessary when this product is used by or near children or people with disabilities.

Check all parts for shipping damage and test before using. In case of damage, DO NOT use. Contact a qualified technician for further instruction.

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely.

DO NOT let any individual underneath the bed or in between the raised bed frame components at anytime.

When bed is not to be used for an extended period, unplug electric bed from the wall outlet.

If a liquid is spilled in or around the electric bed, unplug the electric bed before cleaning. Clean up the spill and allow the electric bed or the area around the electric bed to dry thoroughly before using the electric controls again.

The manual/electric bed is NOT designed to be used as a patient transport. When transporting a patient, use an approved patient transport. Otherwise, injury or damage may result.

Body weight should be evenly distributed over the surface of the bed. DO NOT lay, sit or lean in such a way that your entire body weight is placed only on raised head or foot sections of the bed. This includes when assisting the user in repositioning or transferring in or out of bed.

When operating/moving manual/electric beds, always ensure that the individual utilizing the bed is positioned properly within the confines of the bed. DO NOT let any extremities protrude over the side or between the bed rails when performing these functions.

After the manual/electric bed has been assembled, always test to make sure that all sections of the manual/electric bed are properly and securely in place before using.

Make sure head and foot springs/sections are connected securely to the universal bed ends before use.

If the unit is not working properly, call a qualified technician to examine the unit and repair it.

Keep all moving parts, including the main frame, mattress deck (head and foot springs/sections) and all drive shafts, free of obstruction (i.e. blankets/sheets, heating blankets/pads, tubing, wiring, etc. and other types of products using electric cords which may get tangled around the bed, side rails or legs) during operation of the manual/electric bed.

The manual/electric bed is equipped with locking casters. When transferring into or out of the manual/electric bed, always lock the locking caster(s). Inspect the wheel locks for correct locking action before actual use. Even with casters properly locked, some flooring surfaces such as tile or wood, will allow the bed to move under some conditions. Use on surfaces such as these must be evaluated by the care provider.

ALWAYS remove manual crank(s) before performing electronic functions. Otherwise, the crank(s) will turn when the motor is on and could cause personal injury or damage to the bed.

⚠ ENTRAPMENT WARNING

Proper patient assessment and monitoring, and proper maintenance and use of equipment is required to reduce the risk of entrapment. Variations in bed rail dimensions, and mattress thickness, size or density could increase the risk of entrapment. Visit the FDA website at <http://www.fda.gov> to learn about the risks of entrapment. Review “A Guide to Bed Safety”, published by the Hospital Bed Safety Workgroup, located at www.invacare.com. Use the link located under each bed rail product entry to access this bed safety guide.

Refer to the owners manuals for beds and rails for additional product and safety information.

After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely. Assist rails with dimensions different from the original equipment supplied or specified by the bed manufacturer may not be interchangeable and may result in entrapment or other injury.

Mattress MUST fit bed frame and assist rails snugly to reduce the risk of entrapment.

Replacement Parts/Accessories

Possible fire hazard when used with oxygen administering equipment other than nasal or masked type.

Use masked or nasal type oxygen administering equipment only in conjunction with the manual/electric bed. The use of any other type of oxygen administering equipment can result in a fire hazard.

When using nasal or masked type oxygen administering equipment, the oxygen or air tubing MUST be routed and secured properly to ensure that the tubing does not become entangled and/or severed during normal operation of manual/electric bed.

ALWAYS test to make sure that the side rails are properly and securely in place before using the manual/electric bed.

Invacare recommends that the mattress be centered on the bed frame. Otherwise, individuals may become entangled between the bed rail and the bed frame.

Physically challenged individuals who cannot prevent themselves from rolling/climbing out of the manual/electric bed may require alternative safe means of restraint.

When used with a manual/electrical bed, the bed rails DO NOT fall under any weight limitations. Bed rails can be deformed or broken if excessive side pressure is exerted on the bed rails. These bed rails are used for the purpose of preventing an individual from inadvertently rolling out of bed. The bed rails are NOT intended nor may be used for restraint purposes. If an individual is capable of injuring himself/herself, a physician or a healthcare professional should be consulted for alternative means of safe restraint.

Although bed rails are not rated to any specific weight limitation, the bed rails may become deformed or broken if excessive side pressure is exerted on the bed rails. The bed rail is not an assist rail for getting into or out of bed. DO NOT use the bed rails as push handles when moving the bed.

DO NOT use the side rails as push handles for moving the manual/electric bed.

Once patient assessment concludes that the patient's condition increases the chance of entrapment, the bed MUST be in the flat position when left unattended.

After raising/lowering the head/foot end of the manual/electric bed, check the distance between the bottom of the bed rail and the mattress. If there is excessive distance between the bottom of the bed rail and the mattress in which individuals may become entangled, adjust the height of the bed rail (if applicable), or provide alternative means of patient protection.

Trapeze units must be positioned on a universal bed end as near as possible to the center point of the bed end. The trapeze is to be used only in assisting the patient in repositioning or transferring in or out of the manual/electric bed.

Traction units must be securely fastened to universal bed ends of the manual/electric bed. These units are to be used only for immobilizing a patient in various traction setups or assisting the patient in repositioning or transferring in or out of the manual/electric bed.

NEVER allow patients to use trapeze or traction units as a total individual weight support.

Trapeze units are to be used only for immobilizing a patient in various traction setups or assisting the patient in repositioning or transferring into or out of bed.

Replacement mattresses and bed side rails with dimensions different than the original equipment supplied or specified by the bed frame manufacturer are not interchangeable. Variations in bed side rail design, width and thickness or firmness of the mattress could cause/contribute to entrapment. Use only authorized Invacare replacement parts and/or accessories otherwise the warranty is void. Invacare will not be responsible for any damage or injury that may result.

Electrical

⚠ DANGER

When using an extension cord, use only a three wire extension cord having at least 16 AWG (American Wire Gauge) wire and the same or higher electrical rating as the device being connected. Use of improper extension cord could result in a risk of fire and electric shock. Three prong to two prong adapters should not be used. Use of three prong adapters can result in improper grounding and present a shock hazard to the user.

NEVER operate if the unit has a damaged cord or plug. If it is not working properly, call a qualified technician for examination and repair.

Keep all electrical cords away from heated or hot surfaces.

Ensure all cables and cords are routed such that they will not become entangled or pinched. Otherwise damage or injury may result.

DO NOT unplug power cord from junction box.

The pendant and power cords must be routed and secured properly to ensure that the cords DO NOT become entangled, pinched and/or severed during operation of the electric bed.

NEVER operate the unit if these cords are damaged.

Refer servicing to qualified personnel only. Grounding reliability depends upon a properly grounded wall outlet.

Repair or Service Information

DO NOT open assemblies such as the motors, pendant, junction boxes or gear boxes. No user serviceable parts are inside. Only qualified technicians are permitted to repair these parts. If unqualified individuals perform any work on these beds, the warranty is void.

Unplug the power cord from its power source before performing any maintenance on the manual/electric bed. DO NOT unplug the power cord from the junction box. Damage to cord will result.

The junction box is mounted to the foot motor with an actuator clip-lock. If replacing the junction box, remove the actuator clip-lock and slide the junction box away from the foot motor until it is free. Disconnect all cable connections.

Before connecting/disconnecting the connections at the junction box, make sure the cable lock is removed by lightly depressing on the end tabs and lifting. After connectors are plugged in, route all cables into the cable lock slots and snap the cable lock in place. When installing any connectors into the junction box, be sure the cable lock is secure after installation - otherwise, injury or damage may occur.

DO NOT force the connector into the junction box, otherwise - injury or damage may occur.

Inspect the covering of the bed's control panel and the patient control panel to assure that the covering is not cracked or damaged.

Servicing of Double-Insulated Products

In a double-insulated product, two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product, nor is a means for grounding to be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system, and is to be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the parts they replace. A double-insulated product is marked with the words "DOUBLE INSULATION" or "DOUBLE INSULATED". The symbol (⊞) is also able to be marked on the product.

Radio Frequency Interference

Electronic equipment may be influenced by Radio Frequency Interference (RFI). Caution should be exercised with regard to the use of portable communications equipment in the area around such equipment. If RFI causes erratic behavior, unplug the electric bed IMMEDIATELY. Leave unplugged while transmission is in progress.

Weight Limitations

The total weight limit of the Invacare 36-inch (91.4 cm) wide Manual/Electric bed (including accessories, mattress, occupant and any other person/object positioned on the bed) is 450 pounds (204 kg.); 350 pounds (158 kg) patient weight.

DO NOT permit more than one person on/in the manual/electric bed at any time.

Body weight should be evenly distributed over the surface of the manual/electric bed. DO NOT lay, sit or lean in such a way that your entire body weight is placed only on raised head or foot sections of the bed. This includes when repositioning or transferring in or out of bed.

SECTION 2—OPERATION

⚠ WARNING

The Invacare IVC Beds are to be assembled and adjusted by a qualified technician only.

Operating Full Electric Bed - Models 5410IVC and 5411IVC

⚠ WARNING

NEVER operate if the unit has a damaged cord or plug. If it is not working properly, call a qualified technician for examination and repair.

Keep all electrical cords away from heated or hot surfaces.

Ensure all cables and cords are routed such that they will not become entangled or pinched. Otherwise damage or injury may result.

CAUTION

Allow a slight pause between adjustments and avoid pressing multiple buttons at the same time. If pendant buttons are depressed too rapidly or multiple buttons are pressed at the same time, the desired feature may not activate. Simply release the pendant button, permit a slight pause and then activate the next operation.

On Full Electric beds the Hi/Lo crank **MUST** be removed before the bed is placed in service. If left in place the crank may cause damage or personal injury.

NOTE: For this procedure, refer to FIGURE 2.1 on page 14.

Before placing the bed into use, test it by operating it through all phases of its operation.

1. If any problems arise during the test, recheck all electrical connections and mechanical hook ups.
2. Full electric beds use a six function pendant for all bed operations.
3. All full electric beds come with an emergency crank to allow operation in the event of a power outage.

Raising and Lowering the Entire Bed

⚠ WARNING

DO NOT place pendant under or between objects. This may unintentionally press the buttons and may cause injury or damage.

NOTE: For this procedure, refer to Detail "A" of FIGURE 2.1.

1. To raise the entire bed, press the "Bed Up" button.
 2. To lower entire bed, press the "Bed Down" button.
-

Raising and Lowering the Head and Foot Sections

NOTE: For this procedure, refer to Detail "A" of FIGURE 2.1.

1. To raise the head of the bed, press the "Head Up" button.
2. To lower the head of the bed, press the "Head Down" button.
3. To raise the foot of the bed, press the "Foot Up" button.
4. To lower the foot of the bed, press the "Foot Down" button.

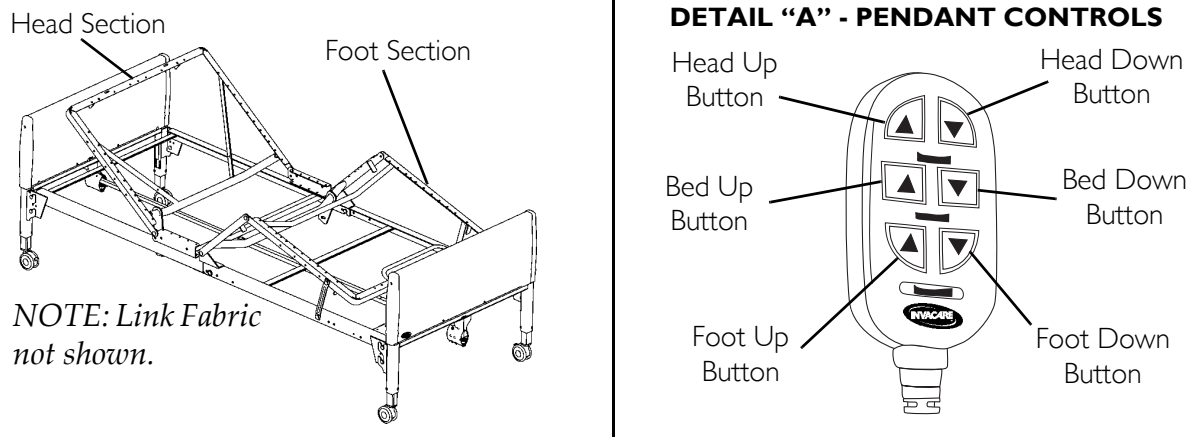


FIGURE 2.1 Operating Full Electric Bed - Models 5410IVC and 5411IVC

Operating the Semi-Electric Bed - Models 5310IVC and 5311IVC

NOTE: For this procedure, refer to FIGURE 2.2.

1. Perform one of the following:
 - Use a four function pendant for head and foot spring functions.
 - Use a hand crank for Hi/Lo bed operation.
2. Test all operating features of the bed.
3. If any problems arise during test, recheck all electrical connections and mechanical hook ups.

NOTE: All semi-electric beds come with an emergency crank to allow continued operation in the event of a power outage.

CAUTION

If a button on the pendant does not release or sticks, the bed spring will not stop moving.

Raising and Lowering Head and Foot Sections

NOTE: For this procedure, refer to Detail "A" of FIGURE 2.2.

1. To raise the head of the bed, press the "Head Up" button.
2. To lower the head of the bed, press the "Head Down" button.
3. To raise the foot of the bed, press the "Foot Up" button.
4. To lower the foot of the bed, press the "Foot Down" button.

Raising and Lowering the Entire Bed

1. Model 5310IVC - Use crank "B" to raise and lower the entire bed.

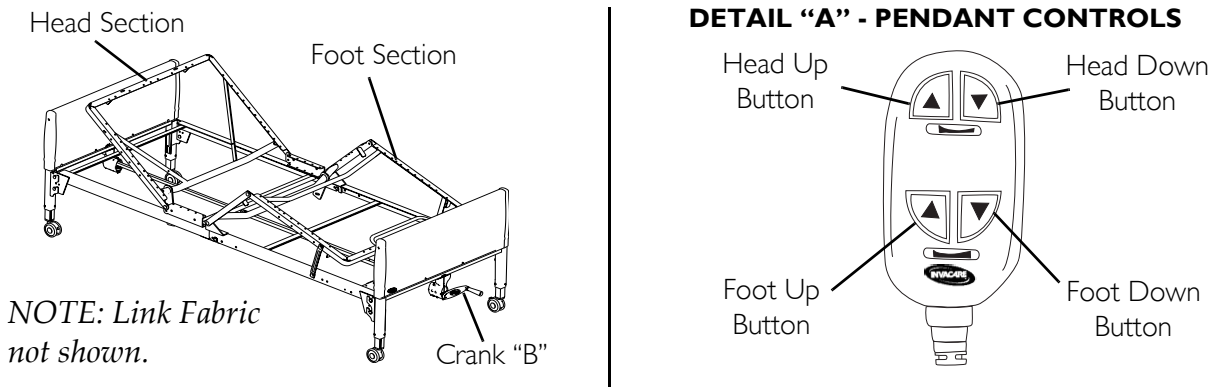


FIGURE 2.2 Operating the Semi-Electric Bed - Models 5310IVC and 5311IVC

Using the Emergency Crank

NOTE: For this procedure, refer to FIGURE 2.3.

NOTE: If the full electric or semi-electric bed needs to be adjusted manually due to a power outage or an electronic malfunction, use the emergency crank to make the adjustments. You should find the Emergency crank stored in the link fabric of the spring deck. If you do not find the crank, contact your dealer.

1. Remove the emergency crank from the spring deck of the bed under the mattress.
2. Locate the exposed shaft end according to the function you want to perform. Refer to FIGURE 2.3.
3. Attach the emergency crank to A, B, or C.
4. Refer to Operating the Manual Bed on page 16 for further instruction.

NOTE: Push in the emergency crank while turning it the desired direction.

NOTE: To move the entire bed on full electric models, open drive shaft cover on the foot end of the gear box.

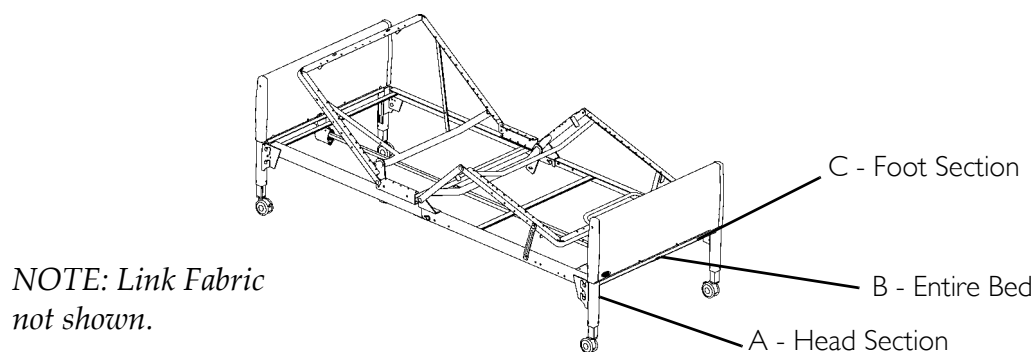


FIGURE 2.3 Using the Emergency Crank - Operating Full Electric Bed - Models 5410IVC and 5411IVC

Operating the Manual Bed

NOTE: For this procedure, refer to FIGURE 2.4.

1. Perform one of the following:
 - Raise or lower the head section with crank "A"
 - Raise or lower the foot section with crank "C".
 - For Model 5307IVC only - Raise or lower the entire bed with crank "B".
2. Test all operating features of the bed.
3. If any problems arise during testing, recheck all mechanical hook ups.

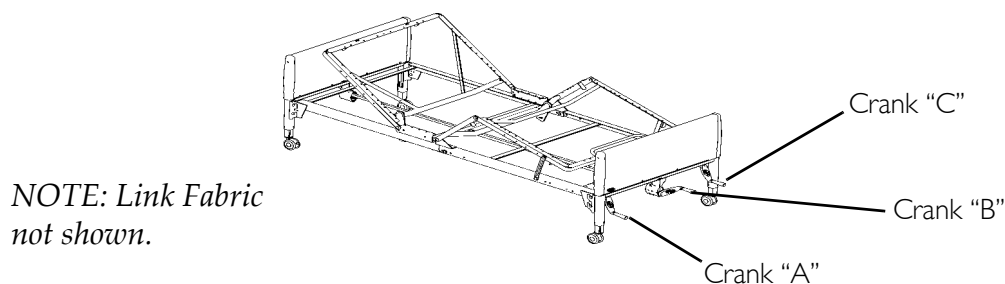


FIGURE 2.4 Operating the Manual Bed - Model 5307IVC

Optional Bed Rails

⚠ WARNING

DO NOT install the optional bed rails without reading and understanding all of the instructions in the instruction sheet that accompanies the bed rail kit.

SECTION 3—TROUBLESHOOTING

Troubleshooting Electrical

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Bed spring does not move.	End of stroke reached.	Operate opposite button.
Full Electric Bed: Hi/Lo function does not work.	Bed not plugged in.	Ensure power cord is plugged into power source.
	Pendant not functioning.	Ensure Pendant is correctly connected to junction box. Ensure Pendant cable not entangled/pinched.
	Cables	Ensure cables are not entangled/pinched. Call the dealer for repair/replacement of cables and/or motors.
	Broken cable lock.	Call dealer to replace cable lock.
	Household fuse or breaker blown.	Check household fuse/breaker box.
	Motors are not functioning.	Call dealer.
	Hi/Lo Motor.	Ensure cables are not entangled or pinched. Call dealer.
	Thermal Protection Activated.	Allow bed unit to sit for 30 minutes and retry.
Bed Spring does not stop moving.	Pendant.	Check for depressed/stuck buttons. If button is stuck, call dealer for repair.
Bed Hi/Lo movement does not stop.		Check cables, if damaged call dealer.
Bed is producing unusual sounds, burning odors, or movement deviations observed in the controls, motors, or the limits switch functions.		Call dealer.

Troubleshooting Mechanical

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Bed does not stay in place.	Casters unlocked.	Lock Casters.
Bed springs do not move.	Pull tube.	Check pull tube(s) for binding. Call dealer for repairs.
	Manual Beds - crank(s) not working.	Call dealer.
Bed ends move in opposite directions (electrical or manual bed).	Drive Shaft connected to wrong gear box shaft.	Call dealer.
Hi/Lo function does not work.	Crank not properly installed.	Call dealer.
	Drive shaft disconnected.	Call dealer.
Pressing function on pendant results in motion other than that intended.	Motor cable connections to junction box incorrect.	Call dealer.

⚠ WARNING

Read all general guidelines, warnings and cautions before performing any repair/maintenance on the bed. All repair and maintenance on the bed should be performed by a qualified technician.

Maintenance Checklist

Invacare recommends the following maintenance and cleaning procedures be conducted between users or as needed. This form is provided as a guide to help with documentation.

Mechanical Inspection and Maintenance

- Inspect all bed components for damage or excessive wear.
- Visually examine all welds for cracks.
- Inspect the head and foot spring sections for bending, warping or damage.
- Inspect all bolts and rivets to ensure that they are securely tightened and functioning properly.
- Check sleep surfaces to ensure all links are intact.
- Check casters to ensure they lock, if applicable, and roll properly.

Electrical Inspection and Maintenance

- Inspect all electrical bed components for damage or excessive wear (i.e. cracked or broken housings, or worn components).
- Check pendant, power and motor cords for chafing, cuts or excessive wear.
- Make sure all plugs are fully attached and free of damage.
- Make sure cable lock on junction box is properly positioned and locked
- Check all functions:
 - Head raises and lowers properly.
 - Foot raises and lowers properly.
 - Bed Ends raise and lower properly.

Pass/Fail

- PASS: Bed and all components have passed all of the above inspection criteria and the bed is ready for placement into a client's home.
- FAIL: Bed, or any component, has failed any of the above inspection criteria. Tag the bed or component with a complete description of the failure(s) and have the bed serviced.

ASSEMBLY, MAINTENANCE AND ADJUSTMENT SECTIONS - FOR DEALERS ONLY

WARNING

The procedures in the following sections **MUST** be performed by a qualified technician.

Overview of Procedures

Receiving

Unpacking

- Unpacking the Bed Ends
- Unpacking Foot and Head Spring Sections

Set-Up

- Assembling the Head and Foot Spring Sections
- Assembling the Spring Fabric
- Adjusting and Reconnecting the Head Section Pull Tube
- Installing the Casters
- Assembling the Universal Bed Ends
- Assembling the Drive Shaft
- Inspecting the Bed
- Installing/Removing the Cable Lock
- Installing the Manual Crank for Hi/Lo Function
- Installing/Removing the Pendant

Storing the Beds

SECTION 4—PACKAGING, HANDLING, AND SET-UP

Receiving

1. Count cartons before signing shipping papers.
2. Designate someone at the facility to receive and inspect all merchandise. Use the master order acknowledgment to check off items as they are received.
3. Compare the number of cartons shipped with the number of cartons actually received and note such on the consignee copy of the freight bill. Make sure to have the truck driver sign the copy acknowledging the count.
4. If shortage occurs, IMMEDIATELY contact Invacare Customer Service department.

Unpacking

NOTE: Check all parts for shipping damage. In case of shipping damage, DO NOT use. Contact Dealer/Carrier for further instruction.

CAUTION

DO NOT plug the power cord into a power source until assembly is complete. To do so could result in damage or personal injury.

DO NOT attempt to operate bed controls prior to completion of assembly, otherwise damage to bed components may occur.

Unpacking the Bed Ends

NOTE: For this procedure, refer to FIGURE 4.1.

5. Remove any loose packing from the carton.
6. Bed End carton includes:
 - Two Universal Bed Ends
 - Four Casters (two locking and two non-locking casters)
 - One Drive Shaft Assembly in two pieces
 - One Hand Crank

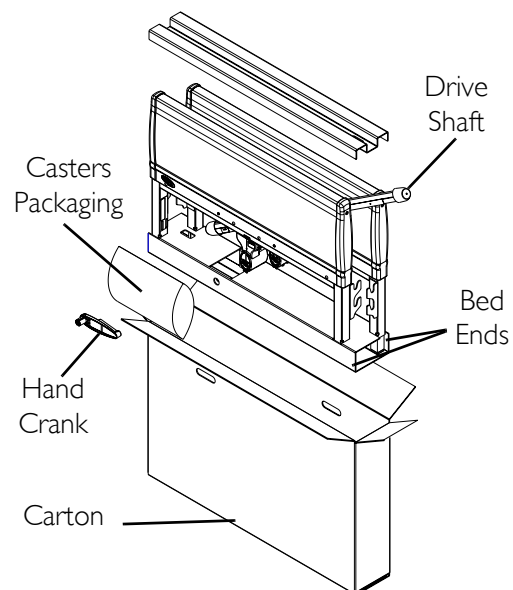


FIGURE 4.1 Unpacking the Bed Ends

Unpacking Foot and Head Spring Sections

NOTE: For this procedure, refer to FIGURE 4.2.

1. Remove any loose packing from the carton.
2. Foot Spring Section carton includes:
 - One Foot Spring (electric beds include pendant, junction box with power cord, and head, foot and hi/lo [full electric only] motors with cables).
 - One emergency crank handle (electric beds ONLY).
3. Head Spring Section carton includes:
 - One Head Spring.

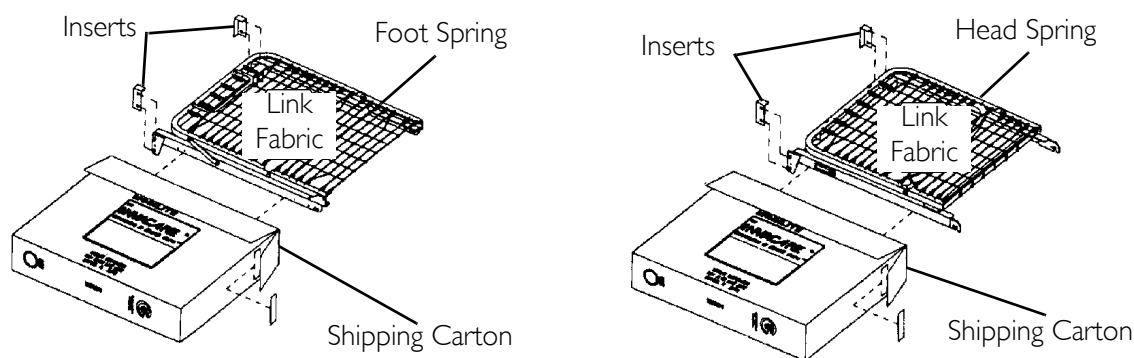


FIGURE 4.2 Unpacking Foot and Head Spring Sections

Set-Up

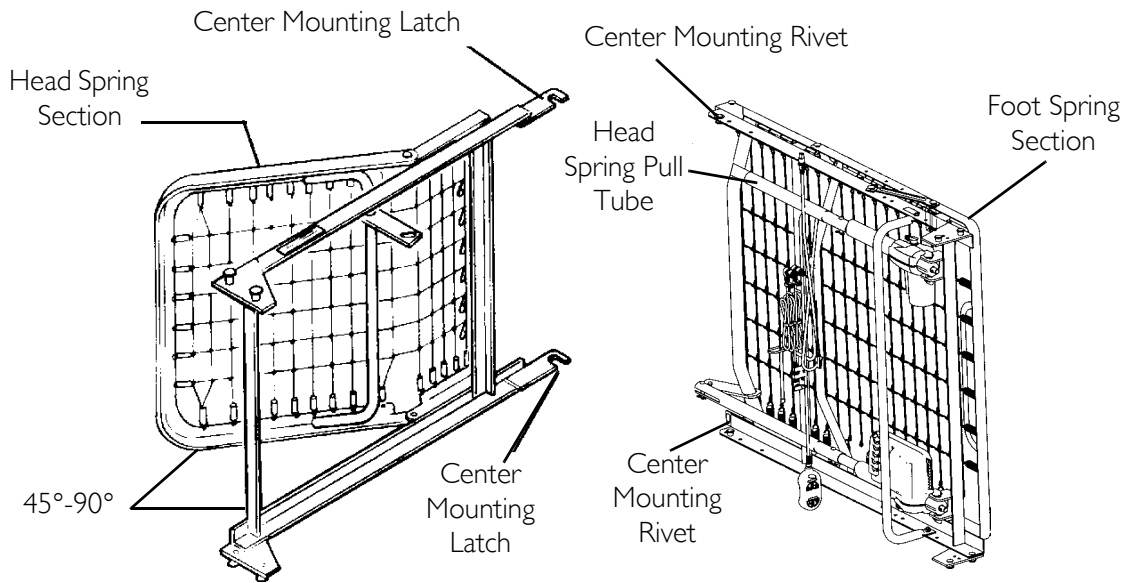
Assembling the Head and Foot Spring Sections

⚠ WARNING

DO NOT attempt to operate bed controls prior to completion of assembly as damage to bed components or personal injury may occur.

NOTE: For this procedure, refer to FIGURE 4.3 and FIGURE 4.4 on page 23.

4. Remove the head spring section (5000 IVC) of the bed from the packing carton.
5. Place the head spring section on its side to your left so the center mounting latches are on the right. Refer to FIGURE 4.3.
6. Open the head spring section to a 45° to 90° angle to support the spring section. Refer to FIGURE 4.3.
7. Remove the foot spring section of the bed from the packing carton.
8. Place the foot spring section on its side on your right with the head spring pull tube at the top of the assembly. The center mounting rivets should be on the left. Refer to FIGURE 4.3.

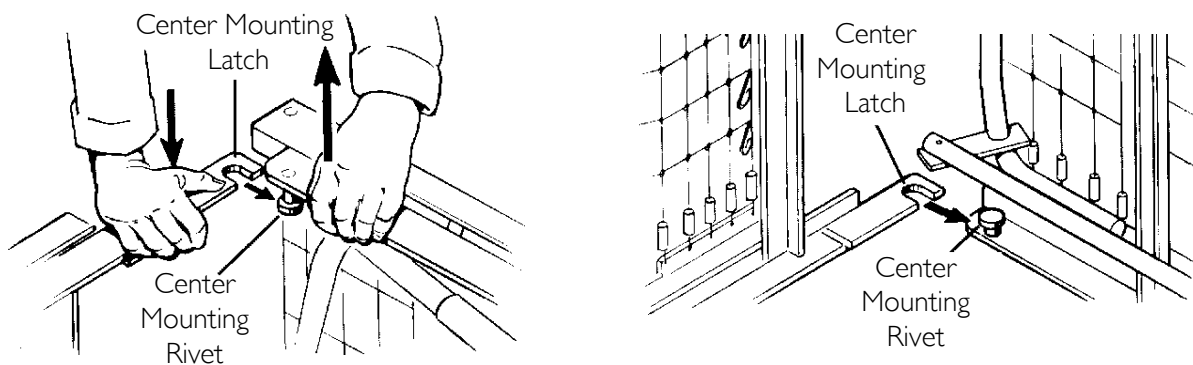
**FIGURE 4.3** Set-Up

NOTE: For set-up purposes, the motors on the semi-electric (5890IVC and 5891IVC) and full electric (5490IVC and 5491IVC) foot springs as well as the crank handles on the manual foot springs (5770IVC) should be on your right.

9. Place the head and foot springs approximately 90° from each other.
10. Hook the bottom head spring center mounting latch to the bottom foot spring center mounting rivet. Refer to FIGURE 4.4.
11. Hook the top head spring center mounting latch to the top foot spring center mounting rivet. Refer to FIGURE 4.4.

NOTE: It may be necessary to lift the head spring or foot spring slightly to secure the mounting latches and rivets.

12. After head and foot springs are connected, push the springs into a horizontal (straight) position while keeping the springs on their sides.

**FIGURE 4.4** Set-Up

Assembling the Spring Fabric

NOTE: For this procedure, refer to FIGURE 4.5.

1. Lift the head spring away from the bed frame to give slack to the fabric.
2. Connect the spring fabric together with the links provided. Refer to FIGURE 4.5.

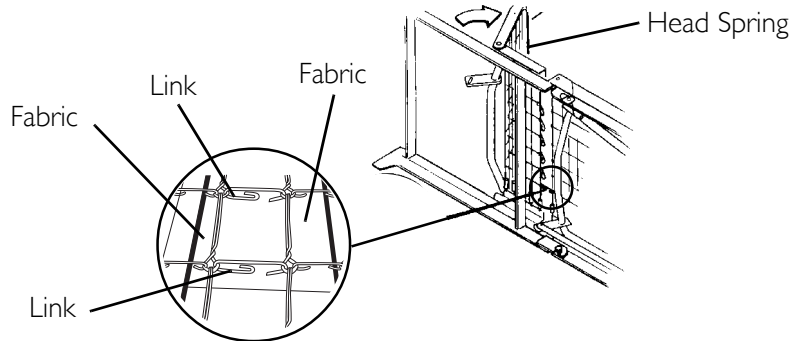


FIGURE 4.5 Assembling the Spring Fabric

Adjusting and Reconnecting the Head Section Pull Tube

NOTE: For this procedure, refer to FIGURE 4.6 on page 25.

1. To disconnect the head pull tube assembly from the side frame of the foot spring remove the hitch pin, grommet/washer from the clevis pin. (Refer to FIGURE 4.6, Detail "A".)
2. Extend the inner pull tube shaft manually until the spring button "clicks" into the adjustment hole of the outer pull tube.
3. Connect the pull tube end assembly to the lift arm of the head spring as follows (Refer to FIGURE 4.6, Detail "B"):
 - A. Insert the clevis pin into the lift arm slot.
 - B. Replace the grommet/washer.
 - C. Secure with hitch pin.

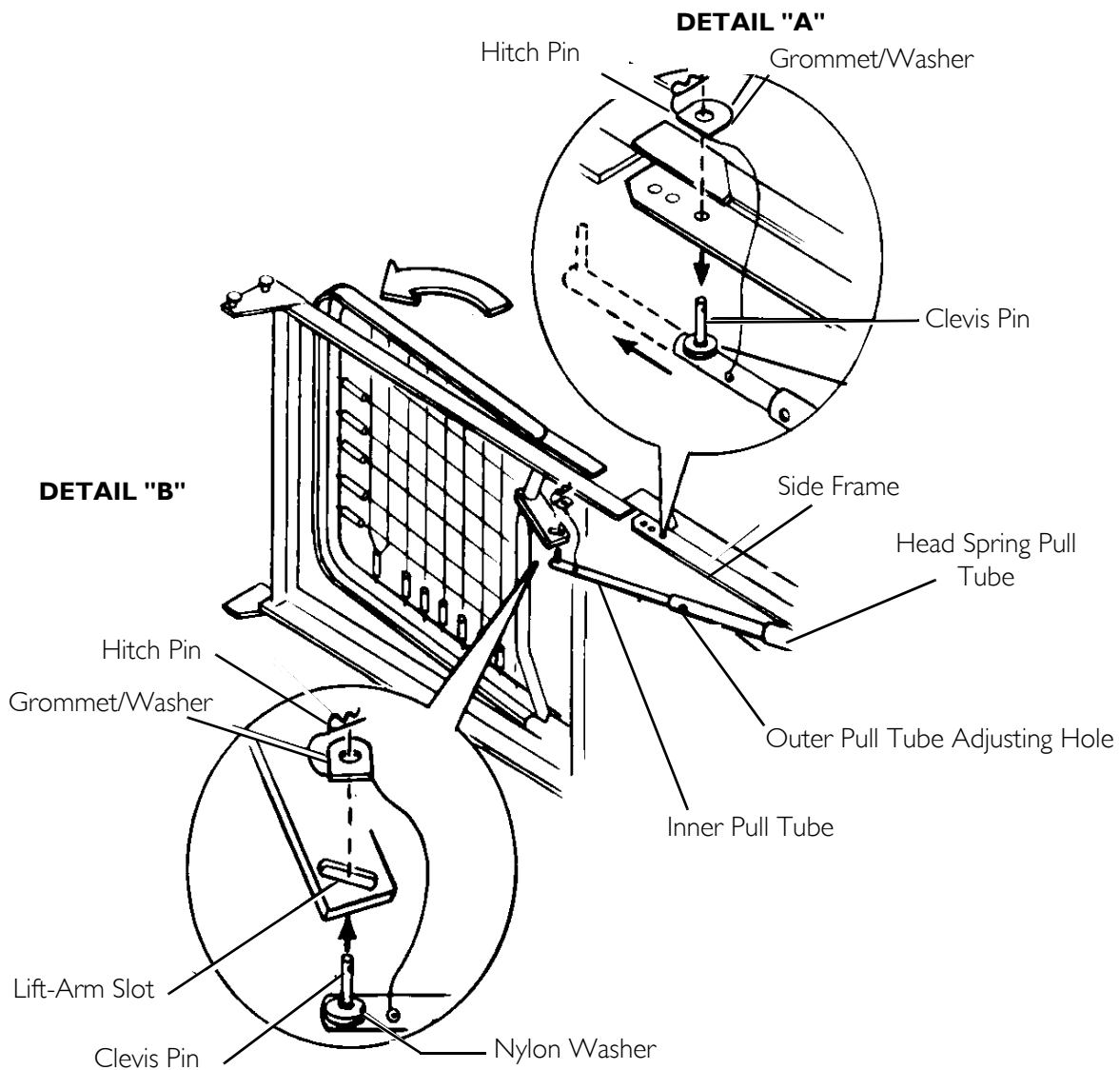


FIGURE 4.6 Adjusting and Reconnecting the Head Section Pull Tube

Installing the Casters

⚠ WARNING

Ensure that the locking casters are installed diagonally from each other and are locked. Otherwise damage or personal injury could occur.

NOTE: For this procedure, refer to FIGURE 4.7 on page 26.

DEALER NOTE: ALWAYS locate locking caster in the same location on each bed end so that they will always be assembled diagonally opposite each other when inventory is mixed.

NOTE: Position the two locking casters so that they will be diagonally opposite from one another when the bed is assembled.

NOTE: If two locking casters are not included with the bed, contact a qualified dealer.

1. To install casters, lay the bed ends flat on the floor.
2. Insert the shaft of caster assembly into the caster socket.
3. To prevent excess movement of the bed during assembly, lock each of the two locking casters by pushing down on the caster lock.

NOTE: Locking the casters may not prevent the bed from moving on slick or slippery surfaces.

4. To unlock each of the two locking casters, pull up on the caster lock.

⚠ WARNING

Ensure that casters are locked and that the bed does not move before transferring. DO NOT transfer occupant if bed is not stable.

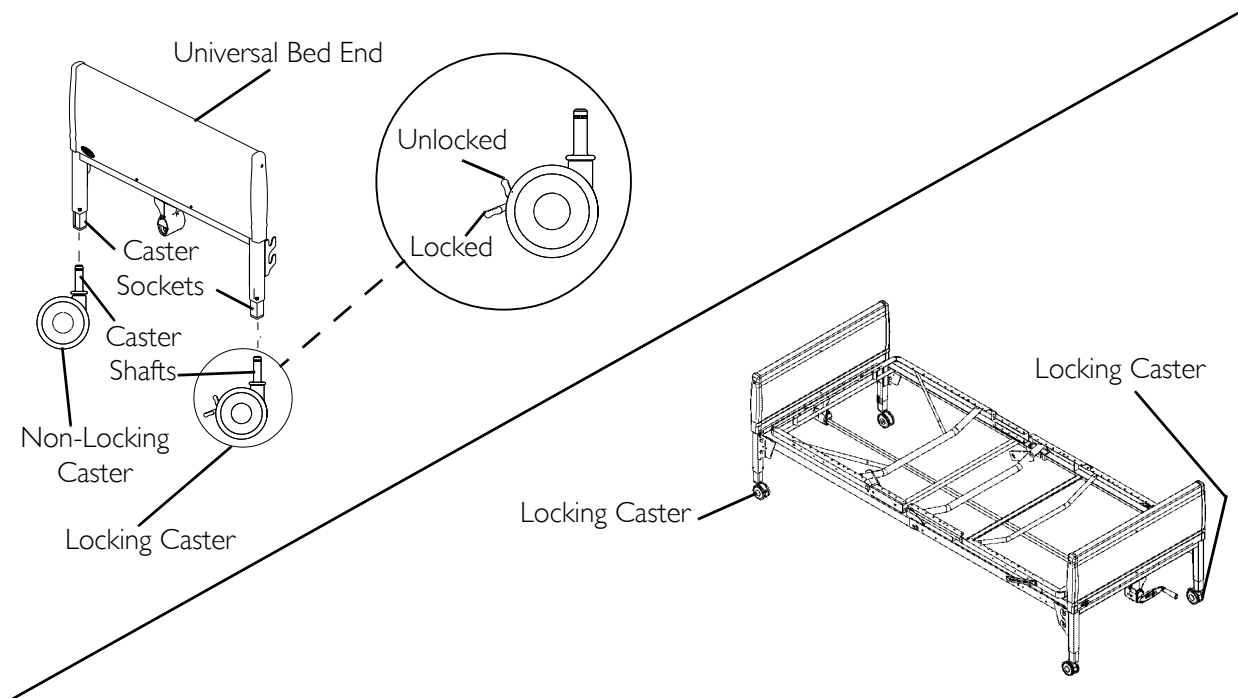


FIGURE 4.7 Installing the Casters

Assembling the Universal Bed Ends

NOTE: For this procedure, refer to FIGURE 4.8 on page 27.

NOTE: Invacare recommends that two people perform this procedure.

NOTE: Before assembling bed, ensure that the locking casters are attached to the universal bed ends diagonally across from each other. See FIGURE 4.7.

1. Stand one bed end as close to the head spring section as possible.
2. Grasp the head spring section, by the side, and raise it until the rivets on the corner plates of the spring section are high enough to place into the corner locks on the bed end.

⚠ WARNING

DO NOT place your hand between the spring section and the universal bed end while assembling the universal bed ends, otherwise injury may occur.

3. Tilt the bed end toward the head spring section and place the rivets into the corner locks.
4. Return the universal bed end to its full upright position. The head spring rivets will lock into place.
5. Repeat the same procedure for other universal bed end.

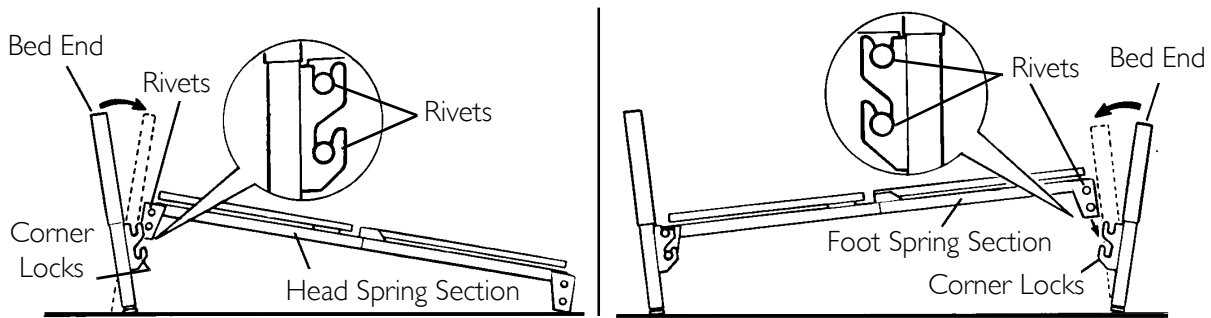


FIGURE 4.8 Assembling the Universal Bed Ends

Assembling the Drive Shaft

⚠ WARNING

DO NOT attempt to operate bed controls prior to completion of assembly as damage to bed components or personal injury may occur.

NOTE: For this procedure, refer to FIGURE 4.9 on page 28 and FIGURE 4.10 on page 29.

NOTE: The drive shaft for the Hi/Lo function consists of two sections that are shipped unassembled. The inner shaft has a positioning spring button, and the outer shaft has three positioning holes, one storage position hole and a telescoping end.

1. Remove the plastic caps from each end of the drive shaft.
2. Press spring button on the inner shaft and insert the inner shaft into the outer shaft.
3. Engage the spring button into the proper positioning hole.
 - For semi-electric and manual beds, use the first positioning hole. See FIGURE 4.9.
 - For beds with single shaft gear boxes, use the second positioning hole. See FIGURE 4.9.
 - For full electric models, use the third positioning hole. See FIGURE 4.9.

NOTE: A common gear box is used on both bed ends. The bottom output shaft is used at the head end and the top output shaft is used at the foot end of the bed.

4. Attach the inner shaft to the bottom gear box output shaft on the head end of the bed.

5. Push in on the spring loaded end of the drive shaft and attach to the foot end of the bed as follows:
 - Full Electric Beds: Attach drive shaft to the Hi/Lo motor output shaft facing head end of bed.
 - Manual and Semi-Electric Beds: Attach drive shaft to the foot end top gear box output shaft.

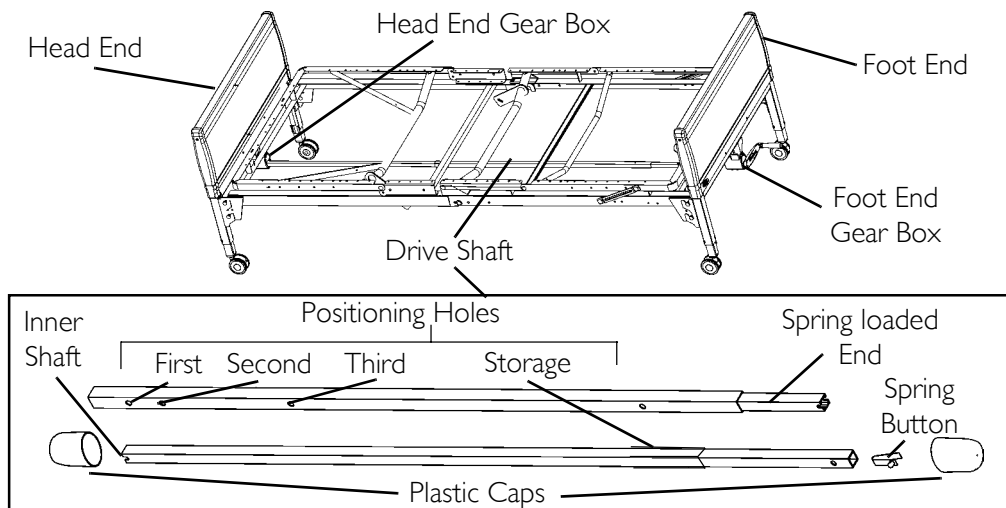


FIGURE 4.9 Assembling the Drive Shaft

- Full Electric Beds: Attach the Hi/Lo Motor to the foot end gear box as follows:
 - i. Locate the Hi/Lo motor output shaft spring-loaded coupler.

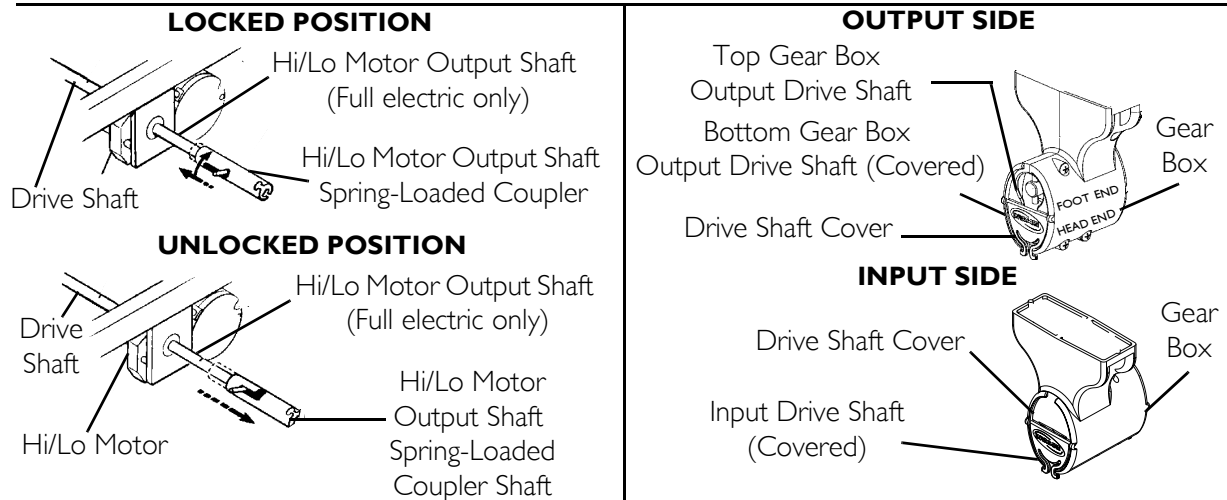
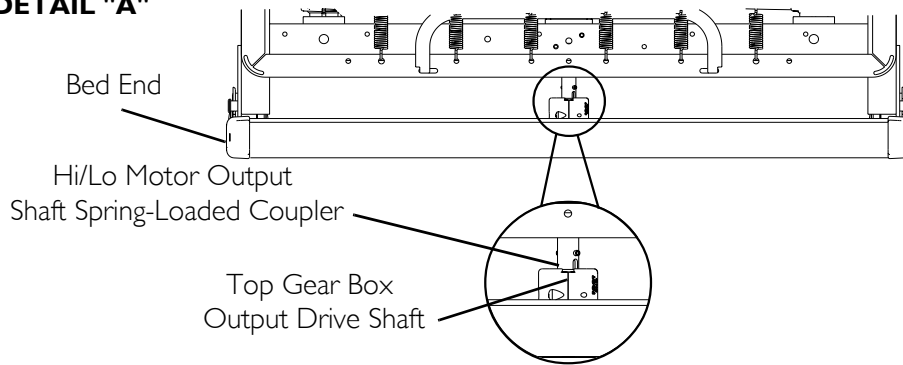
NOTE: If necessary, shift the bed end to the right or left to align the Hi/Lo motor output shaft spring-loaded coupler with the foot end gear box.

- ii. Ensure the Hi/Lo motor output shaft spring-loaded coupler is properly aligned with the foot end gear box as shown in Detail "A" of FIGURE 4.10.
- iii. Release the Hi/Lo motor output shaft spring-loaded coupler by pushing in against the Hi/Lo motor output shaft spring-loaded coupler and turning clockwise.
- iv. The coupling will release and engage the foot end top gear box output shaft cross pins.
- v. Ensure that all components are securely installed.

⚠ WARNING

Close the drive shaft covers over all drive shafts - not in use, before placing the bed in service. Otherwise damage or injury may occur.

Full Electric Beds - ALWAYS remove the crank on the Hi/Lo gear box and close the drive shaft cover to avoid damage and injury.

DETAIL "A"**FIGURE 4.10** Assembling the Drive Shaft**Inspecting the Bed****Electric Beds****⚠ WARNING**

When installing any connectors into the junction box, be sure the cable lock is secure after installation - otherwise, injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 4.11 on page 30.

NOTE: The following procedure is for full/semi-electric beds only.

All motors, the junction box, connectors and wiring are located on the foot spring section.

All connectors will arrive plugged into the junction box. If a connector is not plugged into the junction box when received or if a function of the bed is not working use the color coding to check the placement of the connectors. Each connector and junction box slot is color coded.

NOTE: The color rings on the cables are not visible when the cables are plugged in and the cable lock is attached.

1. Inspect the power supply cord and motor cables for cuts or damage to the cord and/or plug.

2. Inspect the junction box for any damage to the connectors.
3. Ensure that all cable plugs are connected securely.
4. Make sure all cables are routed through the cable lock slots.
5. Securely attach the cable lock. Refer to [Installing/Removing Cable Lock](#) on page 30.
6. If damage is found, contact an Invacare Customer Service Representative to report the damaged items and request appropriate replacement parts or products.

⚠ WARNING

The removal and installation of cables and the cable lock are to be performed by a qualified technician.

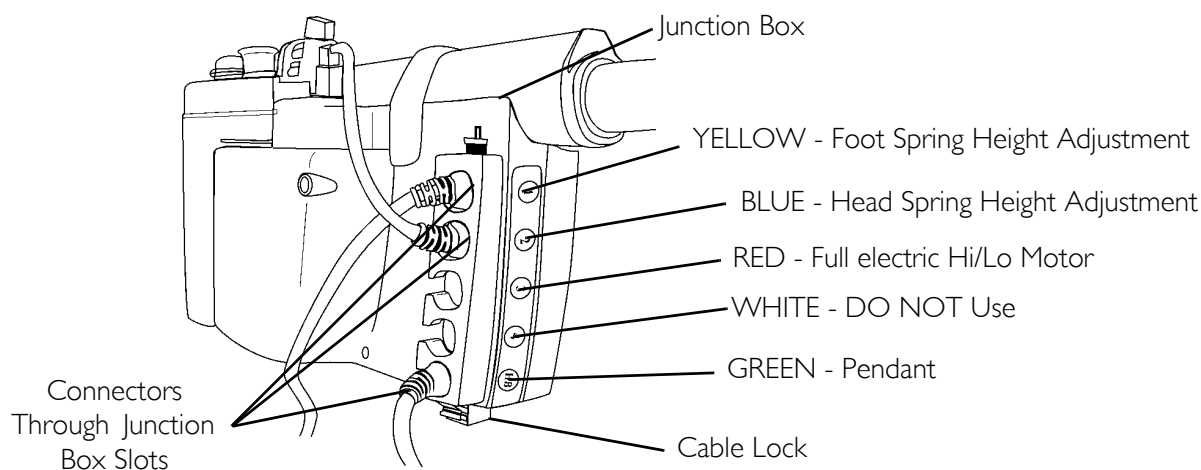


FIGURE 4.11 Inspecting the Bed - Electric Beds

Manual Beds

1. Raise and lower the cranks at the foot of the bed to make sure they work correctly. Refer to [Operating the Manual Bed](#) on page 16.
2. If no damage is found, set-up the bed for use.
3. If damage is found, contact an Invacare Customer Service Representative to report the damaged items and request appropriate replacement parts or products.

Installing/Removing Cable Lock

⚠ WARNING

The following procedures are to be performed only by a qualified technician.

If the cable lock clips are broken have a qualified technician replace the cable lock. Otherwise damage or personal injury could result.

NOTE: For this procedure, refer to FIGURE 4.12 on page 31.

Installing

1. Slide the cables into the appropriate cable lock slots.
2. Depress the cable lock clips.
3. Push the cable lock clips into the locking slots on the junction box, until they click in place.

Removing

1. Compress the cable lock clips firmly.
2. Carefully pull the cable lock away from the junction box.
3. Slide the cable lock off of the cables.

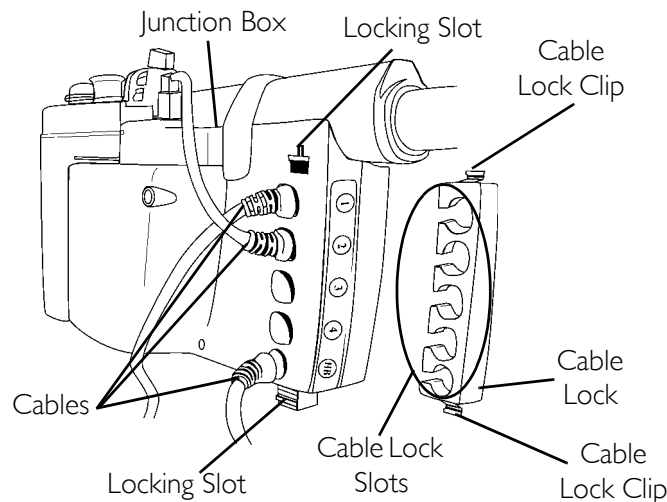


FIGURE 4.12 Installing/Removing Cable Lock

Installing the Manual Crank for Hi/Lo Function

NOTE: For this procedure, refer to FIGURE 4.13 on page 31.

1. Pinch the ears on the input drive shaft cover to open the cover.
2. Flip the input drive shaft cover up and push until it attaches to the gear box. The cross pins will now be accessible.
3. Connect the manual crank to the cross pins until the spring engages the cross pins.
4. Unfold the handle on the hand crank.

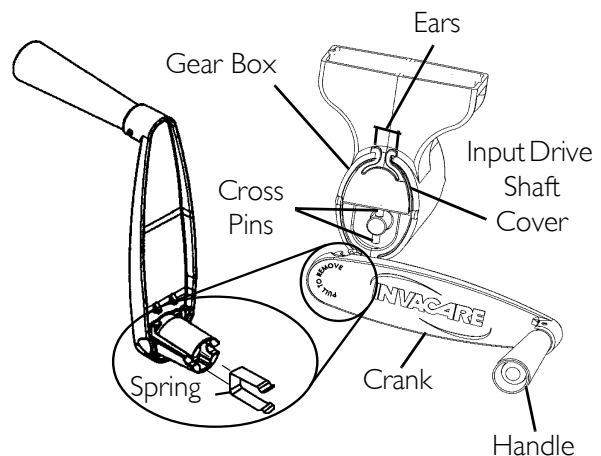


FIGURE 4.13 Assembling the Drive Shaft

Installing/Removing the Pendant

NOTE: For this procedure, refer to FIGURE 4.14.

For Canadian Customers who need to disable operation of electric beds: These Models have pendants that can be removed and stored in a secure place.

1. To disable operation of the electric bed, unscrew the union nut on the standard pendant cable that attaches to the extension cable.
2. Unplug the standard pendant cable from the extension cable.

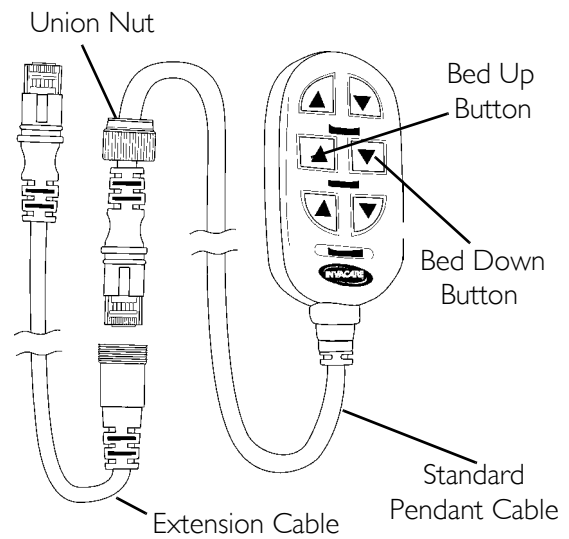


FIGURE 4.14 Installing/Removing the Pendant

Storing the Beds

⚠ WARNING

DO NOT place other objects on top of the cartons.

If bed is not being assembled immediately, retain the cartons and packaging for storage until ready for assembly.

Store the Invacare homecare bed in a dry area.

SECTION 5—TROUBLESHOOTING

Troubleshooting Electrical

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Bed spring does not move.	End of stroke reached.	Operate opposite button.
Full Electric Bed: Hi/Lo function does not work.	Bed not plugged in.	Ensure power cord is plugged into power source.
	Pendant not functioning.	Ensure Pendant is correctly connected to junction box. Refer to <u>Installing/Removing the Pendant</u> on page 32. Ensure Pendant cable not entangled/pinched.
	Cables	Ensure motor cable(s) are correctly connected. Refer to <u>Assembling the Drive Shaft</u> on page 27. Ensure cables are not entangled/pinched. Call Invacare for repair/replacement of cables and/or motors.
	Broken cable lock.	Call Invacare to replace cable lock.
	Hi/Lo Motor.	Ensure Hi/Lo motor cable is correctly connected. Refer to <u>Assembling the Drive Shaft</u> on page 27. Ensure cables are not entangled or pinched. Ensure Drive shaft is correctly installed.
	Thermal Protection Activated.	Allow bed unit to sit for 30 minutes and retry.
Bed Spring does not stop moving.	Pendant.	Replace pendant. Refer to <u>Installing/Removing the Pendant</u> on page 32.
Bed Hi/Lo movement does not stop.		Check cables, if damaged, replace. Refer to <u>Assembling the Drive Shaft</u> on page 27.
Bed is producing unusual sounds, burning odors, or movement deviations observed in the controls, motors, or the limits switch functions.		Call Invacare.

Troubleshooting Mechanical

SYMPTOM	PROBABLE CAUSE	SOLUTIONS
Bed does not stay in place.	Locking Casters.	Lock Casters. Refer to Installing the Casters on page 25.
Bed springs do not move.	Pull tube.	Ensure pull tubes are properly connected. Refer to Adjusting and Reconnecting the Head Section Pull Tube on page 24.
	Manual Beds - crank(s) not working.	Replace crank. Refer to Installing the Manual Crank for Hi/Lo Function on page 31.
Bed ends move in opposite directions (electrical or manual bed).	Drive Shaft connected to wrong gear box shaft.	Reinstall drive shaft. Refer to Assembling the Drive Shaft on page 27.
Hi/Lo function does not work.	Crank not properly installed.	Reinstall crank. Refer to Installing the Manual Crank for Hi/Lo Function on page 31.
	Drive shaft disconnected.	Reinstall drive shaft. Refer to Assembling the Drive Shaft on page 27.
Pressing function on pendant results in motion other than that intended.	Motor cable connections to junction box incorrect.	Verify Connections. Refer to Inspecting the Bed on page 29.

⚠ WARNING

Read all general guidelines, warnings and cautions before performing any repair/maintenance on the bed. All repair and maintenance on the bed should be performed by a qualified technician.

Maintenance Checklist

Invacare recommends the following maintenance and cleaning procedures be conducted between users or as needed. This form is provided as a guide to help with documentation.

Mechanical Inspection and Maintenance

- Inspect all bed components for damage or excessive wear.
- Visually examine all welds for cracks.
- Inspect the head and foot spring sections for bending, warping or damage.
- Check drive shaft and drive shaft connections for bending, damage or excessive wear.
- Inspect pull tubes and mounting hardware for bending, damage or excessive wear.
- Inspect all bolts and rivets to ensure that they are securely tightened and functioning properly.
- Check sleep surfaces to ensure all links are intact.
- Check casters to ensure they lock, if applicable, and roll properly.

Electrical Inspection and Maintenance

- Inspect all electrical bed components for damage or excessive wear (i.e. cracked or broken housings, or worn components).
- Check pendant, power and motor cords for chafing, cuts or excessive wear.
- Make sure all plugs are fully attached and free of damage.
- Make sure cable lock on junction box is properly positioned and locked
- Check all functions:
 - A. Ensure head raises and lowers properly.
 - B. Ensure foot raises and lowers properly.
 - C. Ensure bed ends raise and lower properly.

Pass/Fail

- PASS: Bed and all components have passed all of the above inspection criteria and the bed is ready for placement into a client's home.
- FAIL: Bed, or any component, has failed any of the above inspection criteria. Tag the bed or component with a complete description of the failure(s) and have the bed serviced.

APPENDIX

SPECIAL NOTE

For your convenience, the March 2006 version of the FDA's bed safety guidelines are provided in this section. The information from the FDA's brochure, published by Hospital Bed Safety Workgroup, is reproduced verbatim, the latest revision of which is available at <http://www.fda.gov>.

A Guide to Bed Safety Bed Rails in Hospitals, Nursing Homes and Home Health Care: The Facts

Bed Rail Entrapment Statistics

Today there are about 2.5 million hospital and nursing home beds in use in the United States. Between 1985 and 2005, 691 incidents of patients* caught, trapped, entangled, or strangled in beds with rails were reported to the U.S. Food and Drug Administration. Of these reports, 413 people died, 120 had a nonfatal injury, and 158 were not injured because staff intervened. Most patients were frail, elderly or confused.

**NOTE: In this brochure, the term patient refers to a resident of a nursing home, any individual receiving services in a home care setting, or patients in hospitals.*

Patient Safety

Patients who have problems with memory, sleeping, incontinence, pain, uncontrolled body movement, or who get out of bed and walk unsafely without assistance, must be carefully assessed for the best ways to keep them from harm, such as falling. Assessment by the patient's health care team will help to determine how best to keep the patient safe. Historically, physical restraints (such as vests, ankle or wrist restraints) were used to try to keep patients safe in health care facilities. In recent years, the health care community has recognized that physically restraining patients can be dangerous. Although not indicated for this use, bed rails are sometimes used as restraints. Regulatory agencies, health care organizations, product manufacturers and advocacy groups encourage hospitals, nursing homes and home care providers to assess patients' needs and to provide safe care without restraints.

The Benefits and Risks of Bed Rails

Potential benefits of bed rails include:

- Aiding in turning and repositioning within the bed.
- Providing a hand-hold for getting into or out of bed.
- Providing a feeling of comfort and security.
- Reducing the risk of patients falling out of bed when being transported.
- Providing easy access to bed controls and personal care items.

Potential risks of bed rails may include:

- Strangling, suffocating, bodily injury or death when patients or part of their body are caught between rails or between the bed rails and mattress.
- More serious injuries from falls when patients climb over rails.
- Skin bruising, cuts, and scrapes.
- Inducing agitated behavior when bed rails are used as a restraint.
- Feeling isolated or unnecessarily restricted.
- Preventing patients, who are able to get out of bed, from performing routine activities such as going to the bathroom or retrieving something from a closet.

Meeting Patients' Needs for Safety

Most patients can be in bed safely without bed rails. Consider the following:

- Use beds that can be raised and lowered close to the floor to accommodate both patient and health care worker needs.
- Keep the bed in the lowest position with wheels locked.
- When the patient is at risk of falling out of bed, place mats next to the bed, as long as this does not create a greater risk of accident.
- Use transfer or mobility aids.
- Monitor patients frequently.
- Anticipate the reasons patients get out of bed such as hunger, thirst, going to the bathroom, restlessness and pain; meet these needs by offering food and fluids, scheduling ample toileting, and providing calming interventions and pain relief.

When bed rails are used, perform an on-going assessment of the patient's physical and mental status; closely monitor high-risk patients. Consider the following:

- Lower one or more sections of the bed rail, such as the foot rail.
- Use a proper size mattress or mattress with raised foam edges to prevent patients from being trapped between the mattress and rail.
- Reduce the gaps between the mattress and side rails.

Which Ways of Reducing Risks are Best?

A process that requires ongoing patient evaluation and monitoring will result in optimizing bed safety. Many patients go through a period of adjustment to become comfortable with new options. Patients and their families should talk to their health care planning team to find out which options are best for them.

Patient or Family Concerns About Bed Rail Use

If patients or family ask about using bed rails, health care providers should:

- Encourage patients or family to talk to their health care planning team to determine whether or not bed rails are indicated.
- Reassure patients and their families that in many cases the patient can sleep safely without bed rails.
- Reassess the need for using bed rails on a frequent, regular basis.

To report an adverse event or medical device problem, please call FDA's MedWatch Reporting Program at 1-800-FDA-1088.

For additional copies of the brochure, see the FDA's website at <http://www.fda.gov/cdrh/beds/>

For more information about this brochure, contact Beryl Goldman at 610-388-5580 or by e-mail at bgoldman@kcorp.kendal.org. She has volunteered to answer questions.

For information regarding a specific hospital bed, contact the bed manufacturer directly.

Developed by the Hospital Bed Safety Workgroup

Participating Organizations:

- AARP
- ABA Tort and Insurance Practice Section
- American Association of Homes and Services for the Aging
- American Health Care Association
- American Medical Directors Association
- American Nurses Association
- American Society for Healthcare Engineering of the American Hospital Association
- American Society for Healthcare Risk Management
- Basic American Metal Products
- Beverly Enterprises, Inc.
- Care Providers of Minnesota
- Carroll Healthcare
- DePaul College of Law
- ECRI
- Evangelical Lutheran Good Samaritan Society
- Hill-Rom Co., Inc.
- Joint Commission on Accreditation of Healthcare Organizations
- Medical Devices Bureau, Health Canada
- National Association for Home Care
- National Citizens' Coalition for Nursing Home Reform
- National Patient Safety Foundation
- RN+ Systems
- Stryker Medical
- Sunrise Medical, Inc.
- The Jewish Home and Hospital
- Untie the Elderly, The Kendal Corporation
- U.S. Food and Drug Administration

Updated March 2006

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 who purchases this product when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.

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

Invacare warrants the mechanical and electrical components of this product when purchased new and unused to be free from defects in materials and workmanship for a period of two years from date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants all welds of this product when purchased new and unused to be free from defects in materials and workmanship for a period of five years from date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty periods 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, and the date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

LIMITATIONS AND EXCLUSIONS: THE FOREGOING WARRANTY SHALL NOT APPLY TO SERIAL NUMBERED PRODUCTS IF THE SERIAL NUMBER HAS BEEN REMOVED OR DEFACED, PRODUCTS SUBJECT TO NEGLIGENCE, ACCIDENT, IMPROPER OPERATION, MAINTENANCE OR STORAGE, 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 NORMAL WEAR AND TEAR OR FAILURE TO ADHERE TO THE PRODUCT INSTRUCTIONS.

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

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE.

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