

# CHG<sup>®</sup>

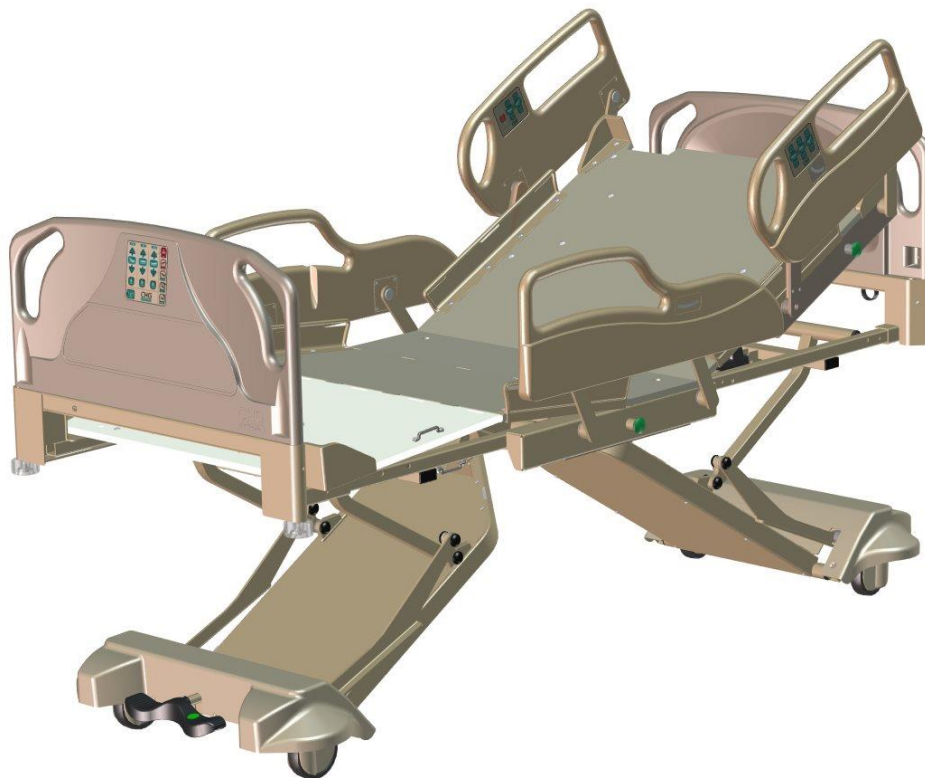
## HOSPITAL BEDS

### User Manual for Spirit Plus<sup>™</sup> Beds

**REF** B2 Spirit Plus<sup>™</sup>

*The*  
**Spirit Plus<sup>™</sup>** *Bed*

---



## Contact Information

Technical Service	Phone: (519) 963-4010 Toll Free: 1 (866) 516-5446 Fax: (519) 963-4013
Mailing Address	CHG Hospital Beds 1020 Adelaide Street South London, Ontario N6E 1R6 Canada

*To ensure prompt and accurate attention to your concerns please have the following information available before you call:*

## Spirit Plus™ Service Call Information

Your facility's <b>phone number</b> :	
Your facility's <b>fax number</b> :	
Bed(s) <b>Model and Type</b> :	
Bed(s) <b>Serial Number</b>	
Date of Purchase:	
List of <b>defective part(s)</b> :	
List of deficiencies or <b>type of problem</b> :	

# Spirit Plus™ Bed – Quick Reference Guide

## To Operate the Bed:

Use the footboard staff control, rail controls, or the pendant to raise or lower the head section, the knee section, or the entire bed.

## To Operate Electronic CPR:

**PRESS and HOLD** the CPR button to flatten both the head and knee sections simultaneously.

## To Operate Trendelenburg:

**PRESS and HOLD** the TREND (Trendelenburg) or rev.TREND (Reverse Trendelenburg) button on the footboard control to achieve either function. To level the bed, **PRESS and hold** the opposite function until the bed automatically stops in the horizontal position.

## To Operate 'Chair':

**PRESS and HOLD** the CHAIR button. Green LED illuminates when full CHAIR position is achieved.

**PRESS and HOLD** CHAIR button again to level bed. If Green LED is not illuminated **PRESS and HOLD** the CPR button to flatten both the head and knee sections and **PRESS and HOLD** the TREND button until the bed automatically stops in the horizontal position.

## To Operate 'Auto Contour':

Press the CONTOUR button so that the green light is on. Knee section will raise automatically when head section is raised. (NOTE: KNEE lock-out will override Auto Contour).

## Lock-Outs:

The side rail controls and pendant can be locked or unlocked (to restrict patient use). Lock-outs for each bed function are located on the footboard staff control underneath each function. When the LOCK button LED is illuminated, patient control of that particular function with the side rail controls or pendant is restricted. If the LOCK button LED is not illuminated, then patient control of that function is permitted.

## Master Lock-Out:

To restrict all side rail, pendant, **and** footboard controls, press all three LOCK buttons simultaneously (the LOCK button LED's will sequentially flash). When Master Lock-Out has been activated, the Electronic CPR function and Nurse Call remains operable.

## To Operate Plastic Siderails:

To lower the rails, gently depress the green PRESS button, then rotate the rail down. Head rails rotate toward the headboard, foot rails rotate toward the footboard. The rail will automatically lock in the UP position.

## To Move and Lock the Bed:

Use the Central "Lock & Steer" system:

**BRAKE:** All four wheels are locked in "BRAKE" mode

**STEER:** Foot-end wheels are locked in "STEER" mode, head-end wheels swivel freely

**NEUTRAL:** All four wheels swivel freely in "NEUTRAL" mode

## Power Status Indication:

LED is solid GREEN: Bed is plugged into an AC power outlet and the battery is fully charged

LED is flashing GREEN: Bed is plugged into an AC power outlet and the battery is charging

LED is solid RED: Bed is running on battery power

LED is flashing RED: Bed is running on battery power but has used up the battery power.

Plug bed into an AC power outlet and allow battery to charge for 24 hr

LED is alternating flashing GREEN and RED: Bed is plugged into an AC power outlet but there is a problem with the battery or another component. Service bed immediately

## **A Message from CHG Hospital Beds**

To Our Valued Customers,

Thank you for selecting CHG Hospital Beds as your hospital bed provider and congratulations on your purchase of a Spirit™ bed. You are a part of the growing majority of healthcare providers that recognize the benefits of a low hospital bed.

CHG Hospital Beds is committed to meeting the needs of our customers through quality products that are innovative, user-friendly, easy to maintain, and most importantly, focused on patient safety. We are sure that your hospital will enjoy the benefits and safety features of the Spirit™ bed for many years to come.

The Spirit™ bed is manufactured in London, Ontario, Canada. Each and every Spirit™ bed is inspected and tested by our team of highly trained and dedicated quality technicians to ensure that all Spirit™ beds meet our strict quality standards before entering your hospital.

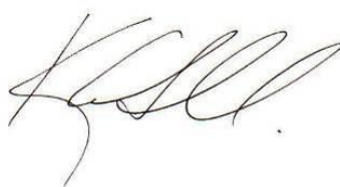
Our sales team is focused on providing exceptional sales support before, during, and after the delivery of your Spirit™ bed. If at any time you have questions or concerns regarding your Spirit™ bed, we strongly encourage you to call us at 1-866-516-5446. Our hands-on company philosophy enables us to respond to our customers quickly and effectively.

We recommend that you carefully read this Spirit™ Bed Owner's Manual prior to operating your bed. Becoming acquainted with the safe operation and maintenance procedures outlined in this manual will ensure proper bed use and can extend the service life of the bed.

Sincerely,



Steve Walker  
Director of Operations  
CHG Hospital Beds



Kyle Sobko  
Director of Sales & Marketing, Integration  
CHG Hospital Beds

# **Spirit Plus™ Bed User Instruction Manual Content**

	Page
<b>Spirit Plus™ Bed – Quick Reference Guide.....</b>	<b>3</b>
<b>A Message from CHG Hospital Beds.....</b>	<b>4</b>
<b>Section 1: .....</b>	<b>9</b>
<b>Specifications &amp; Precautions .....</b>	<b>9</b>
1.1 Full Bed Warranty .....	10
1.2 Intended Use.....	11
1.3 Standard Conventions Used in this Manual .....	11
1.3.1 Patient Left & Patient Right Determination.....	11
1.4 Symbols Used on the Spirit™ Bed .....	12
1.5 Technical Specifications .....	13
1.6 Important Electrical Precautions .....	15
1.6.1 Battery Back-up .....	17
1.6.2 Grounding .....	19
1.7 Important Mechanical Precautions .....	19
1.8 Mattress Specifications .....	20
1.9 General Precautions .....	21
1.10 Standard & Optional Features .....	24
1.11 Siderail Assemblies.....	25
1.12 Optional Accessories.....	25
1.13 Mass of Detachable Components.....	26
1.14 Applied Parts .....	26
1.15 Storage & Transport.....	26
1.16 Ultra-Low Feature .....	27
<b>Section 2: .....</b>	<b>29</b>
<b>Set-Up Instructions.....</b>	<b>29</b>
2.1 Unpacking Instructions .....	30
2.1.1 Delivery.....	30
2.1.2 Lowering the Bed .....	31
2.2 Set-Up of the Spirit™ Bed .....	32
<b>Section 3: .....</b>	<b>37</b>
<b>Bed Operation .....</b>	<b>37</b>
3.1 Central “Lock & Steer” System .....	38
3.1.1 Bed Mobilization & Stabilization .....	39
3.2 Bed Control .....	40
3.2.1 Patient Handheld Control (Pendant).....	40
3.3 Bed Positioning.....	41
3.3.1 Bed Elevation – HI-LO Operation .....	41
3.3.2 Head Deck (Back Rest) Elevation - Head Actuator Operation.....	41
3.3.3 Knee Deck Elevation - Foot Actuator Operation .....	42
3.3.4 Auto Contour Mode .....	42
3.3.5 Chair Positioning .....	43
3.4 Emergency & Staff Functions .....	43
3.4.1 Electronic CPR (Cardiopulmonary Resuscitation) Function .....	43
3.4.2 Trendelenburg Operation .....	44
3.4.3 Reverse Trendelenburg Operation.....	44
3.5 Patient Lock-Out Functions .....	45
3.5.1 Regular Patient Lock-Outs.....	45

3.5.2	Master Lock-Out.....	45
3.5.3	Security Lock-Out.....	46
3.6	Other Bed Functions & Features .....	49
3.6.1	Nurse Call.....	49
3.6.2	Standard 37 Pin Connector.....	49
3.6.3	Spirit Plus™ Power Status Indicator .....	50
3.7	Siderail Operation .....	51
3.7.1	Intended Application/Use of Spirit™ Bed Siderail Assemblies.....	51
3.7.2	Plastic Regular Height Siderails.....	52
3.7.3	Plastic High Siderails.....	53
3.7.4	Integrated Features of Plastic Regular Height and High Siderails .....	55
3.7.5	Other Optional Siderails .....	56
3.8	Optional Underbed Light on Spirit Plus™ Beds .....	56
3.9	Optional Underbed Obstruction Sensors .....	56
3.10	Optional "Easy Bed" Extension System.....	58
3.11	Optional Auxiliary AC Power Outlet .....	60
<b>Section 5:</b>	<b>.....</b>	<b>61</b>
<b>Care &amp; Maintenance</b>	<b>.....</b>	<b>61</b>
5.1	Regular Maintenance & Cleaning .....	62
5.1.1	Cleaning & Disinfection .....	62
5.1.2	Semi Annual Inspections .....	63
5.1.3	Yearly Inspections & Maintenance.....	63
5.2	Recycling Passport .....	65
5.2.1	Headboard Bracket.....	65
5.2.2	Footboard Bracket.....	66
5.2.3	Footboard.....	67
5.2.4	Head Rails .....	68
5.2.5	CB10 Control Box .....	69
5.2.6	Battery .....	70
5.2.7	CB09 Control Box .....	71
5.2.8	Head End Actuators.....	72
5.2.9	Foot End Actuators.....	73
5.2.10	Obstruction Sensors .....	74
5.3	Controls Servicing .....	75
5.3.1	Soft Reset of Controls.....	75
5.3.2	Hard Reset of Controls.....	76
5.3.3	Updating Firmware on the CB10 Control Box .....	76
5.3.4	Obtaining Updated Firmware.....	77
5.4	Mattress Deck Removal .....	78
5.4.1	Mattress Deck Removal - Foot Section.....	78
5.4.2	Accessing the CB10 Control Box .....	78
5.4.3	Mattress Deck Removal - Knee Section.....	78
5.4.4	Mattress Deck Removal - Head Section (Back Rest).....	78
5.4.5	Mattress Deck Removal - Seat Section.....	79
5.5	Before Calling The Factory .....	80
5.6	Colour Information.....	80
5.7	Troubleshooting Guide .....	81
5.8	Schematics & Technical .....	84
5.8.1	Spirit Wiring Schematic.....	84
5.8.2	Electrical Connections – Overview .....	86
5.8.3	Spirit Plus™ CB10Lite Control Box – Overview.....	87







## **Section 1:**

# **Specifications & Precautions**

## 1.1 Full Bed Warranty

CHG Hospital Beds' pro-rated warranty covers manufacturing defect, or failure due to workmanship or materials.

CHG Hospital Beds warrants to the original purchaser of its products that the electrical components are guaranteed to be free from manufacturing defect for one (1) year from the date of purchase.

CHG Hospital Beds warrants to the original purchaser of its products that the product or any part thereof, in the judgment of CHG Hospital Beds, will not be defective in material or workmanship for one (1) year from date of original purchase.

CHG Hospital Beds specifically warrants to the original purchaser of its products that the reinforced fibreglass sections of the mattress deck will not be defective in material or workmanship for ten (10) years from date of original purchase.

Such defects will be repaired or replaced (at the company's option) free of charge for parts only, provided the defective product is shipped to the factory or an authorized depot at the customer's own expense. Shipping charges for return of the product to the customer will also be at the customer's own expense.

This warranty does not include any labour or shipping charges incurred in replacement part installation or repair of any such part. CHG Hospital Beds' sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

After one year, for the next four years, frame parts only will be covered by the warranty according to the following five (5) year prorated fee schedule:

2 <sup>nd</sup> year	frame parts only	list price less 60%
3 <sup>rd</sup> year	frame parts only	list price less 40%
4 <sup>th</sup> year	frame parts only	list price less 20%
5 <sup>th</sup> year	frame parts only	list price less 10%

Parts, in the judgment of CHG Hospital Beds, found to be damaged through normal wear and tear, impact, abuse, overloading, fire, lightening, water damage, power surges, brown-outs, improper supply voltage or use of other manufacturer's head and/or footboards and/or accessories will not be covered. Replacement parts will be charged out at the full list price.

Any alteration made to and/or performed on the bed and/or one of its components voids this warranty.

A Return Goods Authorization number (RGA) must be obtained before returning any products or parts to the factory. We regret that no products will be accepted at the factory without an RGA number. No other warranty expressed or implied by CHG Hospital Beds or its agents shall be considered valid.

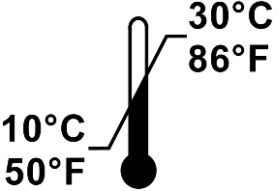
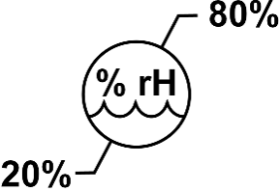
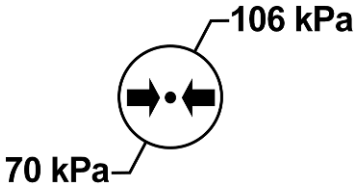
CHG Hospital Beds  
1020 Adelaide Street South  
London, Ontario  
N6E 1R6  
Canada

Phone: (519) 963-4010  
Fax: (519) 963-4013  
Toll Free: (866) 516-5446

## 1.2 Intended Use




The Spirit™ bed is intended for low to moderate acuity patients in the medical and/or surgical area of the hospital. The Spirit™ bed is also intended for use as a general-purpose variable height hospital bed for general care, post-operative and general medicine wards. The Spirit™ bed is intended for use in Application Environments 1-3, 5 as described in IEC 60601-2-52, Clauses 201.3.201 - 205.

Application Environment		Use of Spirit™ Bed
No.	Description	
1	Intensive/critical care provided in a hospital where 24 hour medical supervision and constant monitoring is required and the provision of life support system/equipment used in medical procedures is essential to maintain or improve the vital functions of the patient.	Suitable
2	Acute care provided in a hospital or other medical facility where medical supervision and monitoring is required and medical equipment used in medical procedures is often provided to help maintain or improve the condition of the patient.	Suitable
3	Long-term care in a medical area with medical supervision is required and monitoring is provided if necessary and medical equipment used in medical procedures may be provided to help maintain or improve the condition of the patient.	Suitable
4	Care provided in a domestic area where medical equipment is used to alleviate or compensate for an injury, disability, or disease.	Not Suitable
5	Outpatient (ambulatory) care which is provided in a hospital or other medical facility, under medical supervision where medical equipment is provided for the need of persons with illness, injury, or disability for treatment, diagnosis, or monitoring.	Suitable

Environmental Conditions for Normal Use		
		
Ambient Temperature Range	Ambient Humidity Range (Non Condensing)	Atmospheric Pressure Range

## 1.3 Standard Conventions Used in this Manual

This manual includes information essential to the safety of the patient, staff, and equipment during the normal operation of the Spirit™ bed. Before operating the Spirit™ bed be sure you have read and understood the contents of this manual. It is important that you use this equipment in accordance with the procedures outlined in this manual. As you read through this manual be alert to the four signal words.

 <b>DANGER</b>	Information appearing under the <b>DANGER</b> caption concerns the protection of patient, staff and others from the immediate and imminent hazards that, if not avoided, will result in immediate, serious personal injury or loss of life in addition to equipment damage.
 <b>WARNING</b>	Information appearing under the <b>WARNING</b> caption concerns the protection of patient, staff, and others from potential hazards that can result in personal injury or loss of life in addition to equipment damage.
 <b>CAUTION</b>	Information appearing under the <b>CAUTION</b> caption concerns the protection of patient, staff and others from potential hazards that can result in minor personal injury or equipment damage.
<b>NOTE:</b>	Information appearing in a <b>NOTE</b> caption provides additional information which is helpful in understanding the item being explained.

### 1.3.1 ***Patient Left & Patient Right Determination***

CHG Hospital Beds' determination of the "Patient Left" and the "Patient Right" side of the bed is made from the patient's point of view while positioned normally on the bed facing up.

## 1.4 Symbols Used on the Spirit™ Bed

	PROTECTIVE EARTH GROUND		ELECTRONIC CARDIOPULMONARY RESUSCITATION (CPR) FUNCTION PRESS AND HOLD TO LOWER ALL SECTIONS OF MATTRESS DECK FLAT TO BED FRAME		CHAIR FUNCTION PRESS AND HOLD TO BRING PATIENT TO SITTING POSITION
	POTENTIAL EQUALIZATION (EQUIPOTENTIAL POINT)		TRENDELBURG FUNCTION PRESS AND HOLD TO MOVE THE BED INTO TRENDELBURG POSITION		CONTOUR FUNCTION TOGGLE TO INITIATE AUTOMATIC ACTION OF KNEE-FOOT SECTION WHEN ACTION IS INITIATED TO HEAD SECTION OF MATTRESS DECK
	SAFE WORKING LOAD THE MAXIMUM ALLOWABLE LOAD THAT CAN BE PLACE ON THE BED		REVERSE TRENDELBURG FUNCTION PRESS AND HOLD TO MOVE THE BED INTO REVERSE TRENDELBURG POSITION		FUNCTION LOCK-OUT ACTIVATE TOGGLE SWITCH TO RESTRICT FUNCTION OF PATIENT AND PENDANT
	MAXIMUM PATIENT WEIGHT THE MAXIMUM ALLOWABLE WEIGHT OF PATIENT THAT CAN BE PLACE ON THE BED		INITIATE ACTION TO HEAD SECTION OF MATTRESS DECK		UP CONTROL ELEVATES THE CORRESPONDING SECTION OF THE MATTRESS DECK
	READ OWNER'S MANUAL BEFORE USE		INITIATE ACTION TO ENTIRE MATTRESS DECK (HI-LO)		DOWN CONTROL LOWERS THE CORRESPONDING SECTION OF THE MATTRESS DECK
	SYMBOL TO DRAW USER ATTENTION TO AN IDENTIFIED DANGER, WARNING, OR CAUTION		INITIATE ACTION TO KNEE-FOOT SECTION OF MATTRESS DECK		ELECTRONIC FOOT SIDERAIL RELEASE
CLASS 1	EQUIPMENT CLASSIFICATION IN TERMS OF PROTECTION AGAINST ELECTRICAL SHOCK	$V \sim$	ALTERNATING CURRENT (AC) POWER		POWER STATUS INDICATOR
	CE MARK		TYPE B EQUIPMENT		DUTY CYCLE 2 MINUTES ON 18 MINUTES OFF
	CATALOGUE NUMBER INDICATES THE MANUFACTURER'S CATALOGUE NUMBER SO THAT THE MEDICAL DEVICE CAN BE IDENTIFIED		SERIAL NUMBER INDICATES THE MANUFACTURER'S SERIAL NUMBER SO THAT A SPECIFIC MEDICAL DEVICE CAN BE IDENTIFIED		CONSULT INSTRUCTIONS FOR USE INDICATES THE NEED FOR THE USER TO CONSULT THE INSTRUCTIONS FOR USE
	CAUTION INDICATES THE NEED FOR THE USER TO CONSULT THE INSTRUCTIONS FOR USE FOR IMPORTANT INFORMATION		MANUFACTURER INDICATES THE MEDICAL DEVICE MANUFACTURER		WEEE SYMBOL WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE
	AUTHORIZED REPRESENTATIVE IN THE EUROPEAN COMMUNITY				

## 1.5 Technical Specifications

Certifications			
Certified to: CAN/CSA C22.2 No. 60601-1:2008 & 60601-2-52:2011, UL 60601-1:2003, IEC 60601-2-52/C1:2010 & 60601-2-38/A1:1999, ANSI/AAMI ES 60601-1:2005/A2:2010 Conforms to: IEC 60601-1:2005/C2:2007			
Articulation Range			
Head Section Angle		0° to 65°	
Head Section Angle (Beds with High Siderails)		0° to 60°	
Knee Section Angle		0° to 25°	
Foot Section Angle		0° to 10°	
Foot Section Angle in Vascular Position - Knee Fully Flat (Beds with Optional Vascular Bail)		15°	
Foot Section Angle in Vascular Position - With Knee Articulation (Beds with Optional Vascular Bail)		0° to -4°	
Trendelenburg		0° to 14°	
Reverse Trendelenburg		0° to -14°	
Mattress Deck Height - Lowest Elevation	Ø5" (125 mm) Casters	8 ¾"	222 mm
Mattress Deck Height - Highest Elevation		33 ¾"	857 mm
Minimum Deck Height Required to Accommodate Patient Lift Clearance 48" x 5" (1219 mm x 127 mm)		21 ¼"	540 mm
Underbed Clearance - Lowest Elevation		1¾"	45 mm
Mattress Deck Height - Lowest Elevation	Ø6" (150 mm) Casters	9 ¾"	248 mm
Mattress Deck Height - Highest Elevation		34 ¾"	883 mm
Minimum Deck Height Required to Accommodate Patient Lift Clearance 48" x 5" (1219 mm x 127 mm)		18 ¾"	476 mm
Underbed Clearance - Lowest Elevation		2¾"	70 mm
Electrical Specifications		120V Models	230V Models
Mode of Operation - Intermittent Operation		Duty: 10% (2 Minutes ON, 18 Minutes OFF)	
Mains Input Voltage		120 Volts AC	230 Volts AC
Mains Input Current		4.0 Amps	2.1 Amps
Mains Input Current (Beds with Auxiliary Mains AC Outlet)		9.0 Amps	5.1 Amps
Mains Input Current Frequency		60 Hertz	50 Hertz
Motor (Actuator) Voltage - Safety Extra Low Voltage (SELV)		24 Volts DC	24 Volts DC
Controls Voltage - Safety Extra Low Voltage (SELV)		5-12 Volts DC	5-12 Volts DC
Power Consumption - at Maximum Load (Safe Working Load)		480 Watts	480 Watts
Power Consumption - at Idle		24 Watts	24 Watts
Auxiliary Mains AC Outlet - Maximum Output Power		120 Volts, 5 A (600 Watts)	230 Volts, 3 A (690 Watts)

Control Locations		
Footboard Staff Control	Standard	
Siderail Controls (Patient and Staff)	Standard	
Six Function Handheld Pendant	Optional	
Safety Features		
Protective Earth Ground	Class I (Equipotential Point)	
Electric Shock Protection	Type B	
Enclosure Protection	IPX4	
Dual Foot Pedal – Lock & Steer Feature	Standard	
On-Board Battery Back-up	Standard	
Safety & Convenience Features on Footboard Staff Control		
<b>PRESS and Hold</b> Electronic CPR Function	Standard	
Trendelenburg/ Reverse Trendelenburg Capability	Standard	
Chair Positioning	Standard	
Auto Contour Mode	Standard - Toggle Button with LED	
Security		
Patient Lock-Outs - Bed Elevation, Head Section, and Knee/Foot Section (Patient Controls only)	Standard – Individual Toggle Button with LED's	
Master Lock-Out - All Patient and Staff Control Locations (including Footboard Staff Control)	Standard – Requires deactivation of Master Lock-out to operate bed	
Security Lock-Out - All Patient and Staff Control Locations (including Footboard Staff Control)	Standard – Requires facility-set user passcode to operate bed	
Dimensions & Weight		
Length (Overall Bed Length)	91¼"	2318 mm
Length - Between Head & Footboards	81"	2057 mm
Length - Mattress Deck (in 80" Mattress Position)	79¾"	2026 mm
Length - Mattress Deck (in 84" Mattress Position)	83¾"	2127 mm
Width - Between Outer Edges of Siderails	40"	1016 mm
Width - Mattress Deck	35"	889 mm
Load Capacity (Safe Working Load)	500 lbs	227 kg
Weight of Bed (Empty)	520 lbs	235 kg
Sound Pressure Level (Measured 1m from Device)		
Bed Operation - at Maximum Load (Safe Working Load)	< 54 dBA	
CB10 Confirmation/Notification "Chirp"	< 62 dBA	

*\*All dimensions are nominal and have approximate manufacturing tolerances of  $\pm \frac{1}{2}$ " (12.7 mm) for length/height and  $\pm 2^\circ$  for angular dimensions*

## 1.6 Important Electrical Precautions

### AC Power Outlet Requirements

<b>120 VAC models</b>	Plug the three prong power supply cord <b>ONLY</b> into a properly grounded 120 VAC, 60 Hz power outlet that is rated to at least 10 A.
<b>230 VAC models</b>	Plug the three prong power supply cord <b>ONLY</b> into a properly grounded 230 VAC, 50 Hz power outlet that is rated to at least 5 A.



#### **⚠ DANGER**

##### Possible **ELECTROCUTION** Hazard

**DO NOT** expose the AC power supply cord or other electrical components to water.

**DO NOT** allow the power supply cord, AC power outlet, auxiliary AC outlet socket (if equipped), actuators, control boxes or pendant (if equipped) to become wet or submerged during normal bed operation or when performing cleaning.

**DO NOT** submerge the bed frame or electrical parts. **DO NOT** allow liquids to enter electrical components. If a liquid is spilled in or around the bed, unplug the bed before cleaning. Clean up the spill and allow the bed and/or the area around the bed to dry thoroughly before using the controls again.

**DO NOT** open assemblies such as actuators, control boxes, battery, and pendant (if equipped). These parts are not serviceable. Only service technicians, specifically trained to service CHG Hospital Beds Spirit™ beds, should attempt to service bed and/or replace electrical components.

**DO NOT** use the auxiliary AC outlet socket (if equipped) if the socket receptacles appear to be damaged and/or if the plug (of the device that you are connecting the bed to) does not remain connected when inserted in the outlet socket receptacles.



#### **⚠ DANGER**

##### Possible **EXPLOSION** Hazard

**DO NOT** use near explosive gases. **DO NOT** operate this bed in the presence of a flammable anaesthetic mixture with air or with nitrous oxide.

**DO NOT** use this bed in Active Treatment "Ether Environments".



#### **⚠ DANGER**

Possible **FIRE** Hazard exists when connecting (plugging in) the power supply cord to an AC power outlet if oxygen administering equipment is in use.

Use either a patient nasal mask or half-length tent, ensuring the tent **NEVER** extends below the mattress deck, when administering oxygen.



#### **⚠ DANGER**

Possible **FIRE** Hazard exists if the pendant is not disabled when oxygen administering equipment is in use. If bed is equipped with a pendant, disconnect the pendant from the port at the side of the bed and insert pendant into its holster or attach pendant to bed linen using the included linen clip when not in use.



#### **⚠ WARNING**

**DO NOT** operate the bed if any actuator has malfunctioned or has been damaged in any manner.

**DO NOT** open assemblies such as actuators, control boxes, battery, and pendant (if equipped). These parts are not serviceable.



## ⚠ WARNING

Possible **ELECTRIC SHOCK Hazard** exists when servicing bed and/or replacing electrical components.

**ALWAYS** disconnect bed from the AC power outlet and ensure that the capacitor inside the CB09 control box has been fully discharged before servicing bed and/or replacing any electrical components. After the bed has been disconnected (unplugged) from the AC power outlet, fully discharge the CB09 control box by sequentially depressing the UP and DOWN buttons on one of the siderail controls or on the pendant (depending upon how bed is equipped) at least 20 times.

Only service technicians, specifically trained to service CHG Hospital Beds Spirit™ beds, should attempt to service bed and/or replace electrical components.



## ⚠ WARNING

All Spirit™ beds are equipped with a power supply cord storage device located at the head end of the bed. **ALWAYS** keep the power supply cord clear of any moving bed parts or mechanisms. The power supply cord should **ALWAYS** be stowed whenever moving, transporting, or storing the bed.

**DO NOT** allow the power supply cord and/or pendant cord to become entangled around other objects. A pinched power supply cord and/or pendant cord can become damaged and could be dangerous. Be aware of the power supply cord and/or pendant cord location especially when moving the bed.

**DO NOT** roll the bed over the power supply cord or pendant cord. **DO NOT** operate the bed if the power supply cord and/or pendant cord is damaged. **ALWAYS** keep power supply cord and/or pendant cord clear of moving equipment. The power supply cord is a replaceable component by service personnel. Contact CHG Hospital Beds' Customer Service at (519) 963-4010 or toll free 1-866-516-5446 for further assistance.

**DO NOT** position the bed so that it is difficult to disconnect the power supply cord should the need ever arise. **DO NOT** use an extension cord.



## ⚠ WARNING

Some versions of CB10 control box are **NOT** interchangeable and **MUST NOT** be installed on some beds. Bed may not operate as intended if incorrect version of the CB10 control box is used.

**NEVER** install a CB10 control box on your Spirit™ bed if it originally came equipped with a CB11 control box and vice versa. Both control boxes have different wiring terminations on the circuit board.

Some versions of CB09 control boxes are **NOT** interchangeable. If your Spirit™ bed is not equipped with a CB10 control box but contains additional electrical components (such as a DJB Junction Box), then this bed uses an older version of the CB09 control box.


**ALWAYS** confirm replacement part numbers and/or control box circuit board revisions are the same prior to installation. Contact CHG Hospital Beds' Customer Service at (519) 963-4010 or toll free 1-866-516-5446 for further assistance.




## ⚠ CAUTION

Connecting electrical equipment to auxiliary mains AC outlet effectively leads to creating a medical equipment system and can result in a reduced level of safety. When connecting devices, the system shall be evaluated in end use application to ensure compliance to medical device standard 60601-1.





	<b>⚠ CAUTION</b>
	<p>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 once.</p>
	<p>To ensure trouble free operation, <b>ALWAYS</b> allow a slight pause between multiple adjustments. <b>DO NOT</b> exceed the maximum continuous mode of operation. Refer to page 13 for complete technical specifications.</p>
<p>If thermal protection activation should occur, the bed will not respond to staff commands from any control location and the CB09 control box will need to be service and/or replaced.</p>	

	<b>⚠ WARNING</b>
	<p>Always keep the footboard installed and locked when a patient is left unattended. When removing the footboard, if the mating spring-return connector cover on the bed is damaged or does not return to properly to cover the terminals, reinstall and lock the footboard then have the bed serviced. Never touch an exposed terminal and the patient simultaneously.</p>

### 1.6.1 Battery Back-up

<b>Battery Location</b>	
<p>All Spirit™ beds are equipped with a rechargeable, back-up battery. The battery is located under the knee section of the mattress deck mounted to the bed frame cross member of the patient left side of the bed on all Spirit™ beds. Refer to pages 84 for battery location.</p>	
<b>Battery Charging and Operation Characteristics</b>	
<p>The battery is continuously charged when connected to the CB10 control box and the bed is plugged into an AC power outlet. When the bed is unplugged from the AC power outlet, the bed is powered by the battery. Refer to pages 86 to ensure proper battery cable connection.</p>	
<p>The footboard staff control on Spirit™ beds has an integrated power status indicator. When the ATTN light is flashing, the battery requires inspection. Refer to page 50 for power status indication.</p>	
<p>The battery is maintenance free, however battery life is not indefinite, and thus semi-annual inspection is required to verify operation. Refer to page 63 for details. In the event the battery is deemed to be faulty, does not hold a charge, will not operate the functions of the bed while the bed is disconnected (unplugged) from the AC power outlet, or if the battery case or mounting hardware has been damaged in any way, replace the battery.</p>	

	<b>⚠ WARNING</b>
	<p>After connecting a battery to the CB10 control box, the bed <b>MUST</b> be plugged into an AC power outlet to energize the battery circuit and enable bed operation under battery power. This <b>MUST</b> be performed regardless of the battery charge condition.</p>

	<b>⚠ WARNING</b>
	<p>Emergency bed functions cannot be guaranteed under abnormal operating conditions. <b>ALWAYS</b> be aware of the power status indicator and take appropriate action when the ATTN light is flashing. <b>ALWAYS</b> perform periodic battery inspection.</p>



### **⚠ WARNING**

Potential **ELECTROCUTION, EXPLOSION, and/or FIRE HAZARD**

These potential hazards could occur resulting in injury or loss of life in addition to equipment damage can occur if battery is replaced with components other than those approved for use on the Spirit™ bed by CHG Hospital Beds.



### **⚠ WARNING**

**EXPLOSION or FIRE HAZARD**

**DO NOT** expose the battery to heat. Keep away from flames and sparks



### **⚠ WARNING**

**DO NOT** connect battery to CB09 control box if your bed is also equipped with a control box. The battery may overheat causing it to swell, leak acid, and/or explode.

If your bed has a CB10 control box, the DC jack in the CB09 control box is no longer configured as a charging circuit for the battery. The DC jack has been modified to provide constant 24VDC power for the CB10 control box.

Connect battery only to CB10 control box. If you have to replace your CB09 control box call CHG Hospital Beds' Customer Service to ensure that you have the correct version of this component at (519) 963-4010 or Toll Free 1-866-516-5446.



### **⚠ WARNING**

If a sulphuric odour (smells like a burnt match) is detected, or if any residual leakage is found on or around the area of the battery, **ALWAYS** replace the battery immediately.

Battery is **NOT** a serviceable item. **DO NOT** attempt to open the battery. In the event that the battery enclosure has been compromised, avoid contact with internal components. Internal components are primarily lead oxide and electrolyte (sulphuric acid).

In the event a person is exposed to sulphuric acid, flush contacted area with large amounts of water for at least 15 minutes. Remove contaminated clothing and seek medical attention if necessary. An eye wash station and emergency shower should be readily available. If swallowed, give large amounts of water. **DO NOT** induce vomiting. Seek medical attention immediately.

Lead-acid batteries can be **HAZARDOUS** to your health. Short-term exposure – Sulphuric acid may cause irritation of eyes, nose and throat. Prolonged contact may cause severe burns. Long term exposure – repeated contact causes irritation and skin burns. Repeated exposure to mist may cause erosion of teeth, chronic eye irritation and/or chronic inflammation of the nose, throat, and bronchial tubes.

If a sulphuric acid spill is found under the bed, dilute the spill cautiously with five to six volumes of water and gradually neutralize with sodium bicarbonate, soda ash or lime. When exposure level is not known, wear NIOSH approved positive pressure self-contained breathing apparatus. Reference North American Emergency Response Guidebook #154 (or equivalent current documentation). Be sure to wear acid resistant gloves, safety glasses, and acid resistant clothing when cleaning a sulphuric acid spill.



### **⚠ CAUTION**

**ALWAYS** unplug the bed from the AC power outlet before connecting or disconnecting the battery.



## ⚠ CAUTION

**ALWAYS** dispose of faulty batteries or batteries that have reached the end of their service life according to local laws and regulations. Lead acid batteries are completely recyclable.

### 1.6.2 Grounding

This electric bed must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current, thereby reducing the risk of electric shock.

This product is equipped with a cord having an equipment-grounding conductor and a grounded plug. The plug must be inserted into an appropriate AC power outlet that is properly installed and grounded in accordance with all local electrical codes and ordinances.



## ⚠ DANGER

Improper connection of the equipment-grounding conductor can result in electrocution. Check with a qualified electrician or service person if you are doubtful that the electrical outlet is properly grounded.

**DO NOT** modify the three prong plug provided. If it will not fit into the AC power outlet, have a proper AC power outlet installed by a qualified electrician.

Grounding reliability can only be achieved when bed is connected to an equivalent receptacle marked "**HOSPITAL ONLY**" or "**HOSPITAL GRADE**".

## 1.7 Important Mechanical Precautions



### ⚠ WARNING

**Safe Working Load of Bed**  
**227 kg (500 lbs)**

**DO NOT** overload the bed. The total combined weight of patients, visitors, mattress, additional equipment/accessories, and bedding **MUST NOT** exceed 227 kg (500 lbs)



### ⚠ WARNING

**Maximum Patient Weight**  
**162 kg (357 lbs)**

Patient weight is based on a typical bed setup (20 kg mattress + 45 kg additional accessories)



### ⚠ WARNING

**Safe Working Load of Siderails**  
**80 kg (176 lbs)**

**DO NOT** exceed a 80 kg (176 lbs) load on any siderail



### ⚠ WARNING

**DO NOT** use headboards or footboards from other manufacturers on any Spirit™ bed. Spirit™ beds are specifically designed and manufactured for use in conjunction with CHG Hospital Beds accessories. Accessories designed by other manufacturers have not been tested by CHG Hospital Beds and are not recommended for use on Spirit™ beds.

On Spirit™ beds, **ALWAYS** ensure that the headboard and footboard brackets are properly attached to the frame before use.



## ⚠ WARNING

Possible **PINCHING HAZARD** exists when bed is configured with manual CPR release. Powered bed mechanisms can cause **SERIOUS INJURY**.

**ONLY** trained healthcare practitioners shall operate the manual CPR release in the event of a medical emergency. **ONLY** operate the Electronic CPR button and/or the manual CPR release with persons clear of mechanisms.

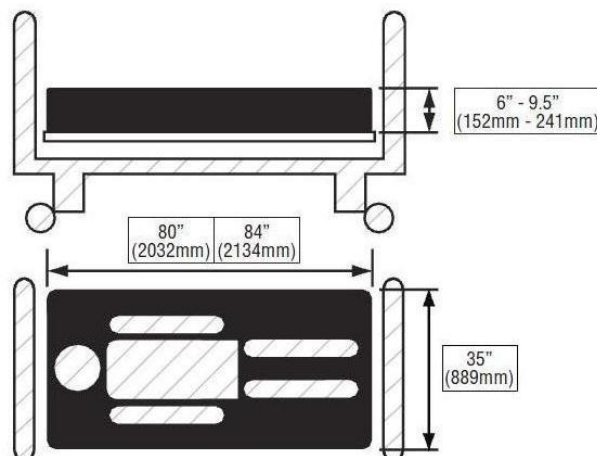
## 1.8 Mattress Specifications

A mattress is not included with the Spirit™ bed. A CHG Hospital Beds mattress is recommended.

Any mattress that is used on the Spirit™ bed must suitably fit on the mattress deck and fit snugly within the confines of the 4 corner mattress keepers having a width of 35" (889mm).

The length and width of the mattress **MUST** suitably fit on the mattress deck in either the 80" (2032 mm) or 84" (2134 mm) configuration.

**DO NOT** use the bed without a mattress having a thickness of at least 6" (152 mm) but not more than 9-1/2" (241 mm).



LENGTH:	OR	80 inch (2032mm)
		84 inch (2134 mm)
WIDTH:		35 inch (889 mm)
THICKNESS:		6 inch (152 mm)
WEIGHT:	80 inch (with Bolsters)	24 lbs (10.9 kg)
	84 inch (with Bolsters)	28 lbs (12.7 kg)



## ⚠ WARNING

The mattress **MUST** entirely rest upon the mattress deck. The mattress **MUST** fit snugly within the 4 corner mattress keepers.

Incompatible mattresses can create hazards. **DO NOT** use this bed without a special mattress specifically designed to bend and conform to the shape of the bed. **DO NOT** use water filled or gel filled mattress on this bed.



## ⚠ WARNING

Possible patient **ENTRAPMENT Hazard** or **FALL RISK** if using non-specified mattress.

Patient entrapment may result in injury or death. Use only a mattress of recommended specifications with this bed. CHG Hospital Beds will not be responsible for any injury to patient and/or staff and/or damage to bed that may result with use of non-specified mattress.

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>CHG Hospital Beds recommends that the customer perform a thorough patient assessment to determine if the bed system and mattress selection is appropriate for the patient on the basis of their clinical needs, fall risk, and mental capacity. CHG Hospital Beds is of the belief that to ensure maximum patient safety, there is simply no substitute for frequent patient monitoring by qualified healthcare practitioners. CHG Hospital Beds also recommends that the customer conduct and document a patient entrapment risk assessment for every mattress combination that is intended for use on the Spirit™ bed in both the flat (horizontal) and articulated positions to identify and address any exposure to areas of potential patient entrapment and/or fall risk as part of a comprehensive and proactive bed safety program.</p>
--	--

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>A potential increase in <b>FALL RISK</b> may result when using the Spirit™ bed with a mattress having a thickness greater than 6" (152mm). All patients should be monitored closely and CHG Hospital Beds recommends that when a patient is to be left unattended the bed should <b>ALWAYS</b> be lowered to the lowest position.</p>
--	--

## 1.9 General Precautions

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Close supervision by trained healthcare practitioners is <b>ALWAYS</b> necessary when this product is used by or near children and/or people with disabilities.</p> <p><b>DO NOT</b> let any person climb/crawl underneath the bed, between the bed legs and/or the raised bed frame components at any time.</p>
--	---

 	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p><b>DO NOT</b> 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.</p> <p>If you are unable to understand the warnings, cautions or instructions contact a healthcare professional, your Spirit™ bed dealer, or a service technician, specifically trained to service CHG Hospital Beds Spirit™ beds, before attempting to install and/or use this equipment, otherwise injury to the patient and/or staff and equipment damage may occur.</p>
------	---

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p><b>DO NOT</b> drop the bed. <b>DO NOT</b> allow patients to fall onto and/or jump on the bed. These types of activity can cause impact loads that can permanently damage the actuators and/or other bed components resulting in an inoperable bed.</p> <p>In the case of an inoperable bed due to a damaged actuator, replace the actuator immediately. If left unattended, a damaged actuator could result in injury to the patient and/or staff and additional equipment damage.</p>
--	---



### **⚠ WARNING**

Check all parts for shipping damage and test bed to confirm proper operation before putting the bed into active service.

**DO NOT** use bed if any component damage is discovered or a service technician suspects that damage has occurred. A damaged bed may expose staff and/or patients to unforeseen safety hazards. Contact your Spirit™ bed dealer or a service technician, specifically trained to service CHG Hospital Beds Spirit™ beds, for further instruction.

Before the bed is returned to active service after any adjustment, repair, and/or service have been performed, **ALWAYS** ensure that all attaching hardware is tightened securely.



### **⚠ WARNING**

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

Traction units are to be only used for immobilizing a patient in various, therapeutic, traction set ups and/or positions that have been clinically prescribed by a trained healthcare practitioner. Trapeze units (lifting poles) are to be only used to assist patient when repositioning and/or transferring into or out of the bed.



### **⚠ WARNING**

Unauthorized modifications to the equipment can result in **HAZARDS**. **DO NOT** modify the Spirit™ bed and/or any accessories without written authorization from CHG Hospital Beds.

Use only authorized CHG Hospital Beds replacement parts and/or accessories otherwise the warranty is void. CHG Hospital Beds will not be responsible for any injury to patient and/or staff and/or damage to bed that may result.



### **⚠ WARNING**

**ALWAYS** keep all moving parts, including the main frame of the bed, the bed legs, the mattress deck, and all actuator shafts free of obstructions (i.e.: window sills, radiators, bed side cabinets, under bed tables/trays, chair rails, consoles, blankets/bed linens, heating blankets/pads, tubing, wiring, etc., and other types of products using electric cords which may get tangled around the bed, siderails or legs) during bed operation. **NEVER** store anything under the bed.

**ALWAYS** take the necessary precautions to avoid squeezing/shearing of routed cables from other equipment in the moving parts of the bed.



### **⚠ CAUTION**

**DO NOT** stand on the bed or concentrate weight on any particular sections of the mattress deck. Patient body weight should be evenly distributed over the surface of the bed. **DO NOT** lay, sit or lean in such a way that the patient's entire body weight is placed only on elevated head or foot sections of the bed. This includes situation when assisting the patient to reposition and/or transfer into or out of the bed.

Ensure all hinges of the mattress deck sections are properly aligned before raising head or knee sections. All four sections of the mattress deck can be detached for thorough cleaning, sanitization, and maintenance. Refer to page 78 for instructions.



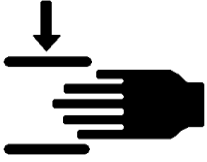
### **⚠ CAUTION**

A patient hoist can be used with this bed however due to the ultra-low height, it has limited underbed clearance therefore the bed must be partially raised to allow the patient hoist to roll freely under it. Failure to raise the bed may result in damage to the bed when patient hoists are used.



### **⚠ CAUTION**

The Footboard is **NOT** designed for use as a patient therapy device. **NEVER** use the Footboard as a resistance device. Any undue forces, bending or flexing of the footboard may permanently damage the footboard and any associated electrical connections.



### **⚠ CAUTION**

Potential **PINCHING HAZARD** exists between articulating deck sections and bed frame. Moving parts and/or powered bed mechanisms can cause **SERIOUS INJURY**. Only operate bed with persons clear of all mechanisms. **ALWAYS** keep hands clear of moving bed parts.

Ensure that the backrest remains free from all obstructions. Obstructions could impair normal bed operation and/or cause component damage and/or injury. If an obstruction is detected elevate the backrest to clear obstruction before attempting to remove any obstruction.



### **⚠ CAUTION**

The Spirit™ bed has been supplied from an environmentally aware manufacturer that complies with the Waste of Electrical and Electronic Equipment (WEEE) directive 2002/96/CE. The Spirit™ bed may contain substances that could be harmful to the environment if disposed of in places (landfills, etc.) that are not appropriate according to legislation. Please be environmentally responsible and recycle this bed through your recycling facility when the bed has reached the end of its service life.

## 1.10 Standard & Optional Features

Feature	Spirit Plus™
5" (125 mm) Casters	Standard
6" (150 mm) Casters	Optional
4 Corner Mattress Keepers	Standard
6 Patient Restraint Loops	Standard
2 Drainage Bag Holders	Standard
Wood Laminate Head/Footboards	Optional
Patient Handheld Control (Pendant)	Optional
Moulded Plastic Head/Footboards	Standard
Moulded Plastic Siderails c/w Integrated Staff & Patient Controls, and Nurse Call	Standard
Bed Exit Alarm Pad & External Alarm Unit	Optional
Underbed Obstruction Sensing	Optional
Underbed Lighting	Optional
Auxiliary AC Power Outlet Socket	Optional
4" (102mm) "Easy Bed" Extension System	Optional
2 Position Vascular Foot Bail	Optional
Moulded Plastic High Siderails c/w Integrated Staff, Patient Controls, and Nurse Call Feature	Optional
Mental Health Package c/w Tamperproof Fasteners, Deck Section Connectors, Non-Removable Head and Footboards, Removable Brake Pedal, and Shortened Power Supply Cord	Optional*



### **⚠ WARNING**

\*A Spirit™ bed outfitted with the optional Mental Health package is a customer requested bed configuration that is intended to perform a specialized function and has several unique differences from regular production beds. The head and footboards and deck sections may not be removable without tools. The head and footboards and rail panels may not have any openings. The brake pedal may be removable. The power cord may also be shorter.

\* A Spirit™ bed outfitted with the Mental Health package is **NOT** intended for normal unit use.



## 1.11 Siderail Assemblies

Your Spirit™ bed may be equipped with one of the following types of siderail assemblies:

### Siderail Types

Regular Height Plastic Siderails	Standard
High Plastic Siderails	Optional
High "Filled-in" Plastic Siderails	Optional
Long High Head Plastic Siderails	Optional
Long High Head "Filled-in" Plastic Siderails	Optional

## 1.12 Optional Accessories

Accessory	Mass*	Spirit Plus™
Mattress Pump & Accessory Hanger	3 lbs (1.4 kg)	A2601


*\*All masses are nominal and have approximate manufacturing tolerances of  $\pm \frac{1}{4}$  lbs ( $\pm .11$  kg)*

*\*\*Accessory, once installed onto and/or fastened to bed is no longer considered detachable*

## 1.13 Mass of Detachable Components


Detachable Component	Mass*	
	Headboard	Footboard
Spirit Plus™ Wood Laminate Head/Footboard	21 lbs (9.5 kg)	21 lbs (9.5 kg)
Spirit Plus™ Moulded Plastic Head/Footboard	6 lbs (2.7 kg)	6 lbs (2.7 kg)

\*All masses are nominal and have approximate manufacturing tolerances of  $\pm \frac{1}{4}$  lbs ( $\pm .11$  kg)



**⚠ CAUTION**

**NEVER** attempt to install a headboard at the foot end of the bed and vice versa. **ALWAYS** ensure that the footboard is installed in the proper orientation. The footboard staff control **MUST ALWAYS** face away from the patient. **NEVER** drop a footboard. A damaged footboard staff control and/or footboard staff control connector could result in the inability to operate the bed from this control point.



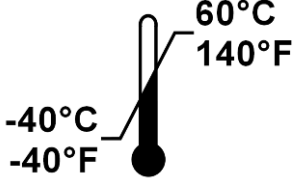
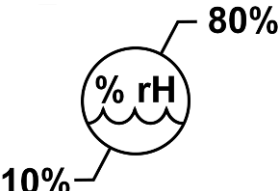
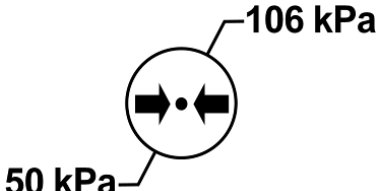
**⚠ CAUTION**

On Spirit™ beds configured with wood laminate head/footboards, the footboard cable **MUST** be disconnected before the footboard can be removed from the bed. Failure to disconnect the footboard cable prior to footboard removal may result in component damage and/or the inability to operate the bed from the footboard staff control.

## 1.14 Applied Parts

CHG Hospital Beds considers that the following are the Applied Parts of the Spirit™ bed: any head/footboard assemblies, head/footboard bracket assemblies, any siderail assemblies, all sections of the mattress support platform (deck) and associated mattress keepers, any CHG Hospital Beds' supplied pendant (if equipped), any CHG Hospital Beds supplied (Prevention Surface) mattress (if equipped).

## 1.15 Storage & Transport

Environmental Conditions for Storage and Transport		
 <p>-40°C -40°F</p> <p>60°C 140°F</p>	 <p>80%</p> <p>10%</p>	 <p>106 kPa</p> <p>50 kPa</p>
Ambient Temperature Range	Ambient Humidity Range (Non Condensing)	Atmospheric Pressure Range

During extended periods of disconnect from an AC power outlet, the battery is susceptible to permanent damage caused by being deep discharged. All Spirit™ beds are equipped with a disconnect feature which automatically disengages the battery from the battery circuit to prevent damage from being deep discharged. There is no need to disconnect the battery when a Spirit™ bed is going to be put into storage, however, the CB10 control box will continue to draw power until the battery voltage has hit the 18V threshold which triggers the automatic circuit disconnection.

**IMPORTANT:** A battery voltage of 18V is insufficient to operate the bed. Reconnect bed to an AC power outlet as soon as possible to and allow battery to charge for a period of 24hr to ensure that the bed will reliably operate on battery power when needed.

**IMPORTANT:** To conserve battery life during storage and transport, disconnect the battery from the CB10 control box. On Spirit™ beds equipped with CB10 control boxes, even if a battery was fully charged when it was unplugged from the control box, the bed will not operate on battery power if the battery is simply reconnected to the control box. The bed must be connected to an AC power outlet to energize the battery circuit. This will enable bed operation on battery power.



### ⚠ CAUTION

**DO NOT** re-use any original packaging material to transport the bed.

**ALWAYS** transport the bed by rolling the bed on its casters.

**ALWAYS** ensure the Central "Lock & Steer" system is in the "BRAKE" position before attempting to lift/lower bed. **ALWAYS** ensure that the Central "Lock & Steer" system is in the "BRAKE" position after the bed is loaded onto transportation vehicle. Use additional strapping or tie downs as necessary to ensure the bed does not move while in transport.

**DO NOT** use the siderails as a means of mechanically restraining the bed during transportation and/or storage. **DO NOT** use the siderails as lifting points for the bed during transportation and/or storage.

### NOTE:

CHG Hospital Beds recommends that following any storage and/or transportation in extreme temperature conditions that you allow the bed to acclimatize for a period of at least 24 hours before the bed is operated/powered up and/or put into service.

## 1.16 Ultra-Low Feature

The Spirit™ product line is a family of ultra-low beds, designed to reduce patient injury due to falls out of bed. Therefore, in an effort to reduce patient injury, CHG Hospital Beds recommends that you **ALWAYS** lower the bed completely to the lowest position before leaving a patient unattended.

*When configuring a bed with no rails:*

Regardless of the purpose for which bed rails are being used or considered, a decision to utilize or remove those in current use should occur within the framework of an individual patient assessment. For Further information refer to the FDA's website at <http://www.fda.gov/cdrh/beds/> for Clinical Guidance for the Assessment and Implementation of Bed Rails in Hospital, Long Term Care Facilities, and Home Care Settings.



### ⚠ CAUTION

**When beds are configured with no side rails:** Keep the bed in the lowest position with the wheels locked and patient lock-outs on as prescribed by the care plan when occupied, adjusting the level for activities such as administering care or for patient transfers in/out of bed. Transport patients as prescribed by the care plan.

Available floor mats, mattresses with side bolsters, bed exit alarm, and nurse call can be used in conjunction with the low bed based on the patient assessment and care plan.




## **Section 2:**




# **Set-Up Instructions**

## 2.1 Unpacking Instructions



Upon delivery of the bed, remove all cardboard, Styrofoam, crates, or other packaging material. Follow these instructions to unpack and set up the bed.

	<p><b>⚠ CAUTION</b></p>
	<p>Equipment <b>DAMAGE</b> may result from improper plastic tie wrap removal.</p> <p><b>DO NOT</b> cut any trimmed plastic tie wraps. Trimmed plastic tie wraps are permanent features on the Spirit™ bed.</p>

### 2.1.1 *Delivery*

		
<p>If your Spirit™ bed is shipped standing on-end, use three people to carefully lower it to the floor. Refer to pages 31 for safe lowering instructions.</p> <p><b>DO NOT</b> attempt to lower the bed without assistance.</p> <p>Once the bed is lowered, you may begin the set-up of your Spirit™ bed.</p>		<p>If your Spirit™ bed is shipped on a pallet or in a crate, roll the bed onto the floor and begin the set-up procedure.</p> <p><i>For the purpose of clarity, the packaging has been removed from this bed.</i></p>

	<p><b>⚠ WARNING</b></p>	<p>CAUTION</p>  <p>TOP HEAVY</p>
	<p><b>BED IS TOP HEAVY!!!</b></p>	
<p>Bed may <b>TIP OVER</b> when positioned upright during storage and/or transport</p>		

	<p><b>⚠ WARNING</b></p>	
	<p><b>BED IS HEAVY!!!</b></p>	
<p>Improper handling may result in serious injury to personnel and/or damage to bed.</p> <p>Use proper lifting techniques when lifting or lowering bed.</p> <p><b>DO NOT</b> attempt to lower bed without assistance. Refer to pages 31 for safe lowering instructions.</p>		

## 2.1.2 Lowering the Bed



1. Beds in typical position when being transported or stored.
- IMPORTANT: BED IS HEAVY!!!** Never attempt to lower the bed without assistance. CHG Hospital Beds recommends that the bed is most safely lowered with 3 people as shown in the following steps.



2. Use the corner of the shipping stand (bolted to lower end of the bed) and the siderails (must be strapped to the bed) to pivot the bed into a position that will allow you to lower the bed.
- IMPORTANT:** Maintain your hold on the bed. The bed will fall if not held upright at this point.



3. Ensure the brake is engaged before attempting to lower/lift the bed. Attempt to rotate a caster to confirm that the brake has been engaged.
- IMPORTANT:** Prior to lowering the bed, ensure that you have adequate room. At least 8 feet is required to lower the bed from the upright transportation/storage position.



4. Firmly grasp the bed frame at the foot end of the bed (circled). Begin lowering the bed by gently pulling the bed from the upright position and slowing walking backwards.



5. Continue lowering the bed by slowing walking backwards. It may be necessary to reposition your grip to allow further lowering of the bed.
- IMPORTANT:** Communicate with the other people before adjusting your grip!



6. At this point, maintain your grip, lock your arms, and lower the bed to the floor by bending your knees.
- IMPORTANT:** Do not drop bed!



### **⚠ WARNING**

**DO NOT** drop the bed when lowering during storage and/or transport. If the bed is dropped, permanent damage to bed components may occur. This may result in an inoperable bed or a bed with severely impaired operation.

**DO NOT** use a bed that has been dropped. Non obvious damage may have occurred that may expose staff and/or patients to unforeseen safety hazards.

The Central "Lock & Steer" system **MUST** be in the **"BRAKE"** position prior to attempting to lower/lift the bed. If the brake has not been engaged, the bed may roll away from personnel while attempting to lower/lift the bed. This may result in a very rapid descent and/or unexpected bed motion that may cause severe **INJURY** to personnel lowering/lifting bed and/or permanent **DAMAGE** to bed.










Before lowering/lifting bed, **ALWAYS** attempt to roll/rotate a caster to confirm that the brake is engaged.

**DO NOT** use the siderails as lifting/lowering points for the bed.










**DO NOT** use the siderails as a means of mechanically restraining the bed during transportation and/or storage.












## 2.2 Set-Up of the Spirit™ Bed



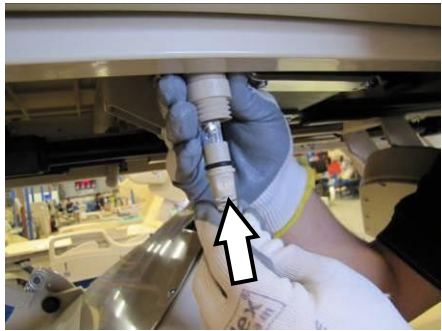



		
<p>1. Cut packaging straps holding the headboard and footboard box and other packaging materials to the bed. Cut all untrimmed plastic tie wraps. Discard all packaging materials.</p> <p><b>DO NOT</b> cut any trimmed plastic tie wraps. Trimmed plastic tie wraps are permanent features on all Spirit™ beds.</p>		
		
<p>1. Using a 3/4 SAE socket, 9" extension, and ratchet remove the 4 bolts holding the shipping bed stand onto the headboard bracket.</p>	<p>2. Lift shipping bed stand away from headboard bracket. Discard shipping bed stand and fasteners.</p>	<p>3. Remove the plastic tie wrap around the main power supply cord bundle.</p> <p>Exercise caution to ensure that you do not cut into or otherwise damage the of the power supply cord.</p>
		
<p>4. Connect the bed to mains A/C power either directly into a properly grounded wall outlet or into a suitable extension cord connected to a properly grounded wall outlet.</p>	<p>5. Cut plastic tie wrap holding head rail assembly.</p>	<p>6. Rotate both head rail assemblies and lock/latch in the UP position. Pull out all packaging tucked in between the rail arms, panel, and bracket. Discard all packaging materials.</p>



		
<p>7. Reach under bed and cut packaging strap wrapped around head-end leg assembly and the frame.</p>	<p>8. If your bed is equipped with the optional obstruction sensors, pull out protective shipping cover installed over the lower leg obstruction sensor. Discard protective shipping cover.</p>	<p>9. Cut packaging strap wrapped around foot rail assemblies and the frame.</p>
		
<p>10. Reach under bed and cut packaging strap wrapped around foot-end leg assembly and the frame.</p>	<p>11. If your bed is equipped with the optional obstruction sensors, pull out protective shipping cover installed over the lower leg obstruction sensor. Discard protective shipping cover.</p>	<p>12. Press the UP button on either siderail staff controls and elevate bed to a comfortable working height.</p>
		
<p>13. Rotate both foot rail assemblies and lock/latch in the UP position. Pull out all packaging tucked in between the rail arms, panel, and bracket. Discard all packaging materials.</p>	<p>14. Removed both shipping pins by pulling straight out. Discard both shipping pins.</p>	

		
<p>15. Unpack the headboard and footboard from their separate packaging box.</p>	<p>16. Lay the headboard and footboard on top of their separate packaging box.</p> <p>There should also be a small bag of 4 black plastic barbed clips in the box. Other items may be shipped inside this box. Ensure box is empty then discard box.</p>	<p>17. Place the headboard into the headboard bracket assembly.</p> <p>Electrical connector is not live. It is used only as an indexing feature to ensure correct headboard installation orientation.</p>
		
<p>18. Place the footboard into the footboard bracket assembly.</p> <p>Electrical connection is made when the footboard is inserted into bracket assembly; footboard becomes inactive when removed.</p>	<p>19. Install both footboard lanyard pins into the holes in the footboard bracket.</p>	<p>20. Install 4 black plastic barbed clips (from step 17) into the 4 holes on the headboard bracket that the shipping stand was attached to.</p>
		
<p>21. Remove manual from cardboard covering mattress deck.</p> <p><b>IMPORTANT: DO NOT</b> discard manual. Thoroughly read manual before using bed. Store manual in a readily accessible location for future reference.</p>	<p>22. Removed cardboard covering mattress deck. Discard cardboard.</p>	<p>23. Lift the knee/foot sections of the mattress deck (as shown above) to gain access the CB10 or CB11 control box.</p>



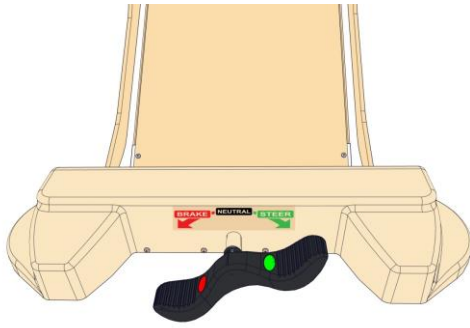
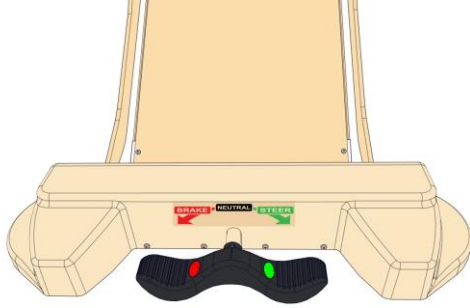
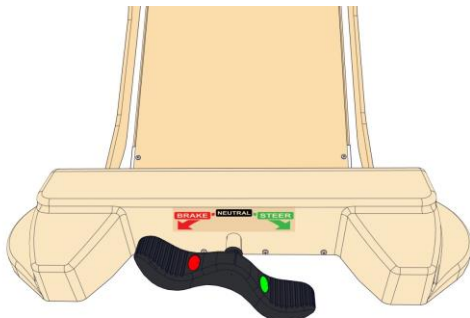
		
<p>24. Continue to lift the knee/foot hinged connection and gently lay the deck sections back as shown above. The CB10 or CB11 control box is now accessible.</p>	<p>25. Connect the battery cable to the side DC jack of the CB10 or CB11 control box.</p> <p><b>IMPORTANT:</b> This will ensure the on-board battery remains fully charged and will be ready for use in the event that mains AC power is disrupted.</p>	<p>26. If your bed is equipped with the optional pendant, unscrew cap on desired pendant port (either side of bed). Align arrows and insert pendant connector into pendant port. Slide up and screw on threaded retaining collar attached to the pendant.</p>
		
<p>The bed <b>MUST</b> be initialized before it can be used.</p> <p>27. Using the BED DOWN button fully lower the bed using any control location (footboard staff control, siderail staff control, rail patient, or pendant).</p> <p><b>IMPORTANT:</b> Ensure that the power cord is free of moving bed parts.</p>	<p>28. Once the bed is fully lowered and all bed motion has automatically stopped <b>CONTINUE to HOLD</b> the BED DOWN button until the two tone audible indicator sounds. Continue to Hold bed down for an additional 20 seconds to complete the Soft Reset.</p> <p>This process will synchronize the hi-lo actuators so that the bed will perform properly</p>	<p>29. Your new Spirit™ bed is now ready for use.</p>




## **Section 3:**

# **Bed Operation**

### 3.1 Central "Lock & Steer" System

Mode	Caster Functionality	Pedal Position
<b>"BRAKE"</b>  Mode used to stabilize the bed from shifting.  This mode prevents the bed from moving forwards, backwards or sideways.	Casters <b>DO NOT</b> swivel or roll	
<b>"NEUTRAL"</b>  Mode used only to manoeuvre the bed in a tight area.  This mode allows the bed to move forwards, backwards or sideways.	All casters swivel and roll	
<b>"STEER"</b>  Mode used when attempting to steer the bed in a desired direction.  All caster wheels can still rotate, enabling the bed to move forwards or backwards.	Head end casters swivel Foot end casters <b>DO NOT</b> swivel All casters roll	




**⚠ WARNING**

Unintended bed movement may occur if bed is left in either of the two mobilized positions; "STEER" or "NEUTRAL".

**NEVER** leave the bed unattended in either the "STEER" or "NEUTRAL" positions.

**ALWAYS** engage the "BRAKE" when leaving a patient unattended.

**DO NOT** attempt to move the bed until the "BRAKE" has been released.



**⚠ WARNING**

When transferring into or out of the bed, **ALWAYS** ensure that the "BRAKE" is engaged (casters are locked). Inspect the caster locks for correct locking action before actual use.

Even with the "BRAKE" properly engaged (caster properly locked), some flooring surfaces such as tile or wood will allow the bed to move under some conditions. Bed use on surfaces such as these **MUST** be evaluated by the healthcare facility and deemed safe before the bed is put into active service.

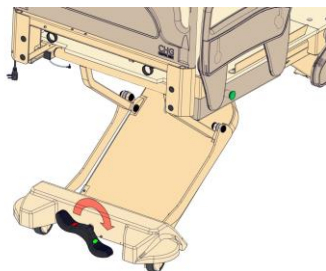
### 3.1.1 Bed Mobilization & Stabilization

#### Bed Mobilization

The bed is mobile when the Central "Lock & Steer" pedal is in either the "NEUTRAL" or "STEER" position. Use either of these two pedal positions depending on the situation, when bed mobility is needed.

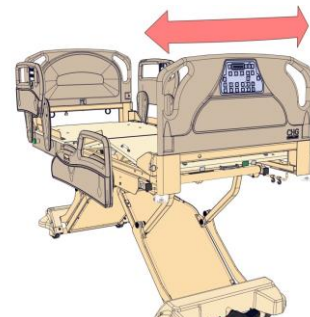
##### Enable "Steer"

Fully depress the right side of the Central "Lock & Steer" pedal at either end of the bed. Pedal actuation mechanism should make an audible engagement when switching between modes.



**IMPORTANT:** Depending upon the orientation of the castors, it may be necessary to roll the bed sideways, in a back and forth motion, at the foot end of the bed until the steering casters become engaged in the "STEER" mode.

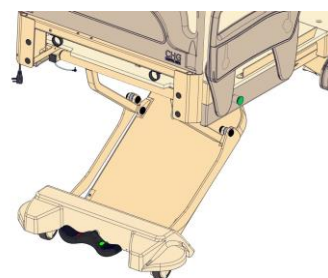
##### Side-to-Side Motion



##### Put the bed into "Neutral"

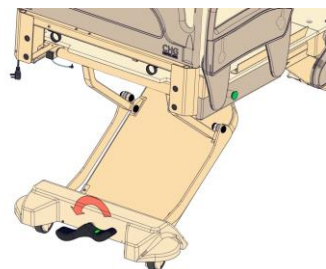
Depress or lift the Central "Lock & Steer" pedal with your foot until the pedal is level. Pedal actuation mechanism should make an audible engagement when switching between modes.

The bed can be put in "NEUTRAL" regardless of caster orientation.



#### Bed Stabilization

The bed is stable when the Central "Lock & Steer" pedal is in the "BRAKE" position. Use this pedal position whenever the bed is left unattended or when the bed needs to remain stable.



##### Apply the "BRAKE"

Fully depress the left side of the Central "Lock & Steer" pedal at either end of the bed. Pedal actuation mechanism should make an audible engagement when switching between modes.

The "BRAKE" can be applied regardless of caster orientation.



#### ⚠ WARNING

**DO NOT** to move the bed until the siderail assemblies have been fully raised/closed and locked/latched in the UP position Refer to page 51 for siderail operation instructions.

#### NOTE:

When the "NEUTRAL" mode is activated properly, the bed should move freely without any unusual noises. If any clicking noises are heard when in the "NEUTRAL" position, stop and ensure that the Central "Lock & Steer" pedal is level. Adjust, if necessary.

## 3.2 Bed Control

Depending on the Spirit™ bed you purchased, you will have two or three locations for controlling bed functions.

### Control Location

Patient Handheld Control (Pendant)	Optional
Footboard Staff Control	Standard
Patient/Staff Siderail Controls	Standard

### 3.2.1 Patient Handheld Control (Pendant)

All Spirit™ beds can be configured to connect an optional patient, handheld, 6 function control (pendant).

The pendant offers patient control of basic bed operations:

- Head UP/DOWN,
- Knee/Foot UP/DOWN
- Bed UP/DOWN



### Pendant Storage

The pendant can be affixed to the bed using a holder. The pendant slips into the holder for easy location and convenient patient access.

#### ***On Spirit™ beds equipped with high siderails:***

Install the pendant holder into the opening in either foot rail panel. To permanently affix the holder to the bed, screws the holder to the foot rail panel with the fasteners provided.



Optionally, the pendant can be secured to the bed linens with the linen clip provided. Choose a clip location so that the pendant is within easy reach by the patient.



### Pendant Connection

The pendant can be connected on either side of the bed (the connection port is just beneath the seat section of the mattress deck on both sides of the bed).

To relocate the pendant to the opposite side of the bed, first, unscrew the threaded retaining cap then carefully disconnect the jack. Reconnect the pendant control cable to the existing port on the other side of the bed.



### Pendant Port Alignment and Care

Ensure that the indexing arrows are aligned to enable connection. Insert pendant cable into pendant port until O-ring seats into pendant port and then thread on retaining cap to retain this connection.

To ensure that the pendant port remains free of dirt and debris, **ALWAYS** cap any pendant port not in use. The threaded cap is simply screwed onto the unused end of the pendant T-cable.

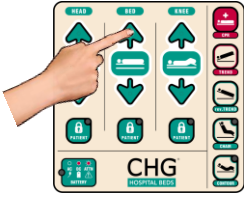
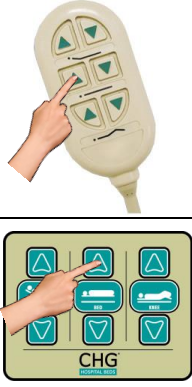
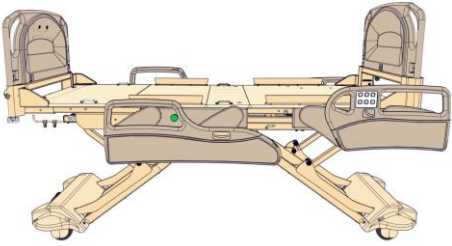
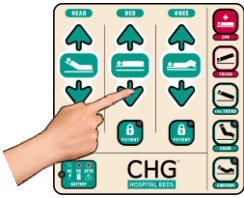
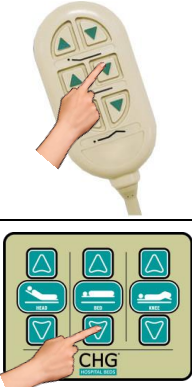
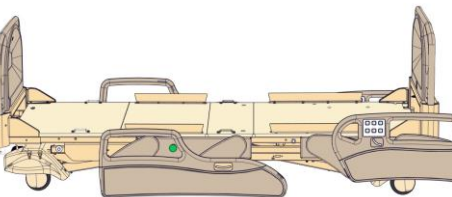
If you relocate the pendant to the other side of the bed, ensure that you cap the unused pendant port.





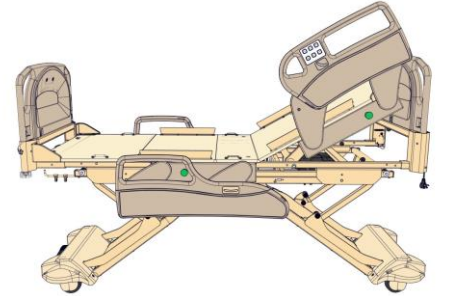

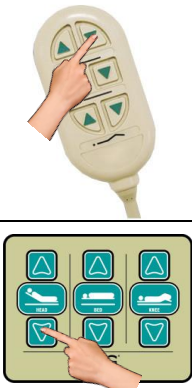
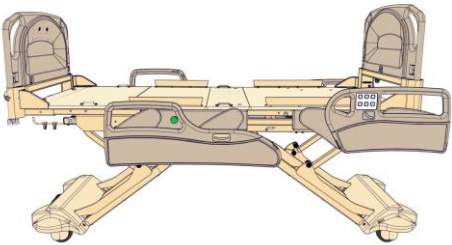


## 3.3 Bed Positioning



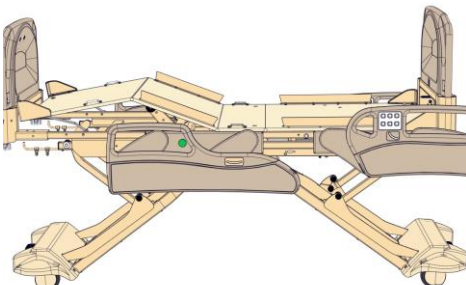

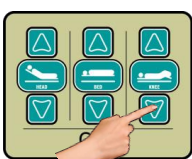
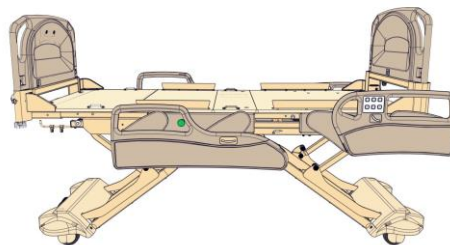
### 3.3.1 *Bed Elevation – HI-LO Operation*

<p>To raise the bed, press the BED UP arrow on the footboard staff control, the rail staff controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			
<p>To lower the bed, press the BED DOWN arrow on the footboard staff control, the rail staff controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			


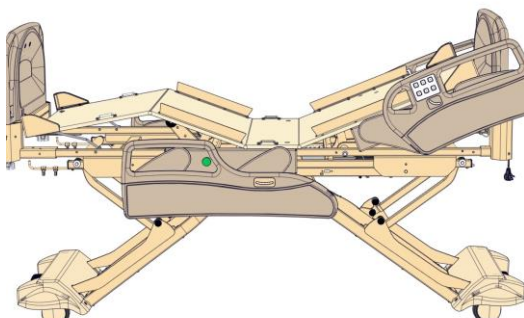
### 3.3.2 *Head Deck (Back Rest) Elevation - Head Actuator Operation*

<p>To raise the head section of the bed, press the HEAD UP arrow on the footboard staff control, the rail staff/patient controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			
<p>To lower the head section of the bed, press the HEAD DOWN arrow on the footboard staff control, the rail staff/patient controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			

### 3.3.3 Knee Deck Elevation - Foot Actuator Operation

<p>To raise the knee section of the bed, press the KNEE UP arrow on the footboard staff control, the rail staff/patient controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			
<p>To lower the knee section of the bed, press the KNEE DOWN arrow on the footboard staff control, the rail staff/patient controls, or on the pendant.</p> <p>Release the button when the desired elevation has been achieved.</p>			

### 3.3.4 Auto Contour Mode

<p>When the head section of the mattress deck (back rest) is elevated, there is often the tendency for the patient to slide towards the foot end of the bed. The Auto Contour Mode helps to prevent this motion. The Auto Contour mode automatically raises/lowers the knee section to, correspondingly, whenever the head section is raised or lowered.</p>			
<p>To activate Auto Contour mode, simply press the CONTOUR button. The green LED in the top right corner of the button will illuminate when the Contour mode has been activated.</p> <p>To deactivate Auto Contour mode, simply press the CONTOUR button again. If the CONTOUR button is not illuminated, Auto Contour mode has been deactivated.</p>			

#### NOTE:

Patient lock-out will override Auto Contour if the knee elevation lock-out has been activated.

### 3.3.5 Chair Positioning

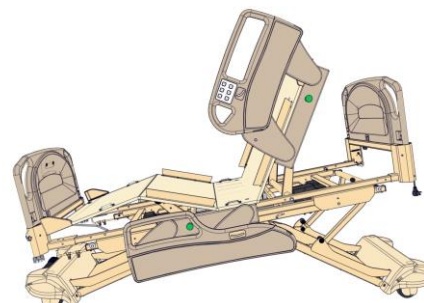
The Chair position allows patient to be placed in an upright seating position.

#### To Achieve Chair Positioning

Simply **press-and-hold** the CHAIR button.

The bed will automatically articulate into the chair position. The green LED in the top right corner of the CHAIR button will illuminate once the proper reverse Trendelenburg angle has been achieved.

Release the CHAIR button anytime when the desired chair position has been achieved or the bed will stop automatically once the full chair position has been achieved.



#### To Return the Bed to a Horizontal Position

Simply **press-and-hold** the CHAIR button until the bed is flat and level. The bed will stop automatically.

**IMPORTANT:** This will only work if the bed is in the full chair position (the green LED in the top right corner of the CHAIR button is illuminated). Either continue to **press-and-hold** the CHAIR button until the full chair position is achieved, then release and **press-and-hold** the CHAIR button until the bed is flat and level or **press-and-hold** the TREND button until the bed is level and **press-and-hold** the CPR button until the bed is flat.



#### ⚠ CAUTION

The reverse Trendelenburg position is integral to Chair positioning configuration. The Spirit™ bed may shift during reverse Trendelenburg activation. Attempt Chair positioning only after the Central "Lock & Steer" system has been put in the "BRAKE" position.

## 3.4 Emergency & Staff Functions

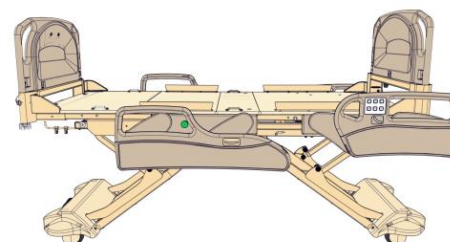
### 3.4.1 Electronic CPR (Cardiopulmonary Resuscitation) Function

Activation of the Electronic CPR function allows **press-and-hold** flattening of the mattress deck allowing staff to administer CPR to the patient.

#### Activation of the Electronic CPR Function on the Footboard Staff Control

**Press-and-hold** the CPR button on the footboard staff control. The head and knee sections will automatically lower to flat position.

To interrupt the CPR function, simply release the CPR button. Normal bed operation can be resumed at any time. The Electronic CPR function does not need to be deactivated or reset.





## ⚠ CAUTION

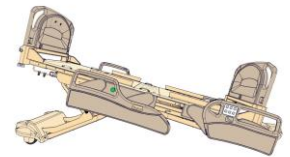
Improper use of the Electronic CPR function may cause patient injury. Once activated, Electronic CPR function will lower head and knee sections to flat position as long as the CPR button is pressed. To interrupt Electronic CPR function, simply release the CPR button.

### 3.4.2 Trendelenburg Operation

**Press-and-hold** the TREND button. Release the button once the desired bed angle between 0° and 14° has been achieved.

To return the bed to the horizontal position, **press-and-hold** the rev.TREND button. The bed will automatically stop when the mattress deck has returned to the horizontal position.

The Trendelenburg angle is shown on the bed frame angle gauge integrated on the staff side of both foot siderails.

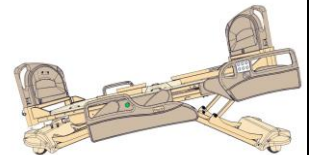
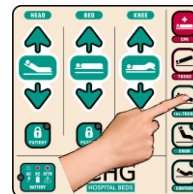


### 3.4.3 Reverse Trendelenburg Operation

**Press-and-hold** the rev.TREND button. Release the button once the desired bed angle between 0° and -14° has been achieved.

To return the bed to the horizontal position, **press-and-hold** the TREND button. The bed will automatically stop when the mattress deck has returned to the horizontal position.

The reverse Trendelenburg angle is shown on the bed frame angle gauge integrated on the staff side of both foot siderails.



## ⚠ CAUTION

Patient discomfort may result from normal operation of the Trendelenburg and reverse Trendelenburg function.

Trendelenburg and reverse Trendelenburg modes should only be used on the advice of a medical practitioner.



## ⚠ WARNING

The Spirit™ bed may shift during Trendelenburg or reverse Trendelenburg activation.

Initiate Trendelenburg or reverse Trendelenburg only after the Central "Lock & Steer" system has been put in the "BRAKE" position.



## 3.5 Patient Lock-Out Functions

### 3.5.1 Regular Patient Lock-Outs

Patient Lock-Outs restrict the patient from initiating head, knee, and bed motion from the siderail controls or the pendant (if equipped). The degree of restriction depends on the Lock-Out option selected.

#### Activating Patient Lock-Out

Staff may choose to restrict patient access to one, two, or all three bed functions. To restrict a bed function, press the Patient Lock-Out button under that particular function. The Lock-Out button indicator will illuminate when patient control of a particular function has been Locked-Out.

**IMPORTANT:** Patient Lock-Outs restrict bed operation from both of the siderail controls and pendant (if equipped).

#### Deactivating Patient Lock-Out

To deactivate any/all Patient Lock-Out(s), simply press the Patient Lock-Out button(s) again. When a Patient Lock-Out button is no longer illuminated, patient control of that particular function has been restored.



#### NOTE:

When Patient Lock-Outs have been activated, the footboard staff control remains fully active.

### 3.5.2 Master Lock-Out

To completely restrict access to all bed functions (except the Electronic CPR function) from all control locations (staff and patient controls), use the Master Lock-Out function.

#### Activating Master Lock-Out

To activate the Master Lock-Out, **press-and-hold** all three Patient Lock-Out buttons at the same time. All three Patient Lock-Out button indicators will flash sequentially to indicate that Master Lock-Out has been activated.

**IMPORTANT:** Master Lock-Out restricts bed operation from all control locations (both siderail controls and the footboard staff control).

#### Deactivating Master Lock-Out

To deactivate the Master Lock-Out function, simply repeat this process. **Press-and-hold** all three Patient Lock-Out buttons at the same time. When all three Patient Lock-Out buttons are no longer flashing sequentially, Master Lock-Out has been deactivated and both staff and patient control from all control locations has been restored.



#### NOTE:

When Master Lock-Out has been activated, the Electronic CPR function, Nurse Call, and the underbed light remain operable.



#### WARNING

When a patient is left unattended, the bed should **ALWAYS** be lowered to its lowest position and the bed elevation controls should be locked-out in order to reduce the risk of patient injury.

### 3.5.3 Security Lock-Out

The Security Lock-Out feature allows for a high-security lock-out of **ALL** bed functions (including the Electronic CPR function). A **"User Passcode"** is required to perform any/all bed functions. The Security Lock-Out feature must be activated or deactivated as required by the facility.

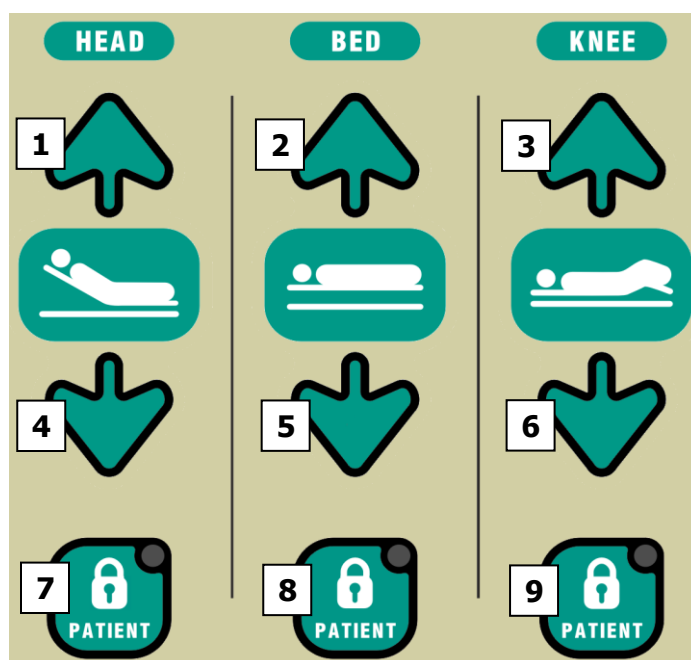


#### ⚠ WARNING

**IMPORTANT:** When the Security Lock-Out feature has been activated, **ALL** bed operation **including the Electronic CPR function** from any control location (footboard staff control, both siderail controls, and pendant) is restricted.

### Activating the Security Lock-Out Feature

To deactivate the Security Lock-Out feature, a User Passcode must first be created. The User Passcode must be between 1 and 6 digits long. The digits are interpreted from a virtual numeric keypad superimposed over the footboard staff control buttons. Imagine the numbers 1 2 3, 4 5 6, 7 8 9, just as they would appear on a telephone. This is demonstrated below.



### Guidelines for Choosing a User Passcode

The number of digits chosen for the User Passcode will determine the level of security provided. A single digit User Passcode is easy for staff to remember and unlock but offers virtually no security. A six digit User Passcode offers very high security but may be a nuisance to staff.

- It is recommended that simple "lines" such as 1-2-3 or 1-4-7 are not chosen since they are relatively easy to guess.
- It is recommended that the code contains at least one of the Patient Lock-Out buttons (7, 8, or 9) since these buttons are not generally used during normal bed operation therefore adding an enhanced level of security.
- Codes that contain repeating digits (i.e.: 1-3-1-7) can enhance security since they are considerably less likely to be guessed.
- Codes that contain patterns of digits (i.e.: all four corners) can help staff remember the User Passcode but offer slightly less security than random codes.

## Creating/Changing User Passcode

A User Passcode must first be created before the Security Lock-Out feature can be activated.

### To Create the User Passcode:

1. Press the Bed Lock-Out, Knee Lock-Out, and Contour buttons simultaneously. These three Lock-Out buttons will then begin to flash to indicate that the bed is now ready to receive the Security Access Code.
2. Enter the Security Access Code.

**Security Access Code: "1881 825 153"**

### **IMPORTANT: This Security Access Code is factory set and is not customizable**

3. Once the Security Access Code has been successfully entered, an audible "chirp" will sound three times and the Contour button will also begin to flash to indicate that the bed is now ready to receive the customized User Passcode.
4. Enter a 1 to 6 digit User Passcode of your choosing. Time-out will occur if more than 30 seconds elapses between User Passcode digit input.
5. When the User Passcode has been entered, press the Contour button to complete the process. An audible "chirp" will sound to indicate that the User Passcode has been set and that the Security Lock-Out feature has now been activated.

**NOTE: DO NOT** allow patients to learn either the Security Access Code or the User Passcode or the Security Lock-Out feature could become compromised!

### To Change the User Passcode:

In the event that the User Passcode has been lost or compromised, a new User Passcode can be created. Simply repeat the above steps to change the User Passcode. The User Passcode can be changed as often as required to maintain effective control of the Security Lock-Out feature

If, for some reason, you wish to abort the User Passcode creation/change procedure, simply press the Bed Lock-Out, Knee Lock-Out, and Contour buttons simultaneously to exit User Passcode set up mode. An audible "chirp" will sound twice and the bed will return to its previous state (Security Lock-Out activated or deactivated). The bed will also automatically return to its previous state after 30 seconds of keypad inactivity.

## Locking/Unlocking the Bed for use by Staff

To enable any/all bed functions, the bed must be unlocked.

### To unlock the Security Lock-Out:

1. Enter the 1 to 6 digit User Passcode.
2. Once the User Passcode has been successfully entered, an audible "chirp" will sound and the three Patient Lock-Out buttons will begin to flash to indicate that the bed is now unlocked. All bed functions are now available from all control locations (the footboard staff control and both siderail controls).

**IMPORTANT:** There is no feedback during this step. If you make a mistake, or if nothing happens after the User Passcode has been entered, simply re-enter the User Passcode starting at the first digit again. There is no need to "cancel" or abort the procedure if you make a mistake while entering the User Passcode as the bed is "looking" only for the complete sequence of digits that comprise the User Passcode.

### To re-lock the bed:

When you are finished adjusting the bed positions, press any one of the flashing Patient Lock-Out buttons to re-lock the bed. An audible "chirp" will sound twice to indicate the bed has been re-locked.

**OR**

The bed will automatically re-lock after 30 seconds of keypad inactivity.

## Deactivating the Security Lock-Out Feature

To restore normal bed operation (i.e.: full time control of bed functions from any control location), the Security Lock-Out feature must be deactivated.

### To deactivate the Security Lock-Out feature:

1. Press the Bed Lock-Out, Knee Lock-Out, and Contour buttons simultaneously. These three buttons will then begin to flash to indicate that the bed is now ready to receive the Security Access Code.
2. Enter the Security Access Code (**NOT** the User Passcode).
3. Once the Security Access Code has been successfully entered, an audible "chirp" will sound three times and the Contour button will begin to flash.
4. Press the Contour button. An audible "chirp" will sound twice to indicate that the Security Lock-Out feature has now been deactivated.



### **WARNING**

When the Security Lock-Out feature has been activated, the Electronic CPR function will **NOT** work. The Security Lock-Out feature is only intended to be used by qualified medical practitioners on a case-by-case basis based upon clinically assessed needs of the patient as requiring a hospital bed having restricted motion. CHG Hospital Beds strongly recommends that Security Lock-Out **NEVER** be activated when the bed is in normal ward use.

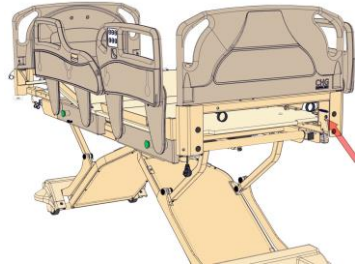

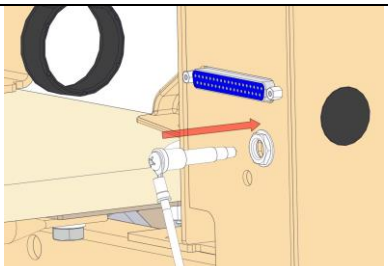
### **NOTE:**

After a hard reset, all bed settings will be automatically restored. The Security Lock-Out feature will be deactivated after a hard reset.

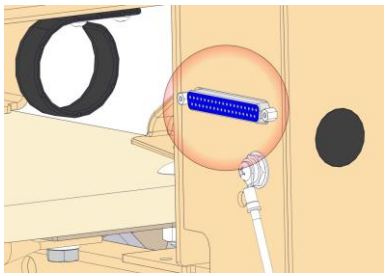


## 3.6 Other Bed Functions & Features

### 3.6.1 *Nurse Call*

<p>All Spirit™ beds are equipped with one Nurse Call port to accommodate Nurse Call control.</p> <p>The Nurse Call port is located on the underside of the headboard mounting bracket on the patient right side of the bed.</p>	
<p>To operate the Nurse Call feature, press the red NURSE button on the rail patient control (inside of each head rail control). This will send a Nurse Call signal to the nurses' station when appropriately connected to the communication system of your healthcare facility.</p> <p>Operation of the Nurse Call feature requires a conventional connection cable (not supplied) to be plugged into the ¼" Phono jack on the headboard mounting bracket and into the designated outlet in the patient station.</p>	
<p>Ensure that the attached "dummy plug" is inserted to an inactive Nurse Call port.</p> <p>The "dummy plug" has an integral lanyard that is screw connected to the headboard mounting bracket to ensure that the "dummy plug" is not lost when the Nurse Call port is being used.</p>	

### 3.6.2 *Standard 37 Pin Connector*

<p>All Spirit™ beds are equipped with a standard 37 pin connector to accommodate connection to the communication system typical of most healthcare facilities.</p> <p>The 37 pin connector is located on the underside of the headboard mounting bracket directly beside the Nurse Call port on the patient right side of the bed.</p> <p>The "pin outs" for the 37 pin connector have been configured to work with the communication set-up typical of most 37 pin enabled healthcare facilities. If the configuration of the communication system used in your healthcare facility differs from conventional set-up, successful interconnection can only be guaranteed through the use of interconnection cables that have been specifically configured for your application.</p> <p>If your healthcare facility requires a particular interconnection cable configuration, CHG Hospital Beds offers customized interconnection cables. Contact your sales representative for details.</p>	
--	---

### 3.6.3 Spirit Plus™ Power Status Indicator

The footboard staff control on Spirit Plus™ beds is equipped with an integrated power status indicator. This cluster of 3 discrete icons indicates the real-time status of power available to operate the bed. The icons will illuminate respective of the source of power, the operation of the battery charging circuit, and the level of battery power. The battery is continuously charged when connected to the CB10 control box and the bed is plugged into an AC power outlet. If the battery voltage drops below 18VDC, battery power will be automatically disrupted to prevent further discharge which could impact the battery's ability to fully recharge. When the bed is plugged back into an AC power outlet, battery power will be automatically restored.



#### Indicator LED is Solid GREEN

Bed is connected to an AC power outlet and operating on AC power. The battery is connected to the CB10 control box and is fully charged. Bed is ready to operate on battery power if required. This is the optimum operating condition for the bed.

#### Indicator LED is Flashing GREEN

Bed is connected to an AC power outlet and operating on AC power. The battery is connected to the CB10 control box but is currently recharging.

#### Indicator LED is Alternating Flashing GREEN and RED

**IMPORTANT:** Bed may not reliably operate on battery power if required.

Bed is connected to an AC power outlet and operating on AC power. The battery is connected to the CB10 control box but not holding proper charge. Service bed and/or replace battery immediately.

**OR**

The battery is not connected to the CB10 control box. Connect battery to CB10 and allow battery to charge for 24hr.

#### Indicator LED is Solid RED

Bed is disconnected from an AC power outlet and is operating on battery power. The battery is connected to the CB10 control box and has not yet exhausted the available battery power. Bed is OK to operate on battery power but it should be connected to an AC power outlet as soon as is possible to recharge the battery.

**IMPORTANT:** Exercise caution when operating the bed on battery power. Ensure that only vital and necessary bed functions are performed to extend battery power as long as possible and ensure emergency functions remain available when needed.

#### Indicator LED is Flashing RED

Bed is disconnected from an AC power outlet and has been operating on battery power. Although the battery is connected to the CB10 control box, it has exhausted its battery power. Reconnect bed to an AC power outlet as soon as possible and allow battery to charge for 24hr.

**IMPORTANT:** At this point, reliable bed operation cannot be guaranteed although some bed functionality may still be available. Exercise caution operating the bed as the bed will cease operation without warning.

#### No Indicator LED illumination

**IMPORTANT:** Bed may NOT operate.

The bed has been disconnected from an AC power outlet and the battery is disconnected from the CB10 control box. Reconnect bed to an AC power outlet and allow battery to charge for 24hr.

**OR**

The bed has a faulty connection or component (CB09 control box, CB10 control box, battery, and/or connection cable). Confirm all connections and begin troubleshooting potentially faulty components.

**OR**

The bed has been disconnected from an AC power outlet and the battery has been automatically disengaged from the battery circuit because the voltage has dropped below 18VDC. Reconnect bed to an AC power outlet and allow battery to charge for 24hr.

#### NOTE:



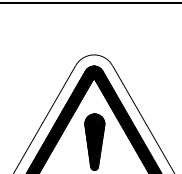
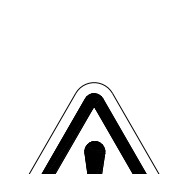


A new back-up battery, when fully charged, has sufficient power to deliver the equivalent of approximately 5 CPR cycles with a patient weight of 250 lbs. Battery power discharge rate depends upon factors such as patient weight, age of battery, ambient temperature and humidity, and the number of charge/discharge cycles the battery has been subjected to. For example, the heavier the patient, the faster battery power will be exhausted during battery powered bed operation. Conversely, the lighter the patient, battery power may offer a longer duration of battery powered bed operation.

## 3.7 Siderail Operation

All Spirit™ bed siderail assemblies fully comply with FDA and Health Canada patient entrapment reduction guidelines and have successfully passed rail entrapment testing using test procedures outlined by the Hospital Bed Safety Workgroup. Spirit™ bed siderail assemblies were qualified using the Cone and Cylinder Tool as specified by FDA and Health Canada patient entrapment reduction guidelines. Entrapment Test Kits are readily available so on-going compliance can be monitored by the healthcare provider. For further information, refer to the FDA's website at <http://www.fda.gov/cdrh/beds/>.

### 3.7.1 *Intended Application/Use of Spirit™ Bed Siderail Assemblies*

When fully raised/closed and locked/latched in the UP position, the siderails define a residence area for patients to rest upon the bed. This provides positive patient location/support helping to protect against the potential for patients to fall from the bed as the siderails give the patient a visual and physical indicator of the edge of the bed. When fully lowered/open in the DOWN position, the siderails permit patient ingress to and egress from the bed. The integral handles common to all siderails facilitate patient mobility by providing a gripping region during ingress to and egress from the bed.

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p style="text-align: center;"><b>Safe Working Load of Siderails</b></p> <p style="text-align: center;"><b>80 kg (176 lbs)</b></p> <p style="text-align: center;"><b>DO NOT</b> exceed a 80 kg (176 lbs) load on any siderail</p>	
	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Possible <b>PATIENT ENTRAPMENT</b> if use of siderails that are damaged or modified in any way.</p> <p><b>NEVER</b> use siderails from other manufacturers and/or with dimensions different that the original components and/or assemblies that came equipped with the bed. Variations in siderail design, (width, height, shape, profiles, opening, locking/latching mechanisms, etc.) could cause/contribute to patient entrapment and/or could potentially increase the probability/possibility for patient entrapment.</p>	
	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p><b>DO NOT</b> use the siderails as a patient lifting device/apparatus. Siderails can be deformed or broken if excessive side loading/pressure is exerted. The siderails are used for the purpose of preventing a patient from inadvertently rolling out of bed.</p> <p><b>DO NOT</b> use the siderails as part of a patient restraint mechanism. Siderails are <b>NOT</b> intended for nor may be used for restraint purposes. If a patient is capable of inflicting self-injury or injury to staff, a physician or other suitably trained healthcare practitioner should be consulted for alternate means of safe patient restraint. The Spirit™ bed is equipped with 6 patient restraint loops for this purpose.</p>	
	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>When operating the bed, <b>ALWAYS</b> ensure that the individuals using the bed is positioned properly on the mattress within the confines of the bed.</p> <p><b>DO NOT</b> let any patient extremities protrude over the side and/or between the siderails when operating the bed.</p>	
	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p><b>DO NOT</b> use the siderails as lifting points for the bed during transportation and/or storage.</p> <p><b>DO NOT</b> use the siderails as a means of mechanically restraining the bed during transportation and/or storage.</p>	



## ⚠ CAUTION

**DO NOT** use a bed with damaged or non-latching rails. If a bed is found with damaged or non-latching rails, remove bed from patient use and service bed immediately.

### 3.7.2 Plastic Regular Height Siderails

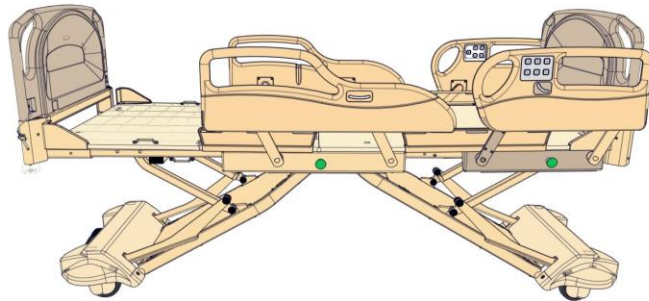
All Spirit™ bed comes with moulded plastic siderails as standard equipment.

#### Operation of the Plastic Siderails

It is important that caregivers know how to operate the plastic siderails safely. The plastic siderails lock/latch in the UP position and enables patient ingress, egress, and transfer in the DOWN position.

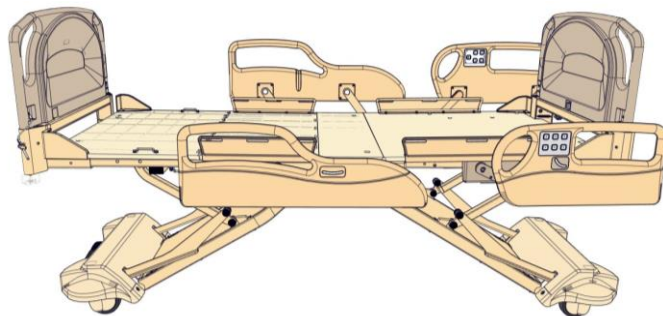
In the UP position, the Plastic siderails provide positive patient location and support helping to protect the patient from the potential of falling from the bed.

**IMPORTANT:** An audible “click” should be heard when each siderail assembly has been completely rotated into the UP position as the locking/latching mechanism engages.



The DOWN position, the plastic siderails fully rotate out of the way to provide unimpeded and unassisted patient ingress to and egress from the bed and also enables patient transfer by staff.

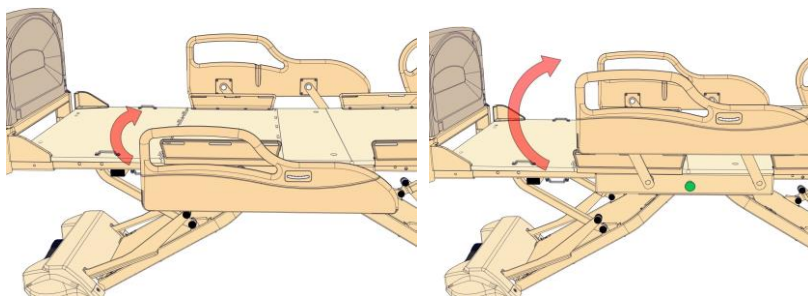
**IMPORTANT:** The siderails will not lock/latch in the DOWN position.



#### Raising the Foot Siderails

Gently rotate the foot siderail to the UP position. The foot siderail will first arc toward the foot end of the bed then back towards the head end of the bed as it rotates to the UP position.

**IMPORTANT:** An audible “click” should be heard when the foot siderail has been completely raised to the UP position as the locking/latching mechanism engages.

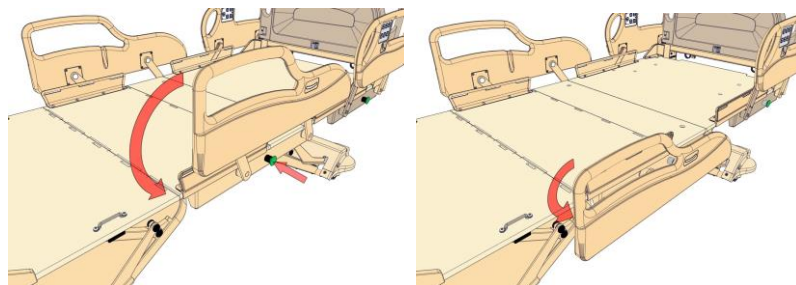




## Lowering the Foot Siderails

Depress the green PRESS button then gently PRESS down on the foot siderail. The foot siderail will first arc towards the foot end of the bed then back towards the head end of the bed as it rotates to the DOWN position.

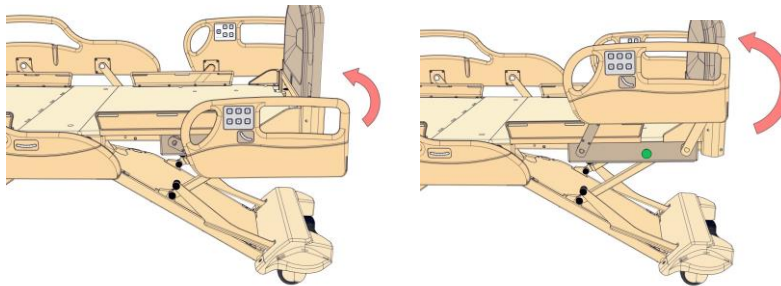
**IMPORTANT:** The foot siderails will not lock/latch in the DOWN position.



## Raising the Head Siderails

Gently rotate the head siderail to the UP position. The head siderail will first arc toward the head end of the bed then back towards the foot end of the bed as it rotates to the UP position.

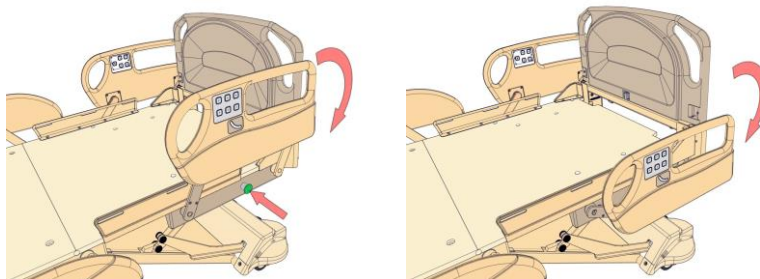
**IMPORTANT:** An audible “click” should be heard when the head siderail has been completely raised to the UP position as the locking/latching mechanism engages.



## Lowering the Head Siderails

Depress the green PRESS button then gently PRESS down on the head siderail. The head siderail will first arc towards the head end of the bed then back towards the foot end of the bed as it rotates to the DOWN position.

**IMPORTANT:** The head siderails will not lock/latch in the DOWN position.



### 3.7.3 Plastic High Siderails

Your Spirit™ bed may be equipped with the optional moulded plastic high siderails\*.

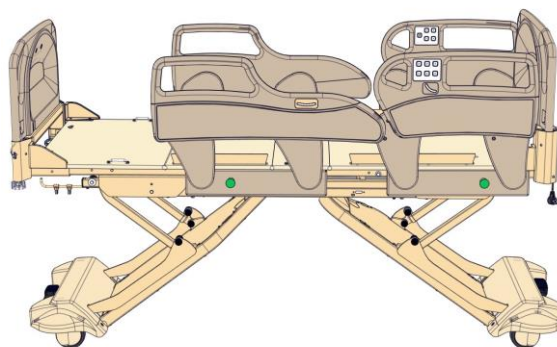
*\*Plastic high siderails come standard with CHG beige colour matched inlays. Your Plastic high siderails may have optional coloured inlays.*

#### Operation of the Plastic High Siderails

It is important that caregivers know how to operate the plastic high siderails safely. The high siderails lock in the UP position and enables patient ingress, egress, and transfer in the DOWN position.

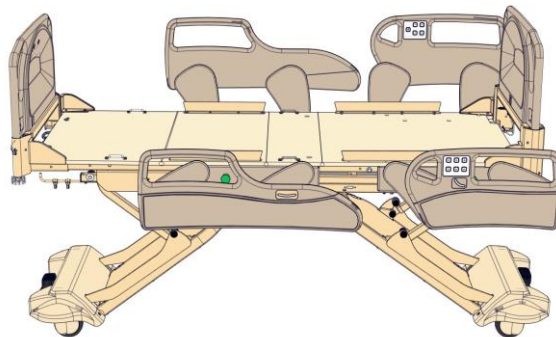
In the UP position, the high siderails provide positive patient location and support helping to protect the patient from the potential of falling from the bed.

**IMPORTANT:** An audible “click” should be heard when each high siderail assembly has been completely rotated into the UP position as the locking/latching mechanism engages.



The DOWN position, the high siderails fully rotate out of the way to provide unimpeded and unassisted patient ingress to and egress from the bed and also enables patient transfer by staff.

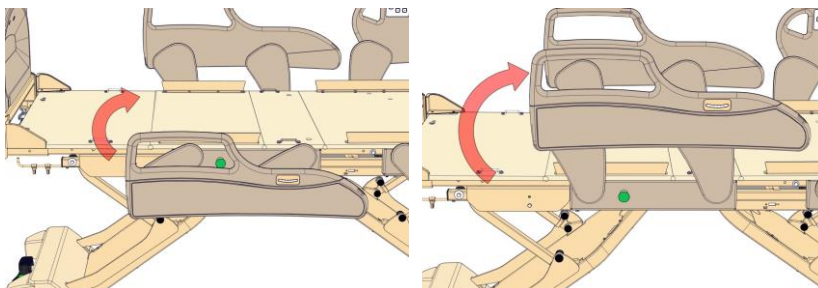
**IMPORTANT:** The high siderails will not lock/latch in the DOWN position.



## Raising the High Foot Siderails

Gently rotate the high foot siderail to the UP position. The high foot siderail will first arc toward the foot end of the bed then back towards the head end of the bed as it rotates to the UP position.

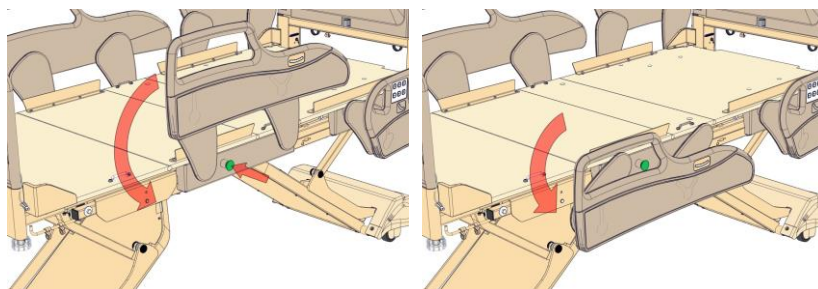
**IMPORTANT:** An audible “click” should be heard when the high foot siderail has been completely raised to the UP position as the locking/latching mechanism engages.



## Lowering the High Foot Siderails

Depress the green PRESS button then gently PRESS down on the high foot siderail. The high foot siderail will first arc towards the foot end of the bed then back towards the head end of the bed as it rotates to the DOWN position.

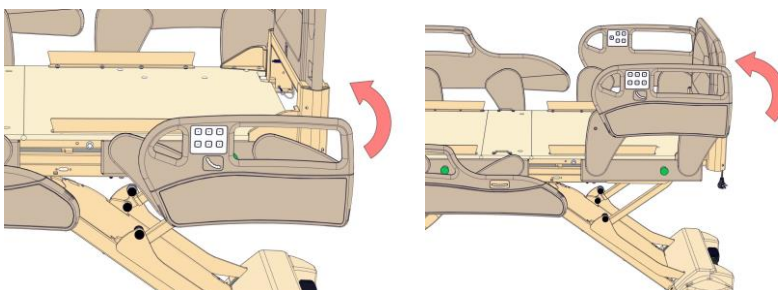
**IMPORTANT:** The high foot siderails will not lock/latch in the DOWN position.



## Raising the High Head Siderails

Gently rotate the high head siderail to the UP position. The high head siderail will first arc toward the head end of the bed then back towards the foot end of the bed as it rotates to the UP position.

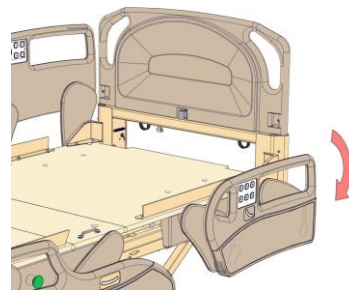
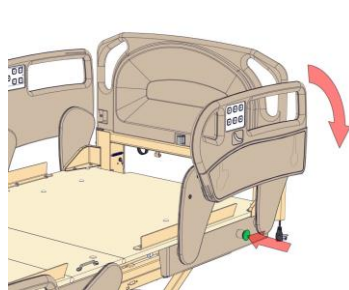
**IMPORTANT:** An audible “click” should be heard when the high head siderail has been completely raised to the UP position as the locking/latching mechanism engages.



## Lowering the High Head Siderails

Depress the green PRESS button then gently PRESS down on the high head siderail. The high head siderail will first arc towards the head end of the bed then back towards the foot end of the bed as it rotates to the DOWN position.

**IMPORTANT:** The high head siderails will not lock/latch in the DOWN position.



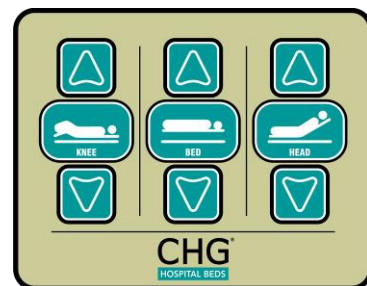
### 3.7.4 Integrated Features of Plastic Regular Height and High Siderails

#### Staff Siderail Controls

The head siderails incorporate integrated staff control that offers staff control of basic bed operations:

- Head UP/DOWN,
- Knee/Foot UP/DOWN
- Bed UP/DOWN

**IMPORTANT:** Bed operation from this siderail control is disabled when the patient lock-outs are activated.

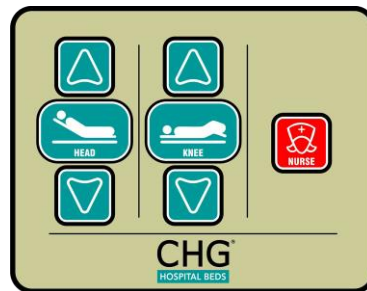


#### Patient Siderail Controls

The head siderails incorporate integrated patient control that offers patient control of basic bed operations:

- Head UP/DOWN,
- Knee/Foot UP/DOWN
- Nurse Call feature

**IMPORTANT:** Bed operation from this siderail control is disabled when the patient lock-outs are activated however the Nurse Call feature **always** remains active.

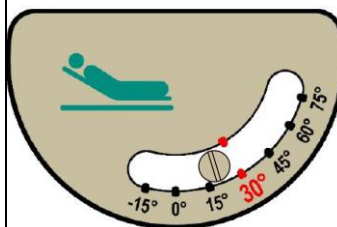


#### Angle Gauges

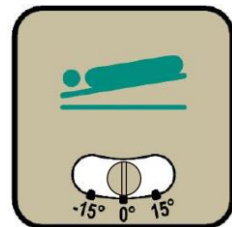
All four siderails have integrated angle gauges:

- The angle gauge in the head siderail panel displays the angle of the head section of the mattress deck.
- The angle gauge in the foot siderail panel displays the Trendelenburg or reverse Trendelenburg angle.

**NOTE:** Angle Gauges are for Reference **ONLY**



Head Angle Gauge



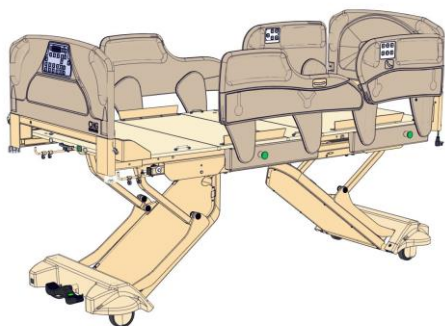
Trend or rev Trend  
Angle Gauge



### 3.7.5 Other Optional Siderails

Your Spirit™ bed may be equipped other optional moulded plastic siderails as shown below.

**IMPORTANT:** These other optional siderails operate exactly the same as described above.



Plastic High Head Siderails ("Filled-in" version with beige inlays shown)



Plastic Long High Head Siderails (optional wood head and footboards with beige inlays shown)

## 3.8 Optional Underbed Light on Spirit Plus™ Beds

Spirit Plus™ beds can be equipped with integrated underbed lighting as an option however the underbed light cannot be deactivated using the footboard staff control. If the underbed light needs to be deactivated, both of the underbed lights need to be disconnected from the CB10Lite control box. Refer to page 87 to identify the two connectors for the underbed lights:

- To disable the underbed lights, disconnect both of the light connectors from the LT1 and LT2 headers on the CB10Lite circuit board.

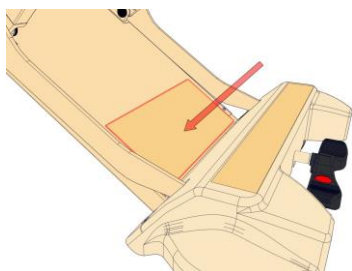
**The ONLY setting for the underbed light: LOW brightness ALWAYS ON.**

### NOTE:

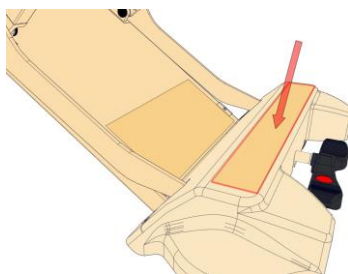
Underbed lighting **WILL NOT** function (illuminate) when the bed is operating under battery power. This is to reserve battery power for emergency functions.

## 3.9 Optional Underbed Obstruction Sensors

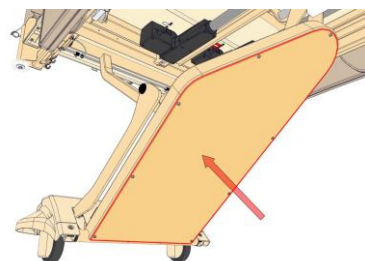
If your Spirit™ bed has been equipped with the optional underbed obstruction sensors, the bed will be outfitted with 6 obstruction sensors as shown below.



Top Cover Obstruction Sensor



Caster Cover Obstruction Sensor



Bottom Cover Obstruction Sensor



## Contact with an Obstruction While the Bed is in Downward Motion

When an obstruction is detected during any downward motion of the bed (using any of the following: BED DOWN, TREND, rev.TREND, LEVEL ALL, or CHAIR position), the bed will immediately stop all downward motion and the bed platform will automatically elevate up a safety distance of 1". This will provide clearance for removal of the obstruction.

- An audible "chirp" will sound to indicate an obstruction is present.

Any further attempts to initiate downward motion of the bed platform will not be permitted if an obstruction is still being detected and the bed platform will emit an audible "chirp" after each attempt.

## Contact with an Obstruction While Bed is Stationary (i.e.: Bed not in Motion)

When an obstruction is detected prior to any bed movement, all downward motion of the bed (using any of the following: BED DOWN, TREND, rev.TREND, LEVEL ALL, or CHAIR position) will be automatically disabled.

- An audible "chirp" will sound to indicate an obstruction is present.

Any further attempts to initiate downward motion of the bed platform will not be permitted if an obstruction is still being detected and the bed platform will emit an audible "chirp" after each attempt.

## When an Obstruction is not Detected (i.e.: Obstruction Removed)

When an obstruction is no longer detected:

- Normal bed operation will be restored.

## Audio Indicators

### Audio Obstruction Indicator:

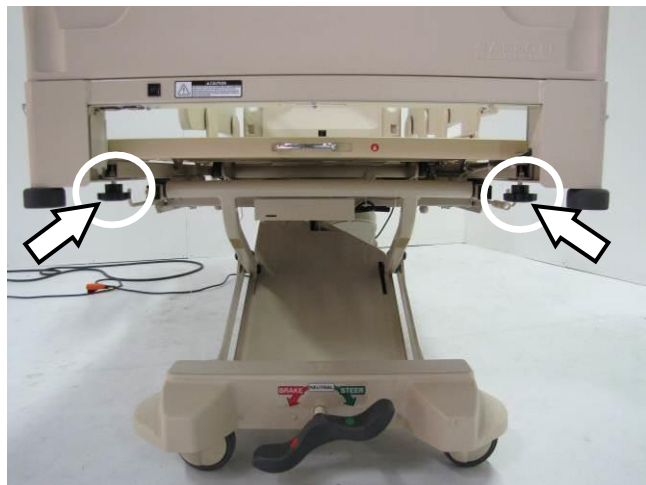
When an obstruction is contacted during bed motion or if an obstruction is detected prior to any bed lowering motion and a downward motion of the bed platform (using any of the following: BED DOWN, TREND, rev.TREND, LEVEL ALL, or CHAIR position) is attempted an audible "chirp" will sound.

**The factor default setting for obstruction sensors is CONNECTED and OPERATING.** This cannot be changed using the footboard staff control. The obstruction sensors can only be enabled/disabled by connecting/disconnecting the obstruction sensor circuits from the CB10Lite circuit board. Refer to page 87 to identify the two connectors for the obstruction sensor circuits.

### 3.10 Optional “Easy Bed” Extension System

To accommodate the physical needs of taller patients, while maintaining the easy of frequent bed movement about space confined healthcare facilities, CHG Hospital Beds offers an optional “Easy Bed” extension system that allows for easy and rapid extension/retraction of the mattress deck by 4 inches (102 mm) from 80” (2032 mm) to 84” (2134 mm). No tools are required to perform bed “Easy Bed” extension/retraction operations.

If your Spirit™ bed has been equipped with the optional “Easy Bed Extension” system, the bed will be outfitted with two clamping knobs and an extendable foot deck section of the mattress deck as shown below.



Clamping Knobs (*viewed from foot end of bed*)



Extendable Foot Deck Section

#### Bed Extension Procedure



Knob clamped












Knob unclamped




1. Elevate bed to comfortable working height. Unclamp the footboard bracket slide mechanism by turning both knobs counter-clockwise until they stop turning freely.

2. Grasp footboard bracket by the corners as shown above. Gently and smoothly pull away from the head of the bed until the footboard bracket slide mechanism contacts its mechanical stops.

 <p>Knob fully clamped (knob fastener fully engaged)</p>	 <p>Knob not fully clamped (knob fastener not fully engaged)</p>		
<p>3. Clamp the footboard bracket slide mechanism by turning both retention knobs clockwise until hand tight.</p> <p><b>IMPORTANT:</b> Ensure that the clamping knob fastener extends through the retention hole located in the footboard bracket channel. Typical both sides.</p>			<p>4. Unlock foot deck extension pan by grasping the chrome handle and sliding the locking mechanism towards the patient left side of the bed to the unlocked position (green, unlocked icon)</p>
			
<p>5. Grasp the chrome handle as shown at right. Gently and smoothly pull away from the head end of the bed until the foot deck extension pan contacts its mechanical stops.</p>			<p>6. Lock foot deck extension pan by grasping the chrome handle and sliding the locking mechanism towards the patient right side of the bed to the locked position (red, locked icon).</p>

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Possible <b>PATIENT ENTRAPMENT Hazard</b> could occur if the mattress is not securely located and retained on the mattress deck by the four corner mattress keepers.</p> <p><b>NEVER</b> perform a bed extension/retraction with a patient on the bed.</p> <p><b>NEVER</b> place a patient on the bed if the mattress is not properly located and retained on the mattress deck by the four corner mattress keepers.</p>
---	---

	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>Possible <b>UNEXPECTED MOTION</b> could occur if the slide lock is not in the "lock" position and the mattress deck is articulated from the horizontal position.</p> <p>When the bed is in either the extended or retracted position, the clamping knob fasteners <b>MUST</b> be fully engaged and the slide lock <b>MUST</b> be in the "lock" position prior to placing a patient on the bed and/or allowing a patient to return to the bed.</p>
---	--

<p><b>NOTE:</b></p>	<p>Bed retraction procedure is the same as the above except that the footboard bracket and the foot deck extension pan are pushed towards the head end of the bed until contact is made with their respective mechanical stops.</p>
---------------------	---

## 3.11 Optional Auxiliary AC Power Outlet

### ***NEMA 5-15R Outlet Socket configuration shown***

All Spirit™ beds can be equipped with an optional auxiliary AC power outlet mounted in the patient right side of the footboard bracket.

**IMPORTANT:** The auxiliary AC power outlet has the following electrical ratings:

**MAXIMUM Output Power Rating: 120 Volts AC, 600 Watts**

**OR 230 Volts AC, 690 Watts**

**DO NOT EXCEED MAXIMUM OUTPUT POWER RATING**



### **Auxiliary AC Power Outlet Cover**

The auxiliary AC power outlet has a cover that is integrated into the footboard bracket. The attachment screw is retained with a nylon nut so that it will not be misplaced when the auxiliary outlet is in use.

**IMPORTANT:** Always install the cover over the auxiliary AC power outlet when it is not in use.



### **Circuit Breaker: Rating 5 Amps (120V Beds) OR 3 Amps (230V Beds)**

The auxiliary AC power outlet socket is protected by a circuit breaker. The circuit breaker is located in the footboard bracket. The circuit breaker is the resettable type. Simply depress the button to re-engage the circuit breaker.

**IMPORTANT:** The circuit breaker is a safety device that is designed to disengage an electrical circuit when the load exceeds the maximum rating of the circuit. An overloaded circuit may cause irreparable damage to the AC power wiring in the bed. If the circuit breaker trips, it is important to understand what has happened to cause this event. The device(s) the bed is connected to may be drawing too much power and exceeding the circuit breaker rating.



### **⚠ CAUTION**

The auxiliary AC power outlet socket is rated for a **MAXIMUM 120 Volts AC, 600 Watts OR 230V Volts AC, 690 Watts** output power. **DO NOT** exceed the maximum output power rating.

**DO NOT** use the auxiliary AC power outlet socket if the socket receptacles appear to be damaged and/or if the plug (of the device that you are connecting to the bed) does not remain connected when inserted in the outlet socket receptacles.

Only replace this outlet socket with a NEMA 5-15R duplex outlet socket that is marked as hospital grade. Contact CHG Hospital Beds' Customer Service for a replacement outlet socket.



### **⚠ WARNING**

A circuit breaker is **NOT** designed to act as a ground fault circuit interrupter (GFCI) and **DOES NOT** offer the same level of protection. The circuit breaker is a safety device that is designed to only disengage an electrical circuit when the load exceeds the maximum rating. If the circuit breaker trips, discontinue bed use immediately and have a service technician, specifically trained to service Spirit™ beds, inspect the wiring. **Circuit Breaker Rating: 5 Amps (120V beds) or 3 Amps (230V beds)**



### **⚠ CAUTION**

Connecting electrical equipment to auxiliary mains AC outlet effectively leads to creating a medical equipment system and can result in a reduced level of safety. When connecting devices, the system shall be evaluated in end use application to ensure compliance to medical device standard 60601-1 and 60601-1-1.

## **Section 5:**

# **Care & Maintenance**

## 5.1 Regular Maintenance & Cleaning

Very little maintenance is required to keep the Spirit™ bed in good working order.

CHG Hospital Beds recommends that bed inspections be conducted as per 5.1.2 and 5.1.3 of this section, or more frequently if so specified by the facility procedures and practices.

All metal components are power coat painted and therefore are protected from corrosion. In the event that the paint become scratched or chipped, use a matching enamel touch up paint. Refer to page 80 for paint specifications.



### ⚠ CAUTION

Equipment or property **DAMAGE** or patient **INJURY** may occur if the following are not followed:

**DO NOT** submerge the bed frame or electrical parts. **DO NOT** allow liquids to enter electrical components. If a liquid is spilled in or around the bed, unplug the bed before cleaning. Clean up the spill and allow the bed and/or the area around the bed to dry thoroughly before using the controls again.

**DO NOT** open assemblies such as actuators, control boxes, battery, or pendant (if equipped). These parts are not serviceable. Only service technicians, specifically trained to service Spirit™ beds, should attempt to service bed and/or replace electrical or other components.

Before the bed is returned to active service after any adjustment, repair, and/or service have been performed, **ALWAYS** ensure that all attaching hardware is tightened securely.

### 5.1.1 Cleaning & Disinfection

CHG Hospital Beds recommends that all cleaning/disinfection be performed by hand using a non-abrasive cloth, sponge, and/or manual spray/squirt bottle. **ALWAYS** follow industry best practices for all cleaning and/or disinfection operations. **ALWAYS** reference the manufacturers' MSDS information for all cleaning/disinfection solutions prior to use.

**IMPORTANT:** The Spirit™ bed is not rated for spray and/or pressure washing or steam cleaning/sterilization. Using non-recommended cleaning/disinfecting solutions, and/or not following recommended handling directions and/or industry best practices may cause damage to the bed's painted finish, bed components, and/or may result in premature mattress failure.

#### Cleaning

All Spirit™ bed surfaces and the CHG Prevention Surface mattress cover may be cleaned with soapy water and/or other non-abrasive cleaners. **NEVER** use solvents, petroleum products, and/or other harsh chemicals to perform any cleaning operation.

#### Disinfection

All Spirit™ bed surfaces and the CHG Prevention Surface mattress cover may be disinfected with ethanol or isopropyl alcohol, and/or Mikro Quat™ (or equivalent cleaning solution). Sodium Hypochlorite (liquid bleach) may also be used to disinfect the Spirit™ bed and the CHG Prevention Surface mattress cover.

**Maximum Recommended Sodium Hypochlorite Concentration: 0.5% or 5,000 ppm**

To disinfect the Spirit™ bed, saturate an application cloth with disinfecting solution and wipe surface(s). Using another cloth saturated with potable (tap) water, rinse disinfected surface(s) and wipe dry. **DO NOT** allow the disinfecting solution to pool and/or reside on surface(s) for extended periods of time. Exceeding the maximum recommended concentration and/or using non-recommended disinfecting solutions may cause damage to the bed's painted finish, bed components, and/or may result in premature mattress failure.



### 5.1.2 Semi Annual Inspections

#### Control Location Inspection

Perform all bed functions from all control locations: footboard staff control, patient/staff siderail controls, and pendant (if equipped).

#### Battery Inspection

Confirm the following:

- Bed is plugged into an AC power outlet.
- Battery is connected to the CB10 control box.
- The power status indicator has **ONLY** a solid Green AC light.

If other light are on/flashing, refer to page 50 for instructions and take appropriate action before continuing with inspection.

Unplug the bed from the AC power outlet and perform all bed functions, including emergency functions, to test bed operation under battery power.

This will verify that the battery is holding a proper charge sufficient to deliver emergency functions when needed. Replace battery if performance is inadequate.

If your Spirit™ bed is equipped with the under bed obstruction sensing option, perform an inspection of all six obstruction sensor pads to ensure that they are in good working order and continue to operate properly.

#### Obstruction Sensor Inspection

Ensure that contact at any point on each of the six obstruction sensor pads stops all downward bed motion.

Ensure that the bed automatically elevates the 1" safety distance.

Ensure audible warnings are present as described on pages 56.

Replace any obstruction sensor pad that fails to operate correctly or consistently.

### 5.1.3 Yearly Inspections & Maintenance

Inspect the bed for broken, bent, or damaged components and replace. Check for damaged components that may present a hazard due to sharp edges.

Inspect for damaged or loose wiring. Have qualified service personnel, specifically trained to service Spirit™ beds, replace any frayed or damaged cords and/or secure any loose wiring.

Inspect the control boxes and actuators to ensure that the enclosures are not cracked or damaged.

Inspect the footboard staff control, side rail controls, and pendant to ensure that the overlays covering these controls are not cracked or damaged.

Inspect all grounding wires and equipotential conductor. Ensure they are securely fastened to the bed frame.

Tighten, adjust and/or replace any parts or screws, bolts, clevis/hitch/cotter pins, etc. that are loose or show signs of wear.

Using white petroleum jelly, lubricate between the Hi-Lo springs and the spring bushing. Apply white petroleum jelly to rail bracket slots, ensuring the shoulder bolt receives lubrication as well.

Spray metal shoulder bolts, washers, bushings and nuts using a high quality penetrating white lithium grease spray on all control arm and suspension arm joints

Perform inspection of side rails to ensure that they are in good working order and continue to operate properly.

### **Regular Height or High Side Rail Inspection**

Ensure that each side rail fully and smoothly rotates from the DOWN position to the UP position. Ensure that no binding and/or grinding noises are caused when the side rails are rotated. If a side rail fails to rotate fully and smoothly, service and/or replace side rail assembly.

Ensure that the locking/latching mechanism reliably self-engages when the side rails are fully rotated to the raised/closed position. If locking/latching mechanism fails to reliably self-engage service and/or replace side rail assembly.

Ensure that the locking/latching mechanism completely disengages when the PRESS button is depressed permitting the side rails to fully rotate to the lowered/open position. If locking/latching mechanism fails to completely disengage service and/or replace side rail assembly.



#### **⚠ WARNING**

Patient entrapment within, under, between, and beside side rails may cause injury or death. Ensure only specified mattress (minimum 6" thick) is used on bed. Ensure that mattress is in good condition and maintains proper resilience. If mattress is exhibiting any signs of wear (i.e.: reduced cross sectional thickness, reduced resilience, etc.) stop use immediately and replace mattress to limit patient exposure to a potential rail entrapment situation.



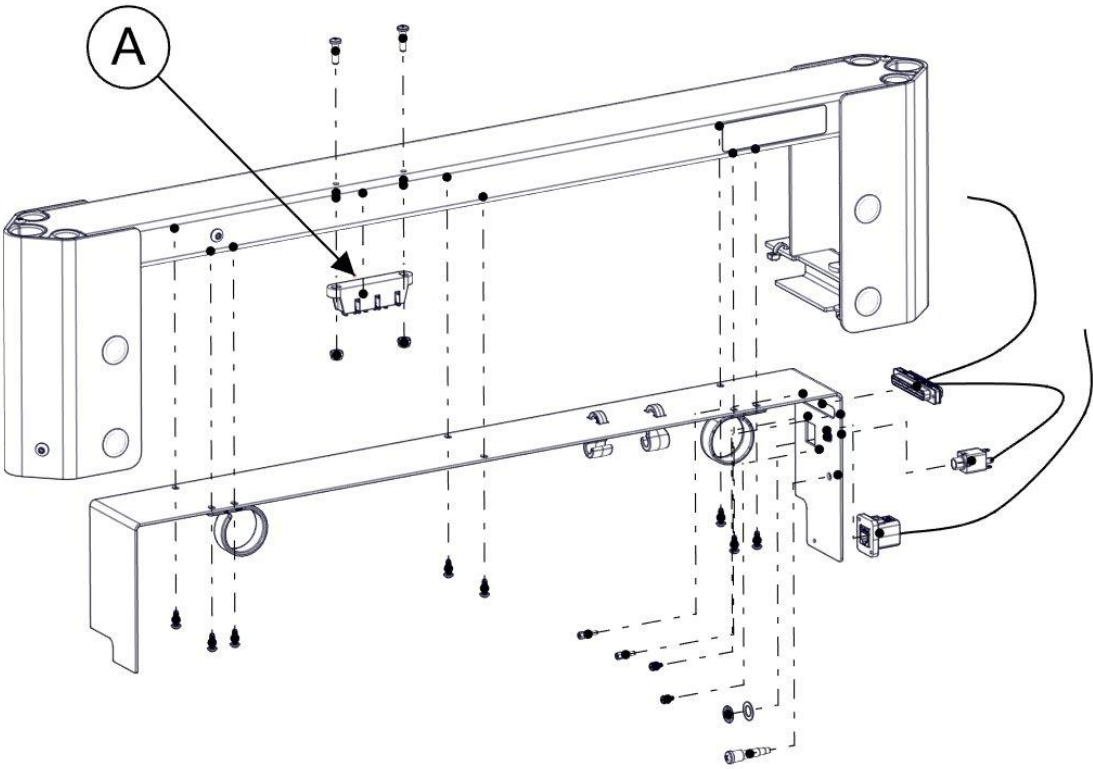
#### **⚠ WARNING**

To help minimize the potential for patient entrapment, CHG Hospital Beds recommends that the customer perform thorough inspection of all side rail assemblies to confirm continued compliance to IEC 60601-2-52 by conducting annual examinations of each side rail assembly to test described in IEC 60601-2-52, Amendment 1, Clause 201.9.1.101. If testing results indicate a potential risk of patient rail entrapment, discontinue patient bed use and remove the bed from active service immediately.



5.2 Recycling Passport

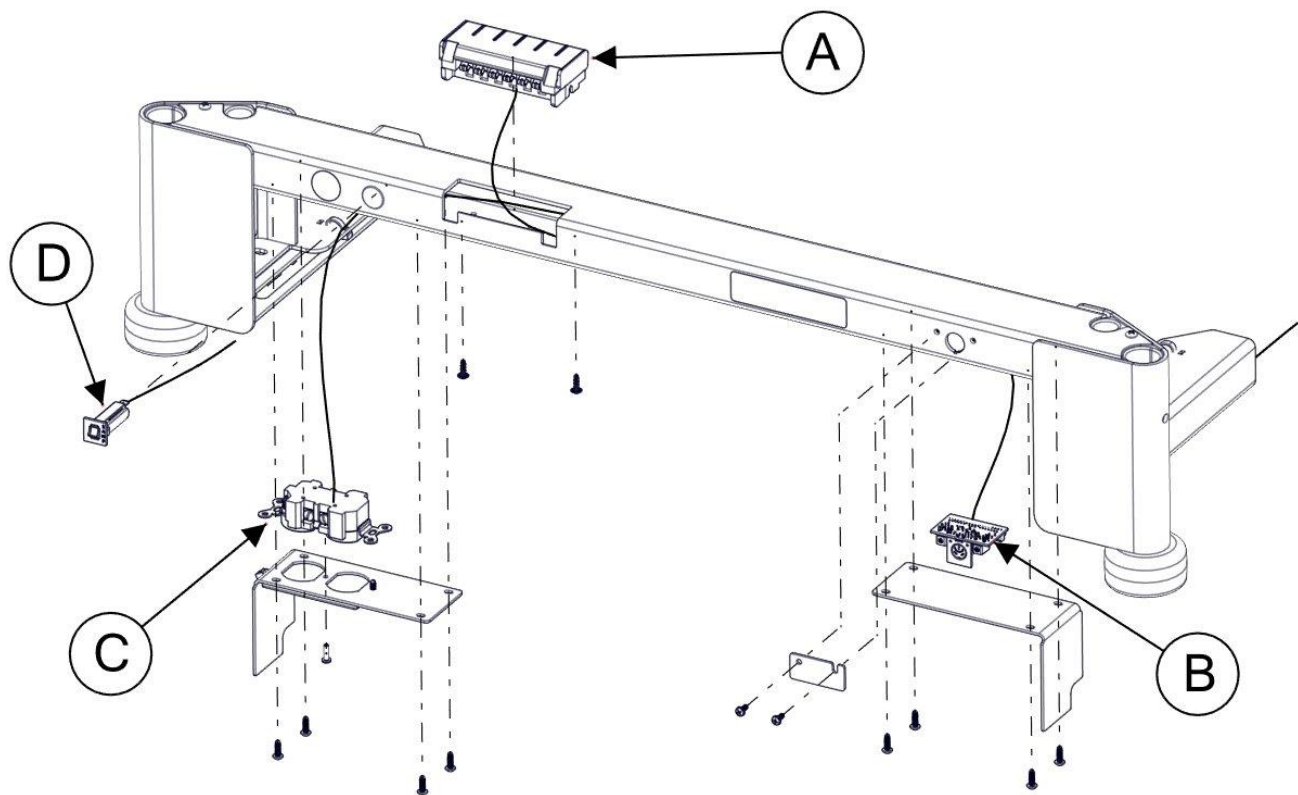
5.2.1 Headboard Bracket



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0208 Terminal Block		1

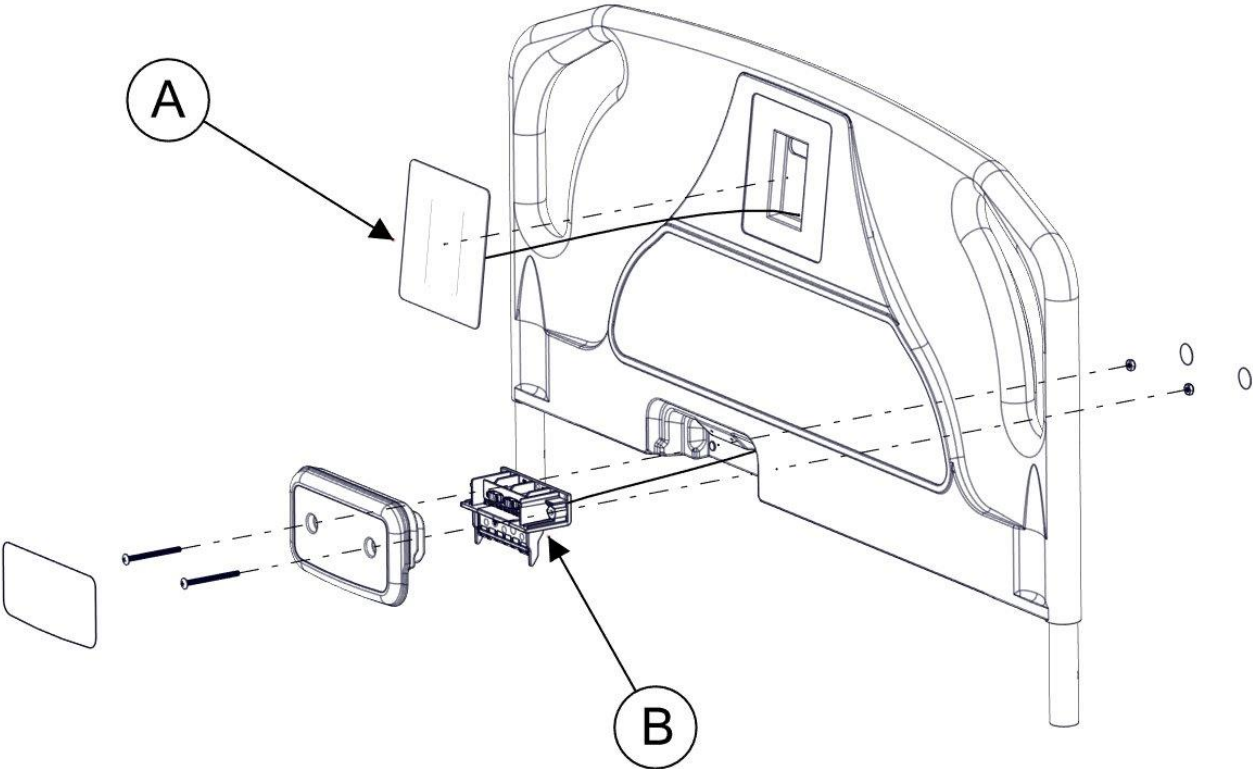
5.2.2 Footboard Bracket



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	280008 Circuit Board		1
B	400034 Circuit Board		1
C	E0202 Outlet		1
D	E0185 Circuit Breaker		1

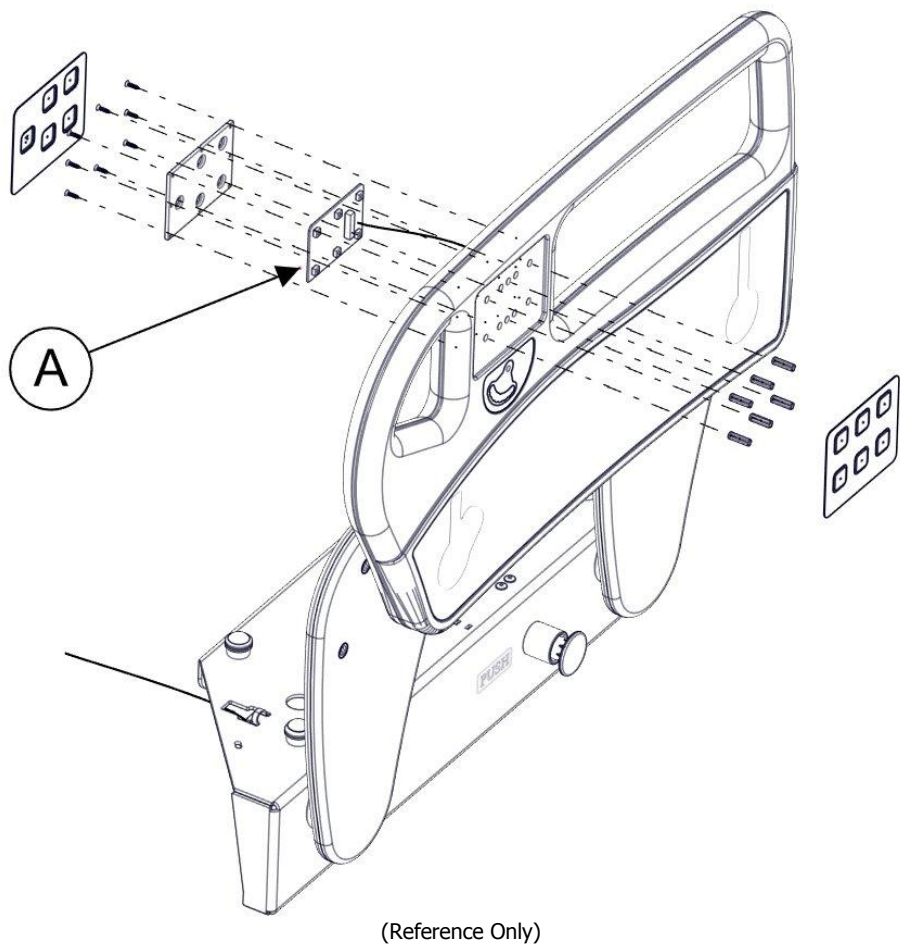
5.2.3 Footboard



(Reference Only)

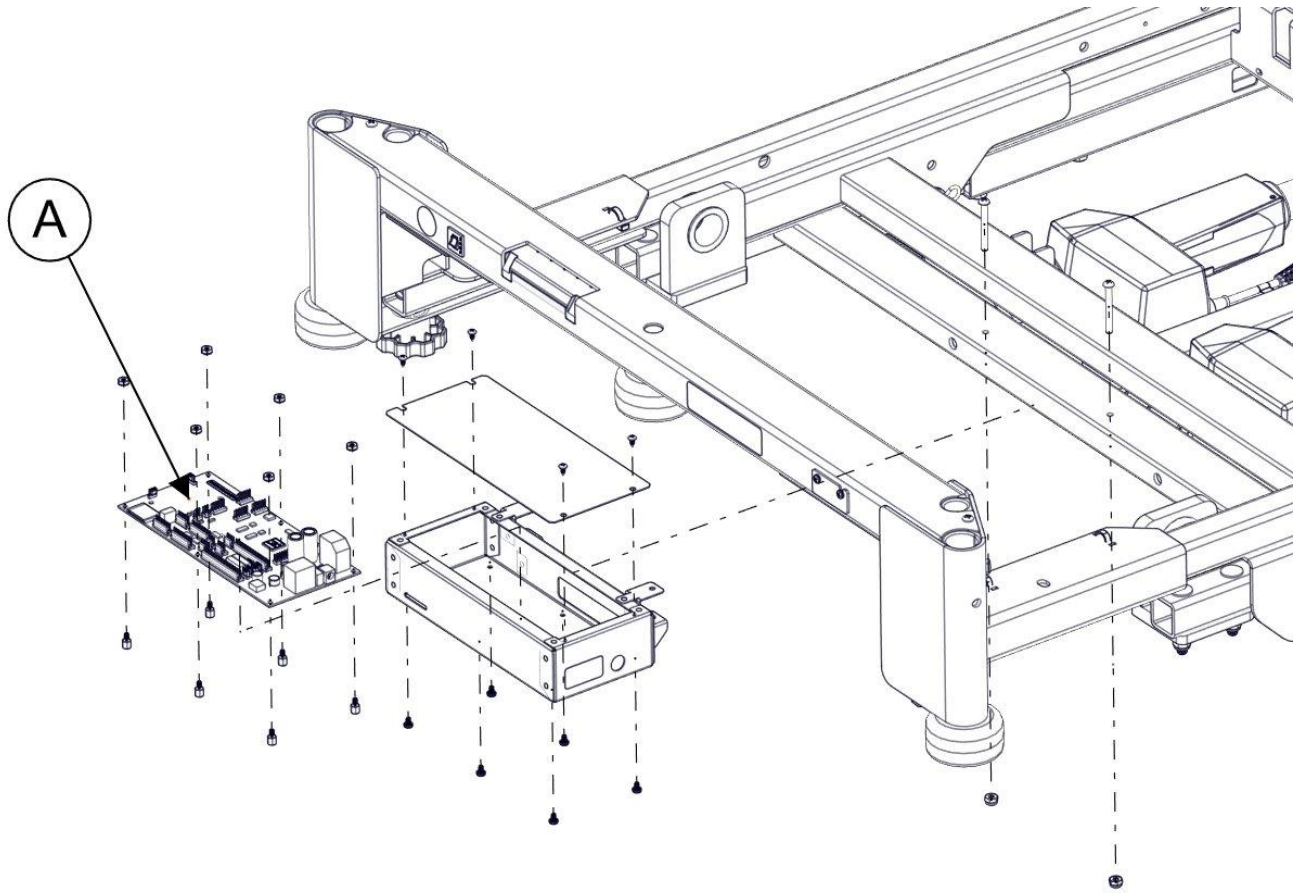
ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0133 Keypad Circuit Board		1
B	280005 Circuit Board		1

5.2.4 Head Rails



ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0019/E0020 Circuit Board		2

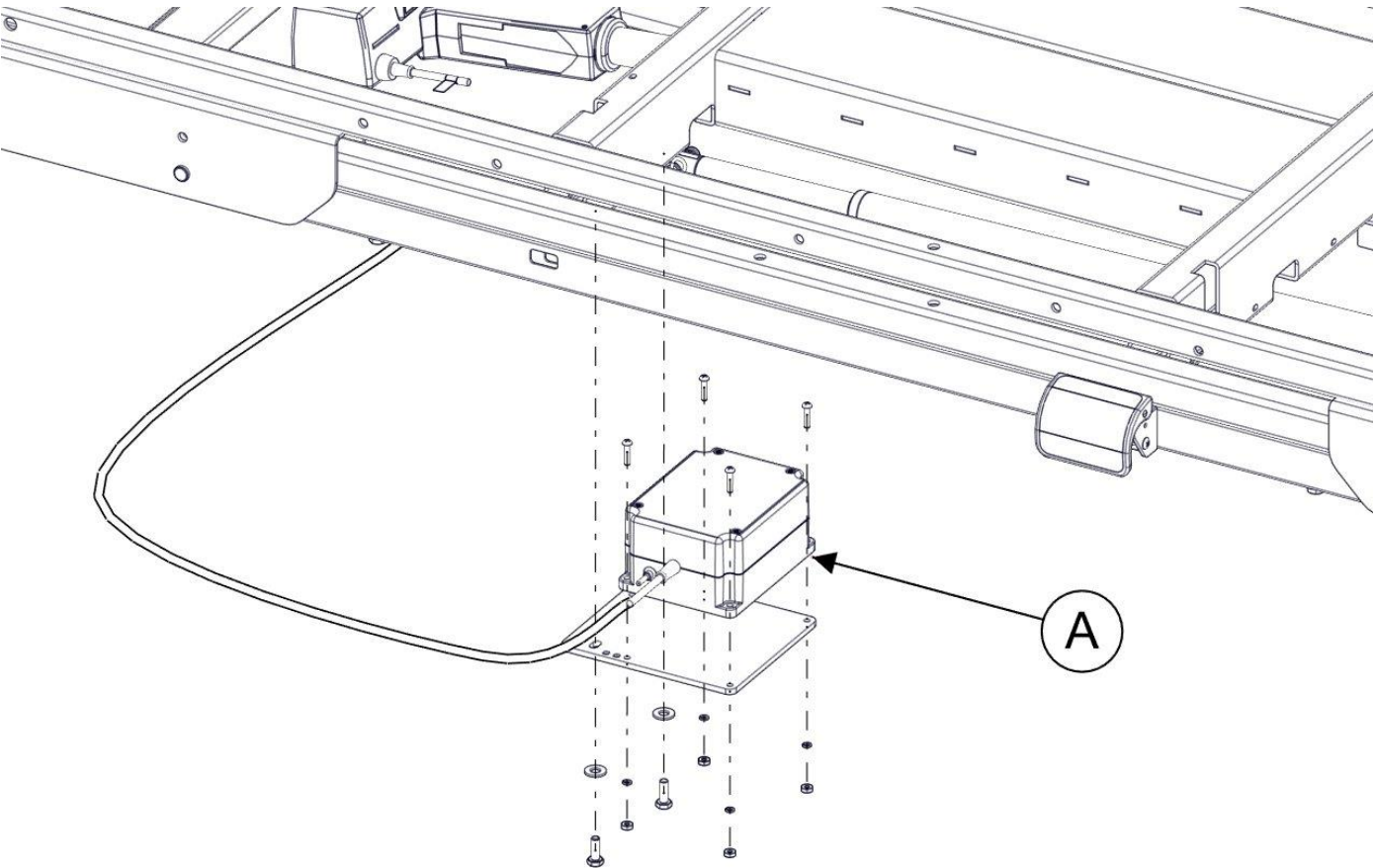
5.2.5 CB10 Control Box



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0124 Circuit Board		1

5.2.6 Battery

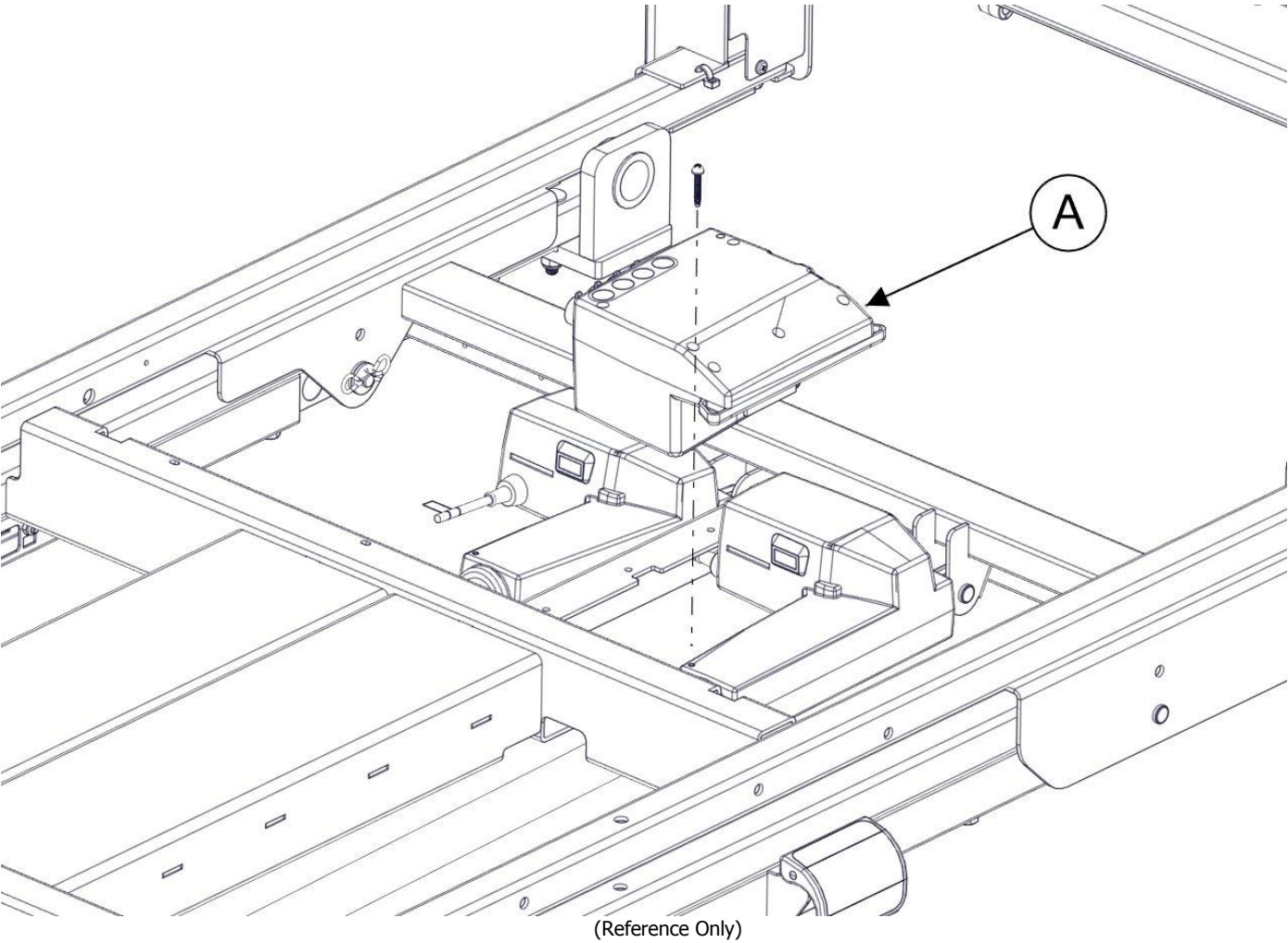


(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	280003 Battery		1



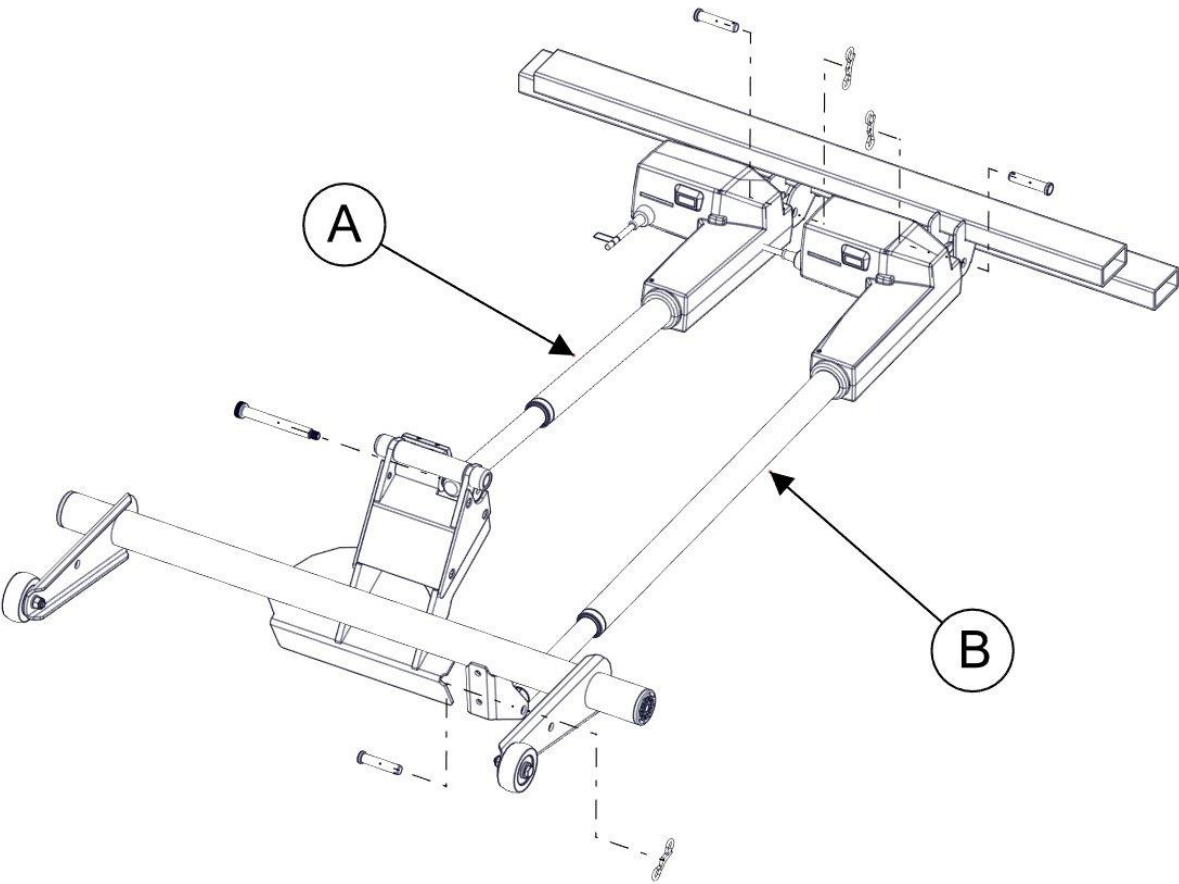
5.2.7 CB09 Control Box



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0092 Circuit Board		1

5.2.8 Head End Actuators

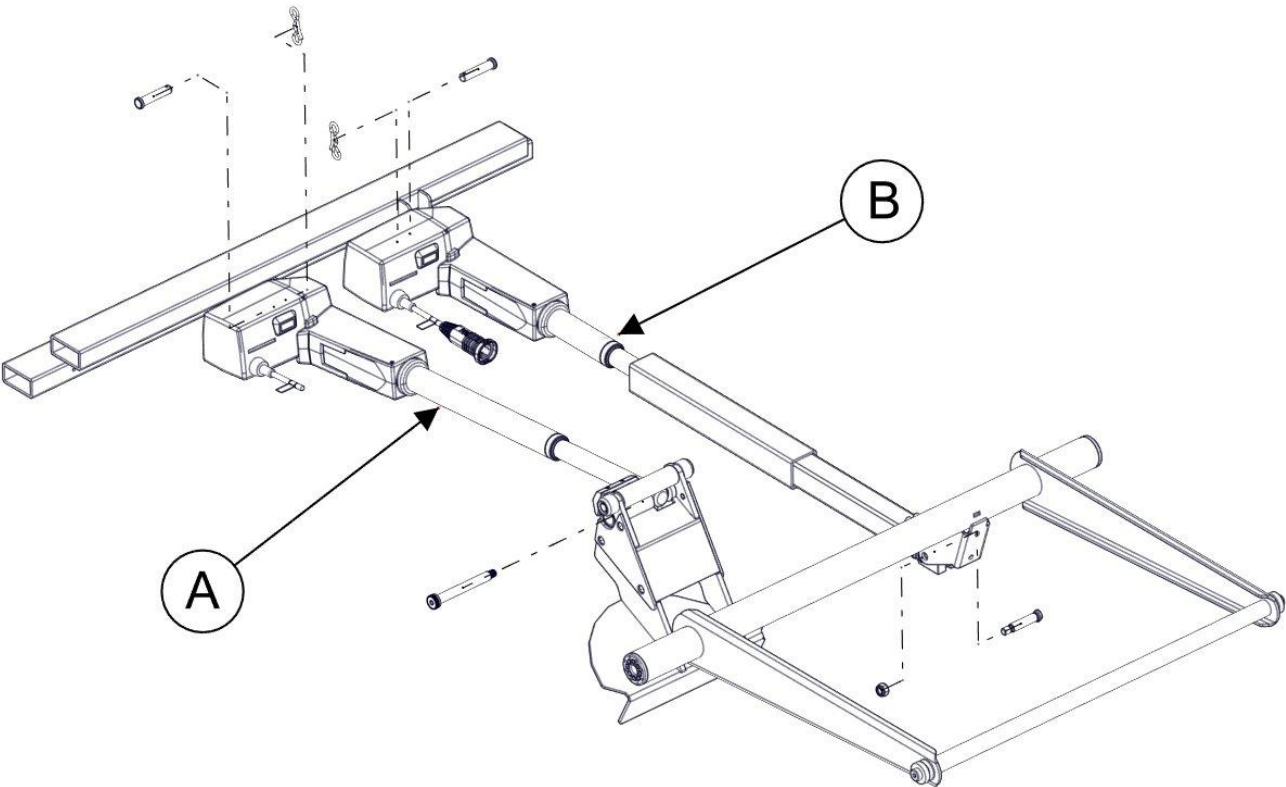


(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	420005 Actuator		1
B	E0141 Actuator		1



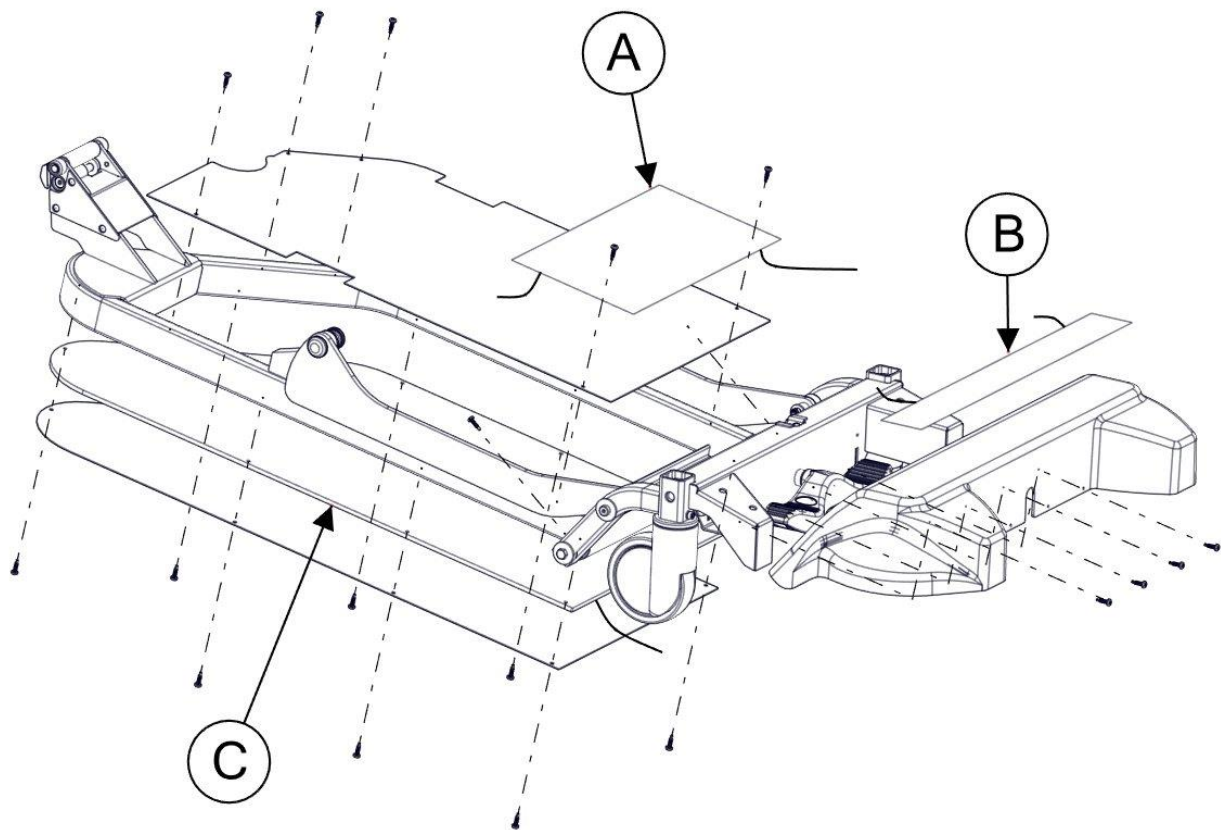
5.2.9Foot End Actuators



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	420004 Actuator		1
B	E0140/E0292/E0313 Actuator		1

5.2.10     **Obstruction Sensors**



(Reference Only)

ITEM	RECYCLING/MATERIAL CODE	IMPORTANT INFORMATION	QTY
A	E0349 Obstruction Sensor		2
B	E0389 Obstruction Sensor		2
C	E0387 Obstruction Sensor		2

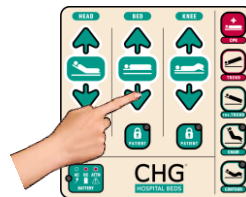
## 5.3 Controls Servicing

### 5.3.1 Soft Reset of Controls

If in the rare event that the two Hi-Lo actuators become out-of-sync with one another, the bed may not completely lower or the mattress deck on the bed may appear to be in a slight angle similar to when it has been put into a Trendelenburg or reverse Trendelenburg position. The bed may also cease to perform all elevation/descent bed motion. In this case, the bed may require a “soft reset” to re-establish proper Hi-Lo actuator synchronization and/or restore proper bed operation.

#### Soft Reset Procedure

1. **PRESS and HOLD** the BED DOWN button from any control location (footboards staff control, either staff siderail controls or pendant) until the bed automatically begin to lower. One end of the bed may completely lower before the other. ***This is perfectly normal.***
2. **CONTINUE to HOLD** the BED DOWN button until both ends of the bed have been completely lowered and the bed automatically stops all motion and the two tone audible indicator sounds. Continue to Hold bed down for an additional 20 seconds to complete the Soft Reset. The Hi-Lo actuators have now been re-synchronized.



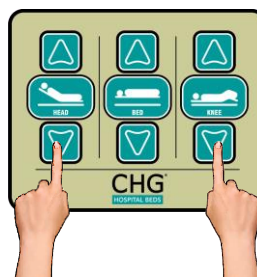
### 5.3.2 Hard Reset of Controls

If the CB10 control box firmware has been updated or, in the rare event communication is lost between the footboard staff controls and the CB10 control box, the controls may require a “hard reset” to re-establish proper component-to-component communication and/or restore proper bed operation.

**IMPORTANT:** This event does not occur by simply removing the footboard from the bed as would be routinely performed during normal use of the bed.

#### Hard Reset Procedure

1. Disengage the foot and knee deck sections of the mattress deck to gain access to the CB10 control box. Refer to page 78 for instructions.
2. Disconnect (unplug) the bed from the AC power outlet.
3. Disconnect battery cable from the side of the CB10 control box. This will disrupt power to the CB10 control box and the close the battery charging circuit relay. Wait 5 seconds to ensure that the CB10 circuit board is de-energized. Reconnect battery cable into the side of the CB10 control box.
4. **PRESS and HOLD** the HEAD DOWN and KNEE DOWN buttons from either of the staff siderail controls while you reconnect (plug in) the bed to an AC power outlet. A confirmation “chirp” will sound to indicate the successful completion of the “hard reset” procedure.
5. Re-engage the deck sections by aligning the hinge fingers and pressing the two deck sections together. Refer to page 78 for instructions.



**HINT:** It may be helpful to have another person plug in the power supply cord while you **PRESS and HOLD** the HEAD DOWN and KNEE DOWN buttons.

### 5.3.3 Updating Firmware on the CB10 Control Box

The firmware on Spirit™ beds equipped with the CB10 control box can be updated using a “miniSD” card. Each CB10 control box is equipped with a miniSD card slot to facilitate the firmware update procedure.

#### Accessing the Card Slot in the CB10 Control Box

To access the miniSD card slot:

1. Raise the bed to its maximum height.
2. The miniSD card slot is now easily accessible. It is located in the lower patient right side of the CB10 control box at the foot end of the bed.

**HINT:** It may be easier to access the miniSD card slot while kneeling at the foot end of the elevated bed looking towards the head end of the bed under the mattress deck rather than attempting to access it from above with the deck sections removed.



## Firmware Update Procedure

1. Disconnect (unplug) the bed from the AC power outlet.
2. Disconnect battery cable from the CB10 control box.

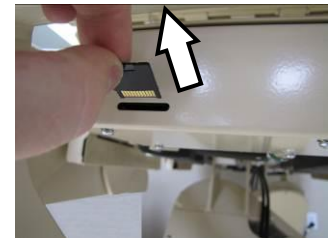


3. Gently insert miniSD card into the card slot in CB10 control box until it is fully seated.
4. Reconnect (plug in) the bed to the AC power outlet.
5. The firmware update process will start automatically. Once complete, the CB10 control box will then automatically reboot.



**IMPORTANT: DO NOT** interrupt the firmware update process. Premature removal of the SD card could result in an incomplete firmware flash. This may render the CB10 control box inoperable!

6. Disconnect (unplug) the bed from the AC power outlet.
7. Remove miniSD card from the CB10 control box.



8. Perform a "hard reset" of the controls. Refer to page 76 for instructions.
- The bed with the updated firmware is now ready for use.

### 5.3.4 Obtaining Updated Firmware

To obtain the latest version of firmware contact CHG Hospital Beds' Customer Service.

For the CB10 control box, miniSD cards, preloaded with appropriate firmware, is available. In some cases, CHG Hospital Beds may provide an updated version of firmware via email. This can then be loaded onto an existing miniSD card (non-HC format) by first inserting it into any commercially available miniSD to SD card adapter (see right) and then inserting the adapter into a standard SD card reader or SD card slot on a computer.

Contact CHG Hospital Beds' Customer Service for further details.



Example of miniSD card and SD card adapter used for CB10 firmware updates

**IMPORTANT:** Only beds with firmware version of 2.10 or newer (numerically higher) can be updated using the miniSD card. If the firmware update procedure failed to automatically initiate, contact CHG Hospital Beds' Customer Service for alternate firmware update options.

#### NOTE:

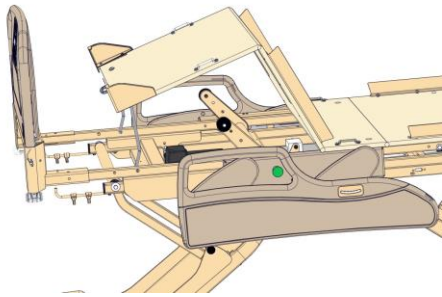
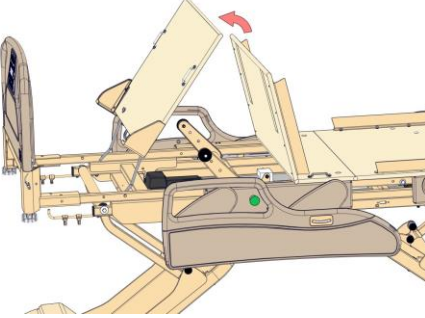
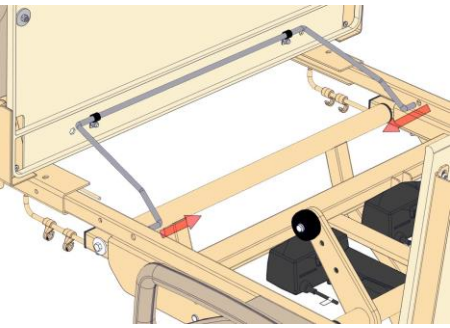
CHG Hospital Beds maintains a history file for every Spirit™ bed. After the firmware has been successfully updated, contact CHG Hospital Beds' Customer Service at (519) 963-4010 or Toll Free 1 (866) 516-5446 with the date of the firmware update, the bed serial number, and the firmware version number to ensure that the bed's history file is appropriately updated.



## 5.4 Mattress Deck Removal

All four sections of the composite mattress deck can be detached for thorough cleaning, sanitization, and maintenance.

### 5.4.1 *Mattress Deck Removal - Foot Section*

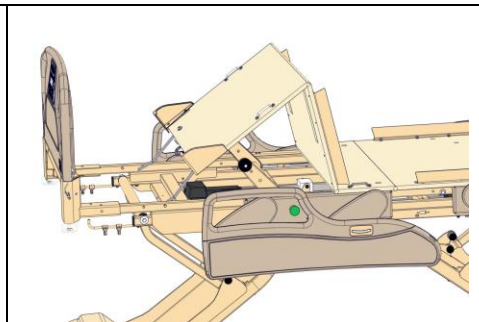
		
1. Lift the foot and knee sections together until the angle between them is greater than 90°.	2. Lift the foot section away from the knee section at the hinge, to separate the sections.	3. Disengage the foot bail from the frame by flexing the two ends together as shown.

### 5.4.2 *Accessing the CB10 Control Box*

**NOTE:** If you are considering removing deck sections in attempts to gain access to the CB10 control box, no deck sections need to be removed from the bed.

From step 1 above, simply continue to rotate the foot section up until it comes to rest against as shown right.

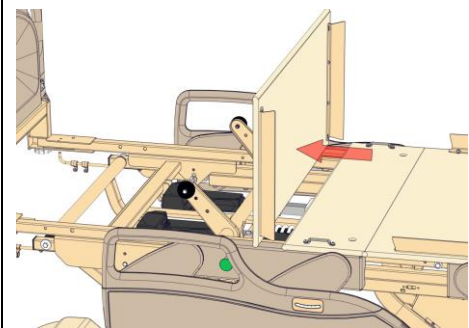
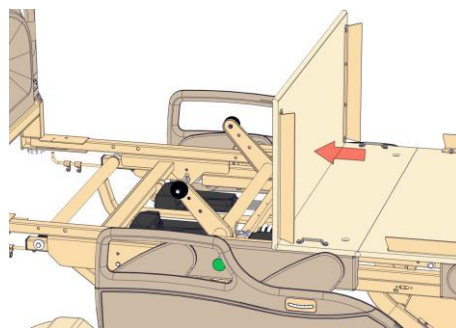
The CB10 control box is now accessible.



### 5.4.3 *Mattress Deck Removal - Knee Section*

Once the foot section is removed, the knee section can be separated from the stationary (bolted) seat section. Lift the knee section until it is at an angle of 90° to the seat section.

Using a horizontal force, strike the knee section near the hinge to separate these two sections.

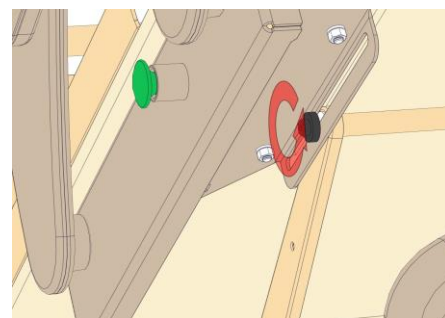
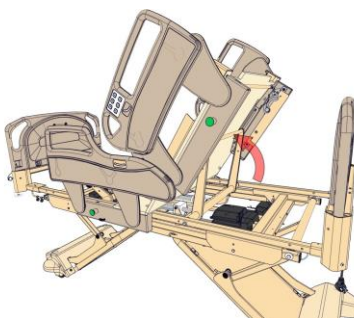


### 5.4.4 *Mattress Deck Removal - Head Section (Back Rest)*

Elevate the head section (back rest) to an angle of 55°.

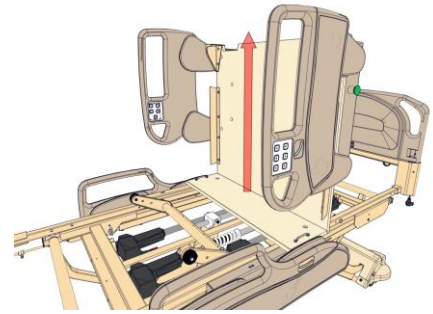
Using a 3/16" Allen key, remove both shoulder bolts fastening the head deck (back rest) to the head gatch.

Locate both head siderail control cables. Follow cables down to where they are retained on the frame. Using wire cutters, cut both zip ties.



Using a small, slot screw driver, depress the retaining clip on both head siderail control cables and disconnect both cables.

The head section (back rest) can now be lifted straight up, detaching it from the stationary (bolted) seat section.



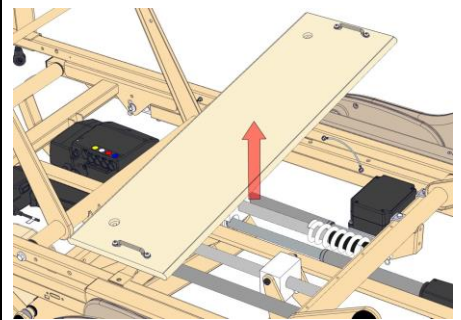
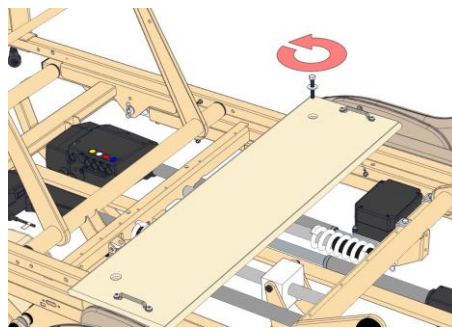
### 5.4.5 Mattress Deck Removal - Seat Section

The seat section is attached to the bed frame with two bolts fasteners. Although it is not designed for routine removal, it can be removed, if necessary.

Using a ratchet with a 1/2" SAE socket loosen and remove the two bolts fastening the seat section to the bed frame.

The seat section can now be lifted off the frame.

**IMPORTANT:** The head section (back rest) must first be removed before the seat section can be removed from the bed.



#### NOTE:

Re-engage the deck sections by aligning the hinge fingers and pressing the two deck sections together.

When reinstalling any section of the mattress deck, ensure that all hinges are **COMPLETELY** engaged before attempting to articulate the connection.

Check for proper engagement by gently articulating the head, knee, and foot sections of the mattress deck up and down. The head, knee, and foot sections of mattress deck should articulate freely without binding.



## 5.5 Before Calling The Factory

To ensure prompt and accurate attention to your concerns please have the following information available before you call:

Spirit™ Bed Service Call Information	
Your facility's <b>phone number</b> : (Where you can be reached):	
Your facility's <b>fax number</b> (If Available):	
Bed(s) <b>Model and Type</b> :	
Bed(s) <b>Serial Number</b>	
Date of Purchase:	
List of <b>defective part(s)</b> (Identify by part number, or describe relative to nearest numbered part):	
List of deficiencies or <b>Type of problem</b> :	

### NOTE:

CHG Hospital Beds' determination of the "Patient Left" and the "Patient Right" side of the bed is made from the patient's point of view while positioned normally on the bed facing up.

If you have carefully followed all of this instructions contained in this manual, you should expect many years of trouble free service. If you're not 100% satisfied with your bed, please call your sales representative or the factory immediately.

It's always better to ask if you have any questions such as hole drilling locations in head and footboards, or before performing electrical service and/or modifications, or continuing to use a bed that has been damaged and/or is exhibiting signs of minor damage. These activities could lead to more serious consequences such as potential injury to patient and staff and/or equipment damage.

If you require further information regarding circuit diagrams, component part lists, descriptions etc. please contact CHG Hospital Beds' Customer Service.

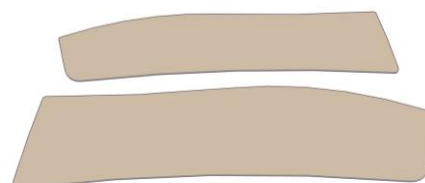
Call CHG Hospital Beds at (519) 963-4010 or Toll Free 1 (866) 516-5446.

Mailing Address: CHG Hospital Beds  
1020 Adelaide Street South  
London, Ontario  
N6E 1R6  
Canada

## 5.6 Colour Information

In the rare event that the painted finish on your Spirit™ bed becomes chipped you will require touch up paint. CHG Hospital Beds recommends the use of Sherwin Williams Auto #5A-30041 – Gatsby Cream (formerly #35-30041 – Cream)

Your Spirit™ bed may come with coloured inlay on the siderail assemblies and/or on the footboard assembly. If these become damaged and require replacement, please contact CHG Hospital Beds' Customer Service to ensure that you receive matching inlays.



## 5.7 Troubleshooting Guide

### NOTE:

Prior to using the Troubleshooting Guide, perform a brief function test on the bed. Check all functions initiated from both the footboard staff control and the patient control (staff/patient rail control and/or pendant) to determine which functions are not working.

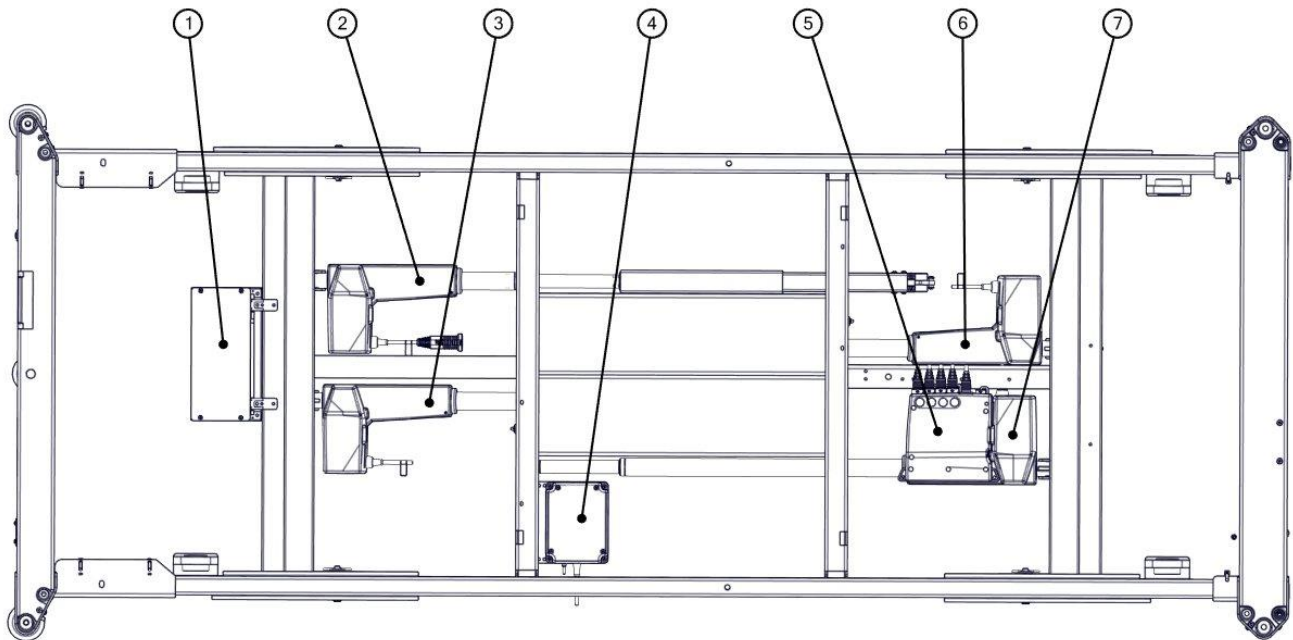
Problem / Failure	Recommended Action
<p>Bed is connected (plugged in) to an AC power outlet but appears to be “frozen”</p> <p>Power status indicators may or may not be illuminated/flashing</p>	<p>Cycle the power on/off to reset the controls and re-establish proper communication between the CB09 and CB10 control boxes.</p> <ol style="list-style-type: none"> <li>1. Disconnect battery from CB10 control box</li> <li>2. Disconnect (unplug) bed from the AC power outlet</li> <li>3. After the bed has been disconnected from the AC power outlet, fully discharge the CB09 control box by sequentially depressing the UP and DOWN buttons on one of the siderail controls or on the pendant (depending upon how bed is equipped) at least 20 times</li> <li>4. Reconnect (plug in) the bed to the AC power outlet</li> <li>5. Test any bed function from any control location to confirm proper bed control has been restored</li> <li>6. Reconnect battery to CB10 control box</li> <li>7. Call for CHG Hospital Beds Customer Service for technical assistance</li> </ol>
<p>Bed is connected (plugged in) to an AC power outlet but bed is not functioning</p> <p>Power status indicators may or may not be illuminated/flashing</p>	<ol style="list-style-type: none"> <li>1. Check to ensure bed is connected (plugged in) to an AC power outlet</li> <li>2. Check AC outlet for power</li> <li>3. Check Master Lockout. <b>PRESS and HOLD</b> all three patient lock-out buttons at same time to lock/unlock, then try bed functions</li> <li>4. Lift head section of the mattress deck and remove dust shield from on top of CB09 control box. Check for green power light (LED). If no light, check to ensure that the power cord has been fully inserted into the inlet receptacle of the CB09 control box</li> <li>5. Check to ensure that the communication cable that runs between the CB09 and CB10 control boxes is fully inserted into the port on the CB09 control box</li> <li>6. Call for CHG Hospital Beds Customer Service for technical assistance</li> </ol>
<p>Some bed articulations no longer working or are intermittent regardless of control location</p> <p>Power status indicators may or may not be illuminated/flashing</p>	<p>If the head and/or foot sections of mattress deck no longer elevate/lower <b>OR</b> bed will no longer raise/lower <b>OR</b> bed motion is intermittent it is necessary to ensure proper connections.</p> <ol style="list-style-type: none"> <li>1. Lift head section of the mattress deck and remove dust shield from on top of CB09 control box</li> <li>2. Check to ensure that every actuator colour coded cable has been fully inserted into port on the CB09 with the corresponding colour code</li> <li>3. Check to ensure that the power and the communication cable that run between the CB09 and CB10 control boxes are fully inserted into their respective ports on the CB09 control box</li> <li>4. Lift foot section of the mattress deck and removed the cover from the CB10 control box</li> <li>5. Check to ensure that every connector is firmly connected to its respective header on the CB10 circuit board</li> <li>6. Test any bed function from any control location to confirm proper bed control has been restored</li> <li>7. Call for CHG Hospital Beds Customer Service for technical assistance</li> </ol>

Patient controls working properly, footboard staff control not working	<ol style="list-style-type: none"> <li>3. Check to ensure footboard is completely down into bracket</li> <li>4. Check cable connection under lower left side of footboard</li> <li>5. Check to make sure that there is no damage to Blindmate connectors (plastic connector between bottom of footboard and footboard mounting bracket)</li> <li>6. Check footboard staff control cable connection into CB10 control box under foot section of mattress deck</li> <li>7. Replace footboard control</li> </ol>
Footboard staff control working properly, rail controls not working	<ol style="list-style-type: none"> <li>1. Some functions may be locked out. Check patient lock-out buttons on footboard. Patient lock-out prevents bed operation from rail controls</li> <li>2. Check rail controls on both sides of bed. If only one rail control is not working skip to next section. If both rail controls are not working, continue to next step</li> <li>3. Check cable connections from rail to port on bed frame (ensure jack is fully inserted into port)</li> <li>4. Check pendant connection into CB10 control box under foot section of mattress deck</li> <li>5. Replace CB10 Control Box</li> </ol>
Siderail control working on one side of the bed only	<ol style="list-style-type: none"> <li>1. Check cable connection (ensure connector is fully inserted into T-cable port)</li> <li>2. Unplug rail connection at port and replace with pendant (if available). If pendant works, replace inoperable rail control. If pendant doesn't work, replace T-Cable</li> </ol>
Footboard staff control working properly, pendant not working	<ol style="list-style-type: none"> <li>1. Some functions may be locked out. Check patient lock-out buttons on footboard. Patient lock-out prevents bed operation from the pendant</li> <li>2. Check cable connection from pendant to port on bed frame</li> <li>3. Check pendant connection into CB10 control box under foot section of mattress deck</li> <li>4. Unplug pendant from current port and plug into port on opposite side of bed. If pendant works in new port, replace T-Cable. If pendant does not work in new port, continue to next step</li> <li>5. Test pendant on a properly functioning bed (if available). If pendant works, replace CB10 control box. If pendant doesn't work, replace pendant</li> </ol>
Only some functions working on the rail controls or pendant	<ol style="list-style-type: none"> <li>1. Some functions may be locked out. Check patient lock-out buttons on footboard. Amber LED on patient lock-out button prevents the bed operation from the rail controls and pendant</li> <li>2. Check cable connection from rail control to port on bed frame</li> <li>3. Check pendant connection into CB10 control box under foot section of mattress deck</li> <li>4. Replace rail control or pendant</li> </ol>
<p>Bed will not lower all the way or the bed appears to be a slight Trendelenburg or reverse Trendelenburg angle.</p> <p><b>OR</b></p> <p>The bed has ceased to perform all elevation/descent motion.</p>	<p>The Hi-Lo actuators are likely out-of-sync. The bed requires a "soft reset" to re-establish proper Hi-Lo actuator synchronization and/or restore proper bed operation.</p> <ol style="list-style-type: none"> <li>1. Refer to page 75 for "soft reset" procedure.</li> </ol>

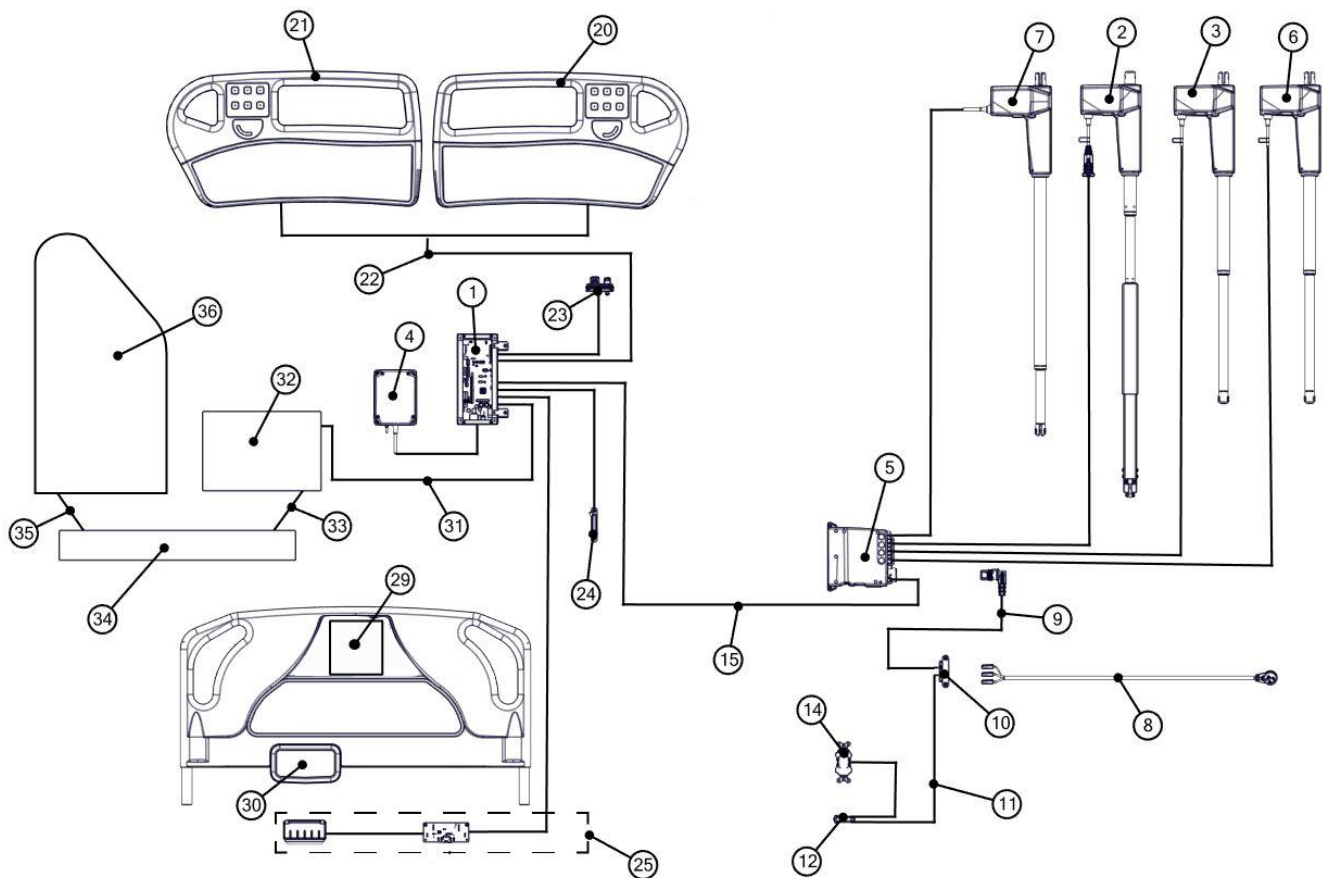
<p>Bed will not run on DC power</p>	<ol style="list-style-type: none"> <li>1. Check to see if indicator LED on the Power Status Indicator is flashing RED. If flashing, check to see if the battery has been disconnected from the CB10 control box. Connect DC plug into DC jack in the side of the CB10 control box</li> <li>2. The battery is connected but voltage has dropped below 18VDC and the battery has been automatically disconnected from battery circuit. Ensure bed is connected (plugged in) to an AC power outlet and allow battery to recharge. Confirm indicator LED is flashing GREEN and RED on the Power Status Indicator</li> <li>3. If the service icon of the Power Status Indicator remains on after lengthy recharge period, replace battery</li> <li>4. If the service icon of the Power Status Indicator remains on after battery replacement, replace CB10 control box</li> </ol>
<p><i>Bed Equipped With Obstruction Sensing Option</i></p> <p>Bed does not automatically stop when one or more obstructions sensors is contacted</p>	<ol style="list-style-type: none"> <li>1. Confirm which obstruction sensor(s) is(are) not working</li> <li>2. Check to see if interconnection cables (between sensors) are connected or have been twisted. Replace interconnection cables</li> <li>3. Check to see if interconnection cables (between sensor and CB10 control box) are connected or have been twisted. Replace interconnection cables.</li> <li>4. Replace faulty obstruction sensor(s)</li> </ol>
<p><i>Bed Equipped With Obstruction Sensing Option</i></p> <p>Bed will not lower when DOWN button pressed</p> <p>Bed behaves like it is contacting an obstruction when none are obvious</p>	<ol style="list-style-type: none"> <li>1. If no obstruction is present, carefully inspect each obstruction sensor for signs of damage (gouge, dent, etc.). Damage could cause false switch contact to be made. If no damage is obvious, continue to next step. If damage is obvious, replace damaged obstruction sensor(s)</li> </ol> <p>The obstruction sensors are linked in "series" to form an electrical circuit. The circuit series is linked as follows: CB10 control box, interconnection cable, top leg cover sensor, interconnection cable, caster cover sensor, interconnection cable, bottom leg cover sensor</p> <ol style="list-style-type: none"> <li>2. Disconnect interconnection cables (between sensors) to isolate the faulty obstruction sensor(s). Begin by disconnecting one of the bottom leg cover sensors from the circuit. Check Bed DOWN motion. If bed does not lower, continue by disconnecting the other bottom leg cover sensor. Check Bed DOWN motion. If bed does not lower, continue by disconnecting one caster cover sensor from the circuit. Continue this process until the proper Bed DOWN motion is achieved.</li> <li>3. Reconnect obstruction sensor cables for functional obstruction sensors. Confirm Bed DOWN motion is working.</li> <li>4. Replace damaged obstruction sensor(s)</li> </ol>

## 5.8 Schematics & Technical

### 5.8.1 Spirit Wiring Schematic



ITEM	KIT #	KIT DESCRIPTION
1	S0150	Service Kit, CB10 Lite (FOR USE WITH PLUS BEDS)
2	S0060	Service Kit, Head Actuator, Low Rails
	S0166	Service Kit, Head Actuator, High Rails
3	S0367	Service Kit, HI-LO Actuator Foot Mounted
4	S0379	Service Kit, 24VDC Battery Assembly (Plate Mount)
5	S0094	Service Kit, CB09, 120V
6	S0366	Service Kit, HI-LO Actuator Head Mounted
7	S0059	Service Kit, Foot Actuator



ITEM	KIT #	KIT DESCRIPTION
1-7		SEE ELECTRICAL COMPONENTS
8	S0133	Service Kit, Mains AC Supply Cable
9	S0134	Service Kit, Internal Mains AC Supply Cable
10	S0132	Service Kit, Mains AC Terminal Block
11	S0135	Service Kit, Auxiliary Outlet Mains Cable
12	S0137	Service Kit, Thermal Circuit Breaker, 5 AMP
14	S0136	Service Kit, Hospital Grade Duplex Receptacle
15	S0139	Service Kit, CB09 to CB10 Communication Cable
	S0140	Service Kit, CB09 to CB10 Power Cable
20/21		SEE RAIL PANEL COMPONENTS
22	S0141	Service Kit, T-Cable, Siderail Controls
23	S0138	Service Kit, Patient Station Cable
24	S0131	Service Kit, Underbed Light
25	S0376	Service Kit, 6P Blindmate Connector Assembly Complete
29/30		SEE FOOTBOARD COMPOENTS
31	S0129	Service Kit, Obstruction Sensor CB10 Cable
32	S0314	Service Kit, Top Leg Obstruction Sensor
33	S0128	Service Kit, Obstruction Sensor Link Cable (4 PIN)
34	S0311	Service Kit, Caster Cover Obstruction Sensor
35	S0380	Service Kit, Obstruction Sensor Link Cable (6 PIN)
36	S0193	Service Kit, Bottom Leg Obstruction Sensor



## 5.8.2 Electrical Connections – Overview



### CB09 Control Box

CB09 is common to all Spirit™ beds

**IMPORTANT:** CB09 Control boxes are **NOT** interchangeable!

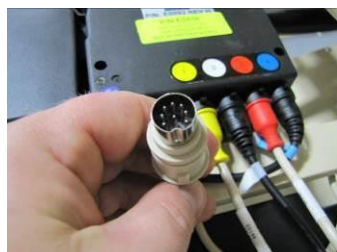
### CB10 Control Box

CB10Lite control box – Spirit Plus™



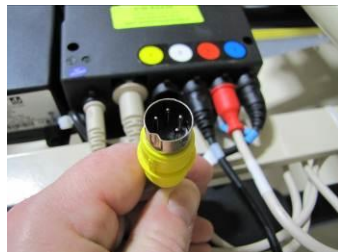
### DC Power Cable (05.5 mm X 02.5 mm male plug end)

Provides 24VDC power from CB09 control box to DC power input header on CB10 control box



### Communication Cable (8 pin, DIN style, double keyed connector)

Carries communication between CB09 control box and COMM header on CB10 control box



### Colour Code

**Yellow:** Hi-Lo Actuator (Mounted at Foot End of Bed)

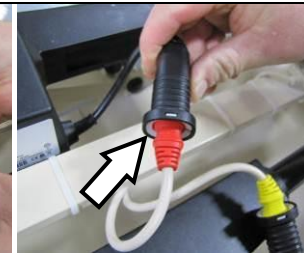
**White (tape):** Hi-Lo Actuator Extension Cable (Mounted at Head End of Bed)

**Red:** Head Actuator Extension Cable

**Blue (tape):** Knee Actuator

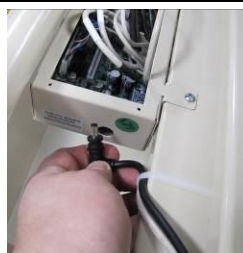
### Actuator Cable Plug (4 pin, DIN style, double keyed connector)

Hi-Lo Actuators are common for all Spirit™ beds. Head/Knee actuators are unique for each Spirit™ depending upon configuration



### Foot Mounted Actuator Extension Cables (4 pin, DIN style, double keyed connector to 6 pin modular connector)

Connects foot mounted actuator cables to CB09 control box. Retainer requires small slot screwdriver to remove (arrow)



### CB09 Control Box Power Supply Cable (IEC 320 C13 female plug end)

Typical on all beds

### Battery Connection Cable (05.5 mm X 02.5 mm male plug end)

Typical on all beds





## ⚠ WARNING

**ALWAYS** ensure that bed is disconnected (unplugged) from mains AC power (wall outlet) before disconnecting/connecting any cable from/to either the CB10 or CB09 control boxes. Failure to do so may result in damage or degradation of control box circuit board components.



## ⚠ WARNING

Some versions of CB09 control boxes are NOT interchangeable.

If your Spirit™ bed is not equipped with a CB10 control box but contains additional electrical components (such as a DJB Junction Box), then this bed uses an older version of the CB09 control box.

If you have to replace your CB09 control box call CHG Hospital Beds' Customer Service to ensure that you have the correct version of this component at (519) 963-4010 or Toll Free 1-866-516-5446.

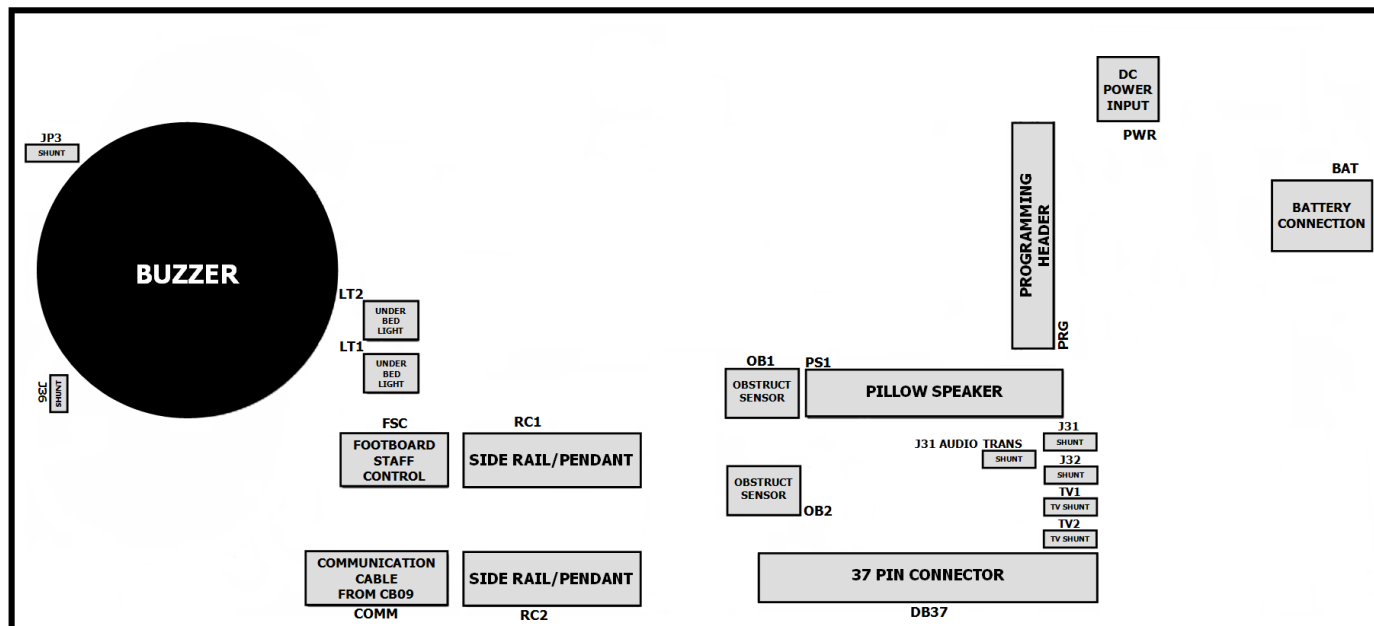
### 5.8.3 Spirit Plus™ CB10Lite Control Box – Overview



CB10Lite cable connections shown: communication cable (p/n E0064), power cable (p/n E0067), footboard staff control cable (E0151), siderail t-cable (E0060), and patient station cable (E0078)

CB10Lite serial number label (affixed to enclosure next to battery connection)

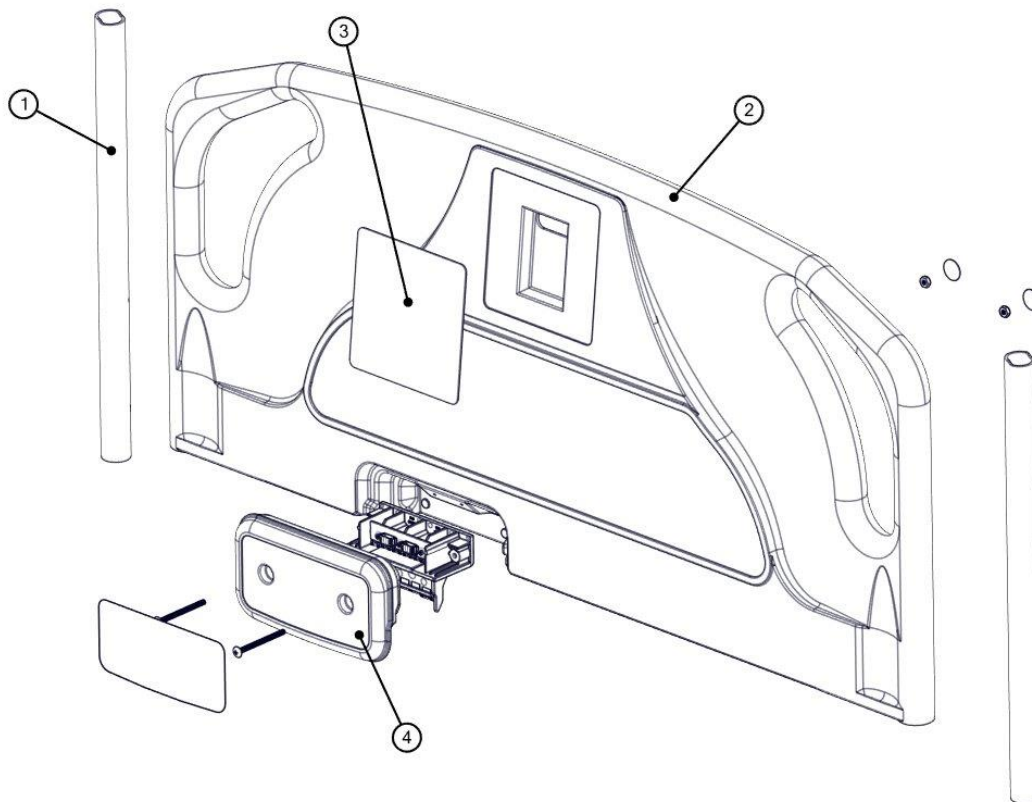
#### CABLE OPENING



## 5.9 Service Parts

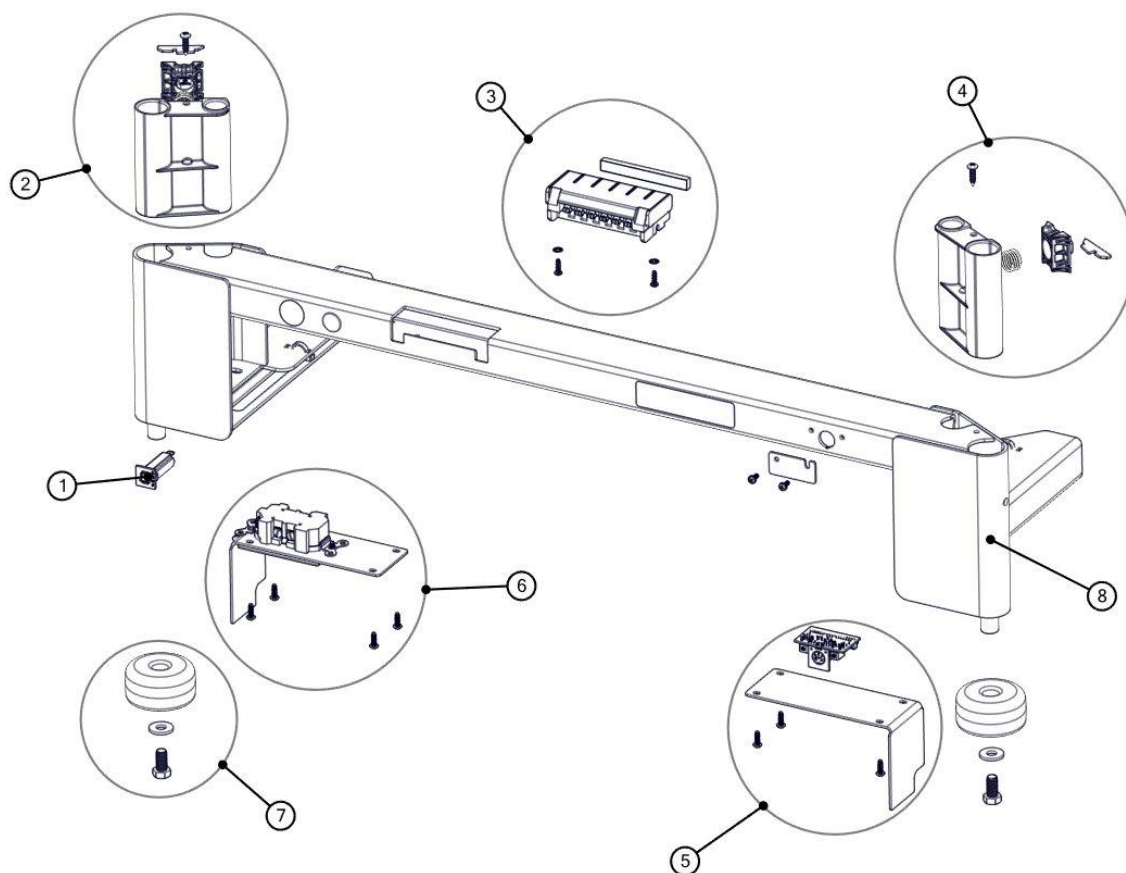
**NOTE:** Service parts shown reflect current production Spirit™ beds. If you are servicing an older Spirit™ bed, or if you have any doubts/concerns, please contact CHG Hospital Beds' Customer Service at (519) 963-4010 or toll free 1-866-516-5446 to ensure that you receive the correct parts.

### PLUS FOOTBOARD



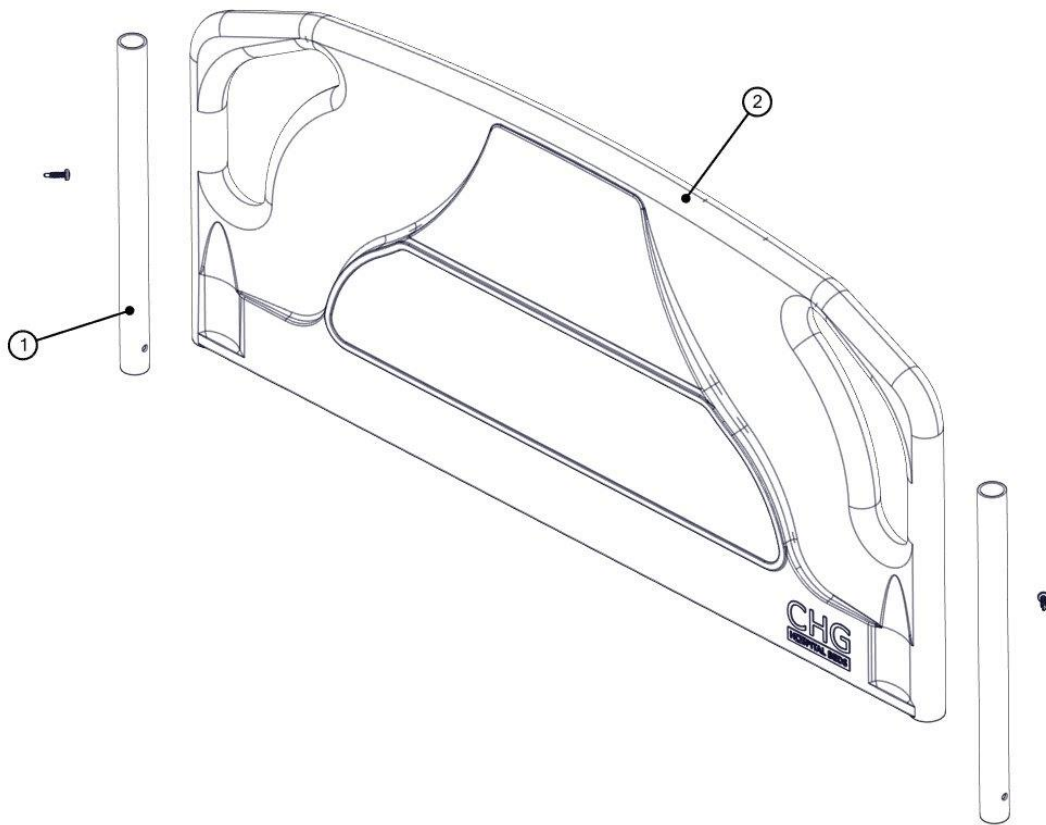
ITEM	KIT #	KIT DESCRIPTION
1	S0384	Service Kit, Footboard Post
	S0323	Service Kit, Psych Footboard Post
2	S0395	Service Kit, Plus Footboard Complete
	S0396	Service Kit, Plus Footboard Complete Psych
3	S0044	Service Kit, Plus Footboard Staff Control
4	S0394	Service Kit, Footboard Blindmate 6 Pin

## FOOTBOARD BRACKET



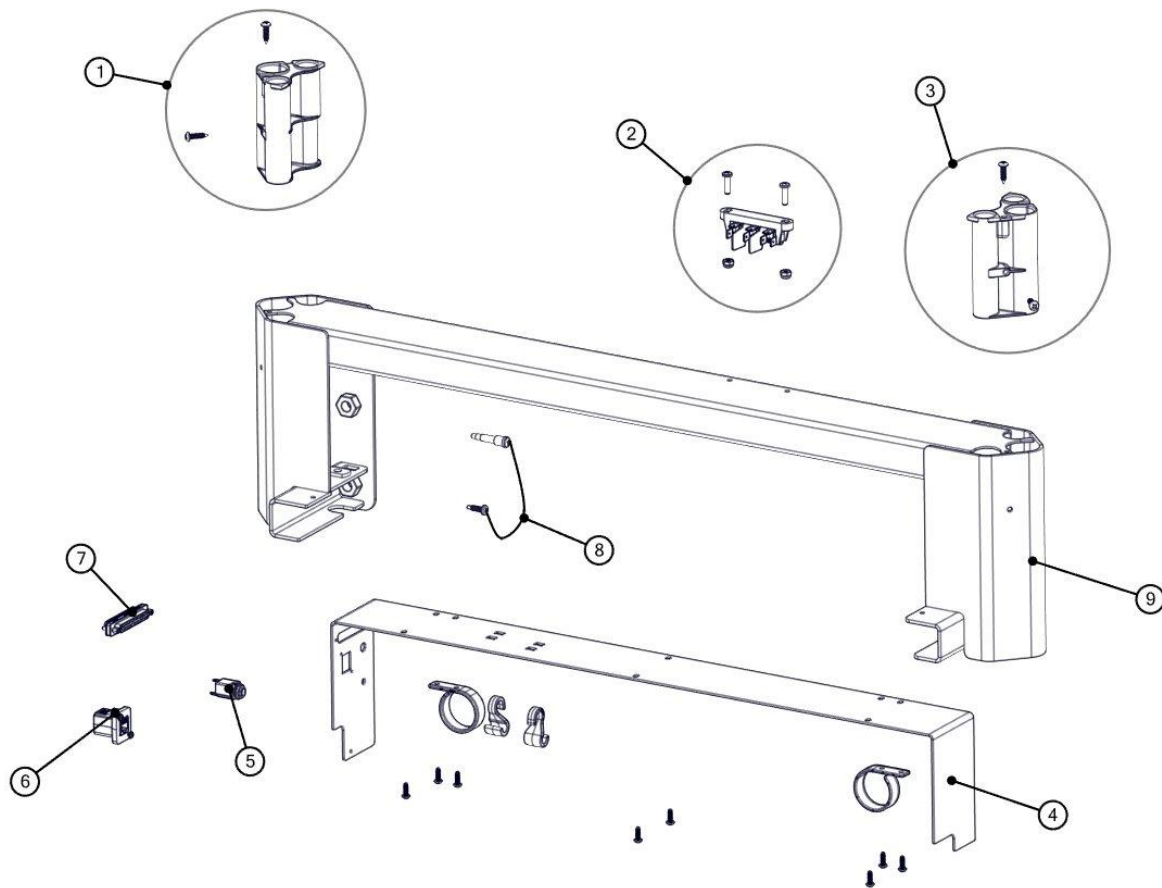
ITEM	KIT #	KIT DESCRIPTION
1	S0137	Service Kit, Thermal Circuit Breaker, 5 Amp
2	S0117	Service Kit, Footboard Bracket Insert PR
3	S0397	Service Kit, Footboard Bracket Blindmate 6 Pin Connector
4	S0118	Service Kit, Footboard Bracket Insert PL
5	S0404	Service Kit, WD Bypass Intermediate Board and Cover
6	S0027	Service Kit, Footboard Bracket Corner Bumper
7	S0400	Service Kit, Auxiliary Outlet and Cover (120V)
	S0401	Service Kit, Auxiliary Outlet and Cover (230V)
	S0402	Service Kit, PR Footboard Bracket Cover
8	S0405	Service Kit, Footboard Bracket Complete Assembly

## HEADBOARD



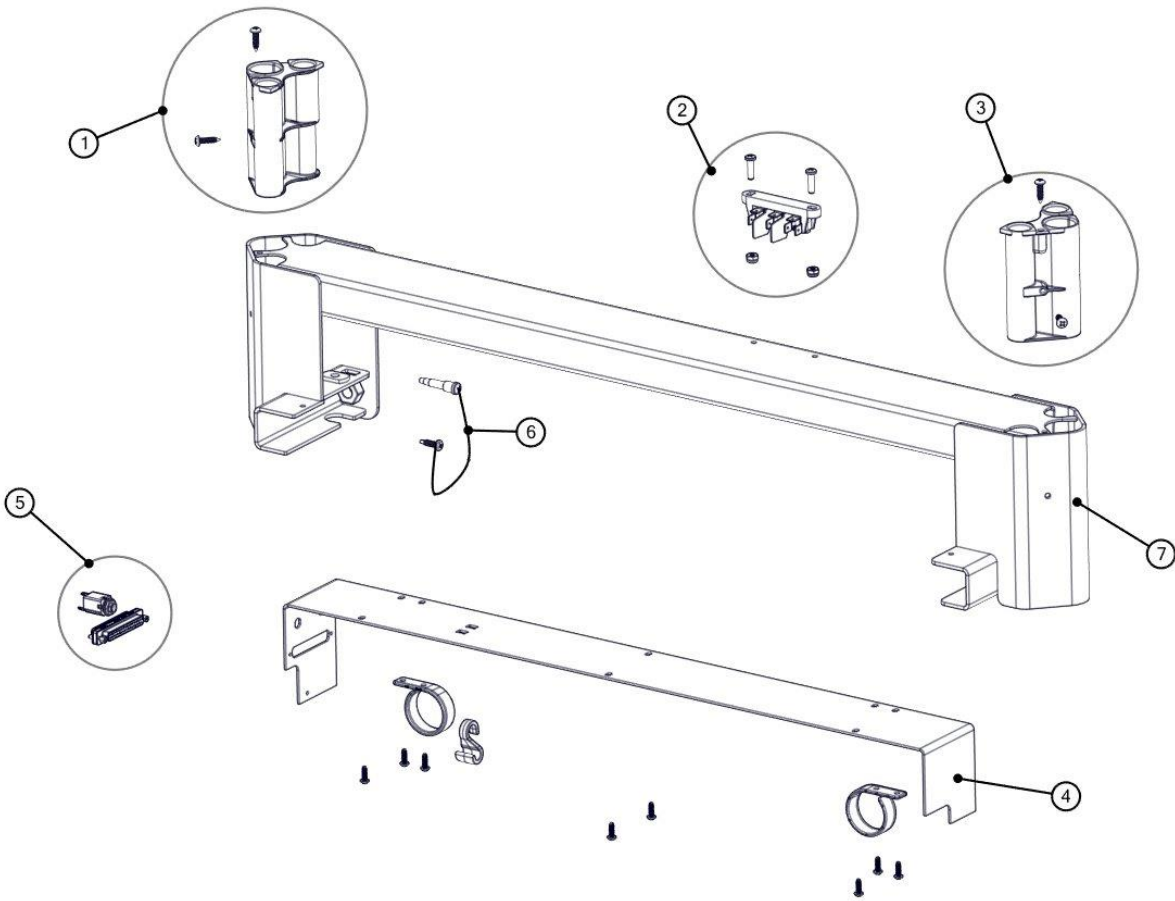
ITEM	KIT #	KIT DESCRIPTION
1	S0384	Service Kit, Footboard Post
	S0383	Service Kit, Psych Footboard Post
2	S0113	Service Kit, Headboard Complete
	S0188	Service Kit, Psych Headboard Complete

## **HEADBOARD BRACKET (HIGH RAIL BEDS)**



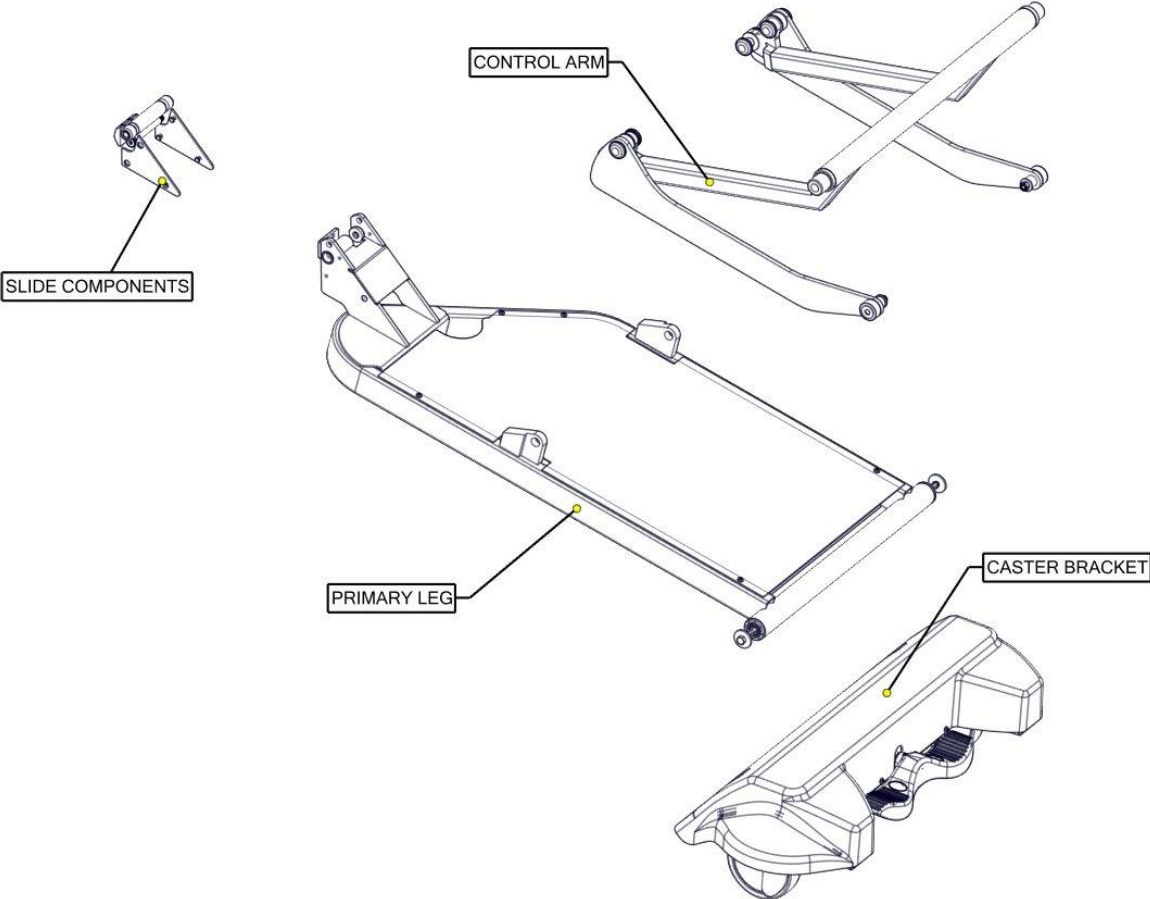
ITEM	KIT #	KIT DESCRIPTION
1	S0115	Service Kit, Headboard Bracket Insert PR
2	S0132	Service Kit, Mains AC Terminal Block
3	S0116	Service Kit, Headboard Bracket Insert PL
4	S0406	Service Kit, High Headboard Bracket Cover
7	S0138	Service Kit, Patient Station Cable
8	S0011	Service Kit, ¼" Dummy Plug
9	S0411	Service Kit, High Headboard Bracket Complete

## **HEADBOARD BRACKET (LOW RAIL BEDS)**



ITEM	KIT #	KIT DESCRIPTION
1	S0115	Service Kit, Headboard Bracket Insert PR
2	S0132	Service Kit, Mains AC Terminal Block
3	S0116	Service Kit, Headboard Bracket Insert PL
4	S0412	Service Kit, Headboard Bracket Cover
5	S0138	Service Kit, Patient Station Cable
6	S0011	Service Kit, ¼" Dummy Plug
7	S0413	Service Kit, Headboard Bracket Complete

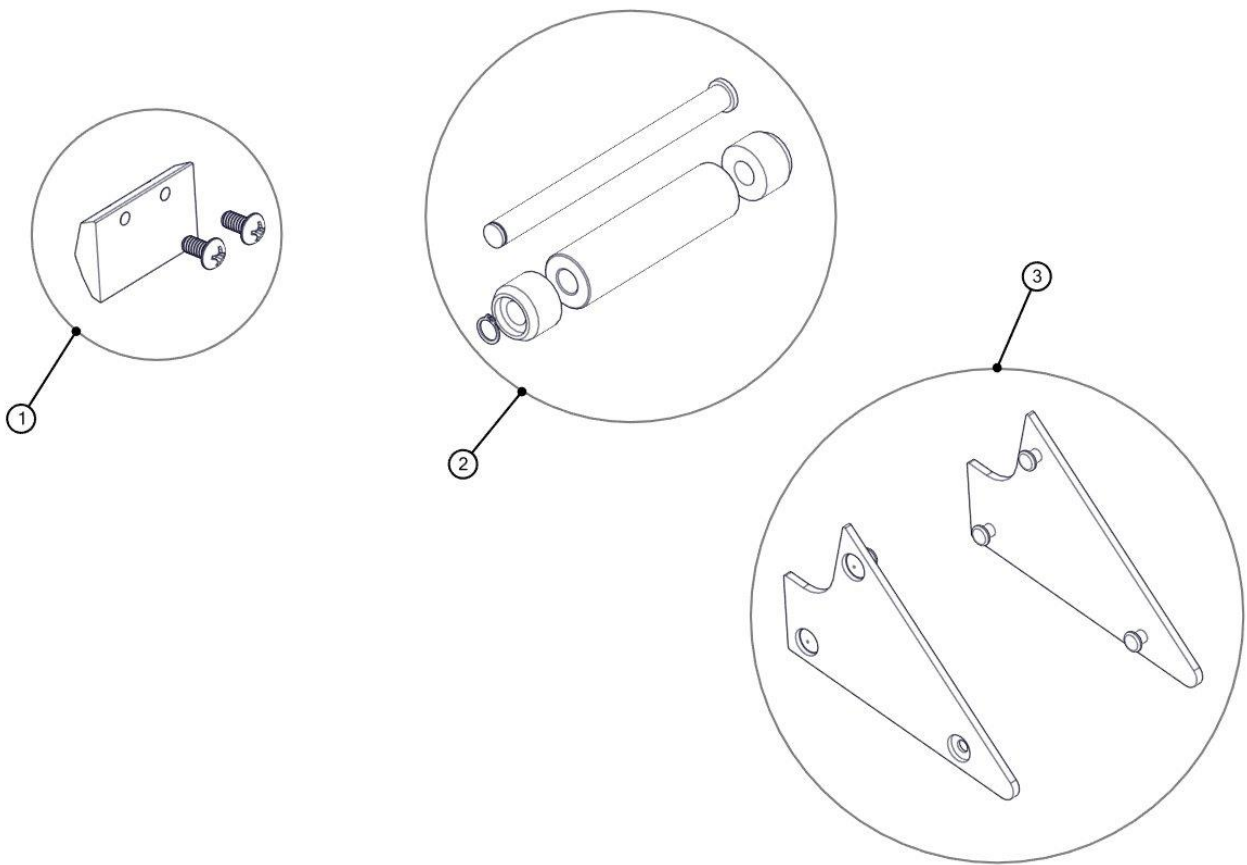
**LEG ASSEMBLY**



ITEM	KIT #	KIT DESCRIPTION
1		SEE SLIDE COMPONENTS
2		SEE CONTROL ARM
3		SEE CASTER BRACKET
4		SEE PRIMARY LEG

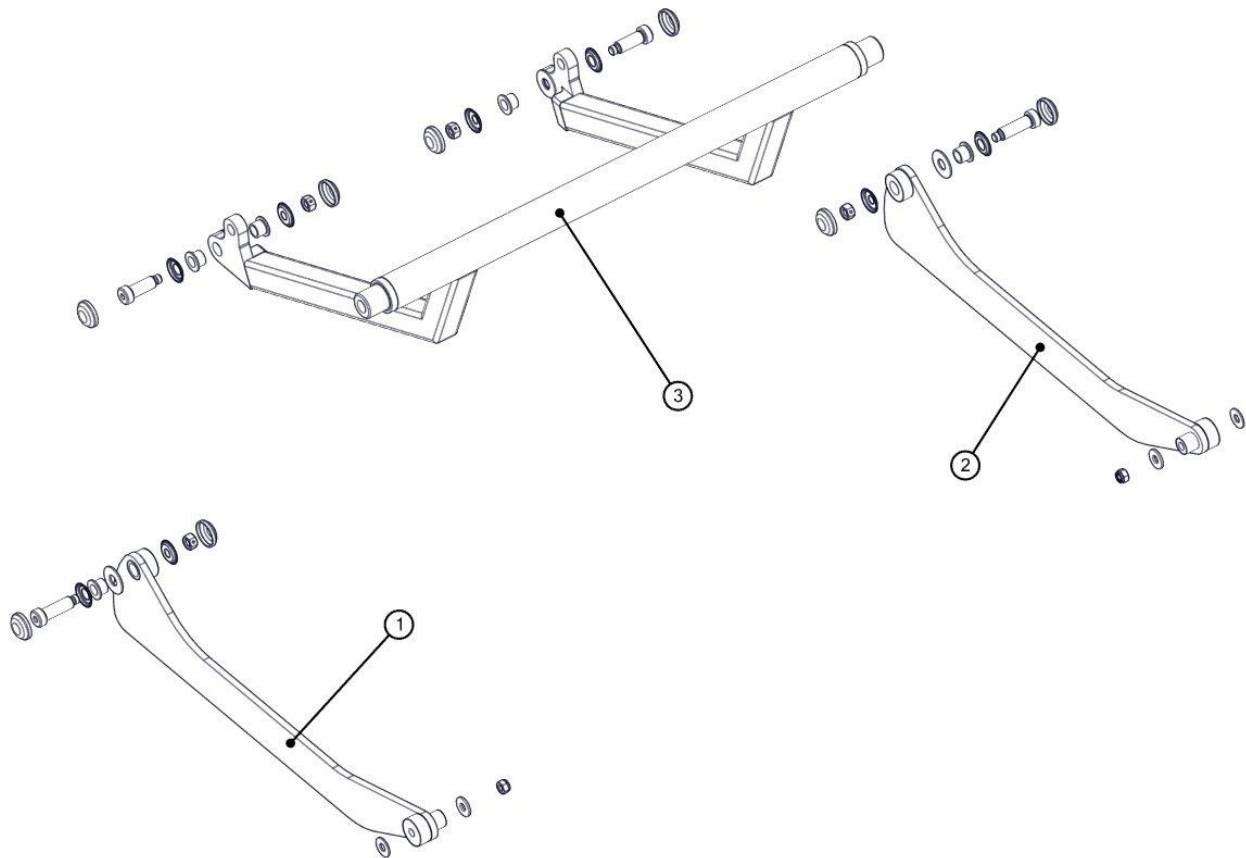


**LEG ASSEMBLY - SLIDE COMPONENTS**



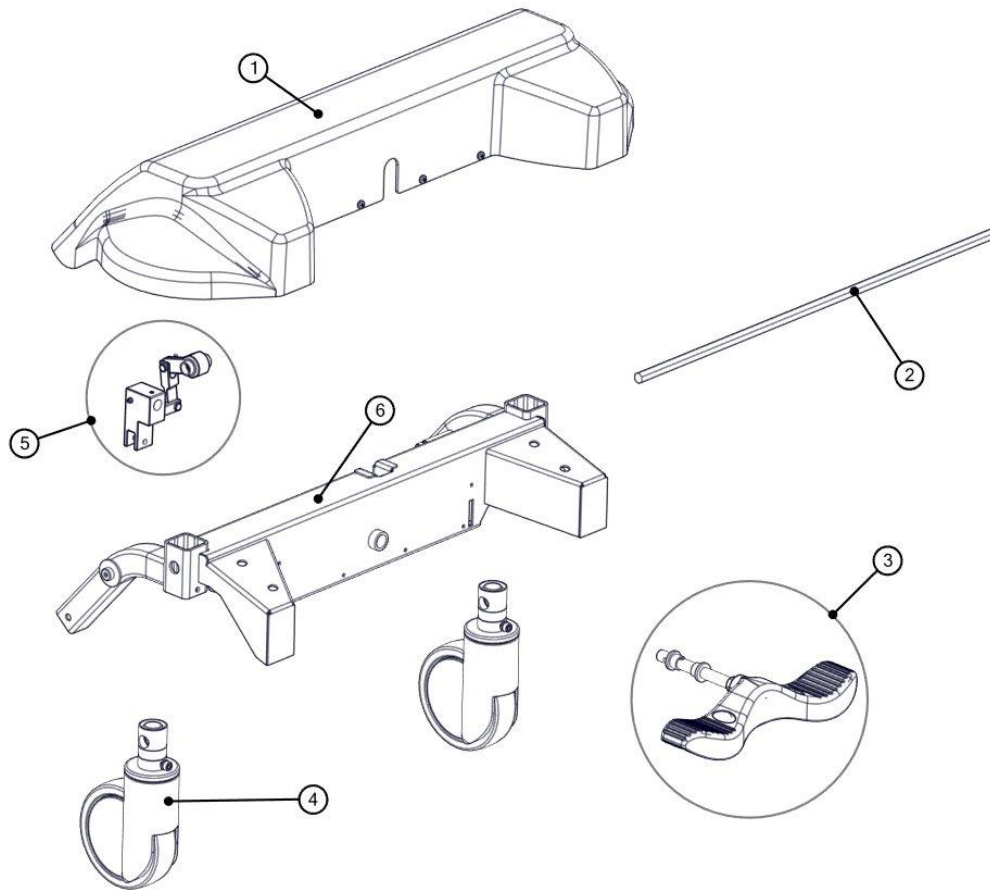
ITEM	KIT #	KIT DESCRIPTION
1	S0414	Service Kit, Push Block Hi/Lo Spring
2	S0415	Service Kit, Leg Roller Assembly
3	S0416	Service Kit, Leg Bracket Wear Pads

## **LEG ASSEMBLY - CONTROL ARM**



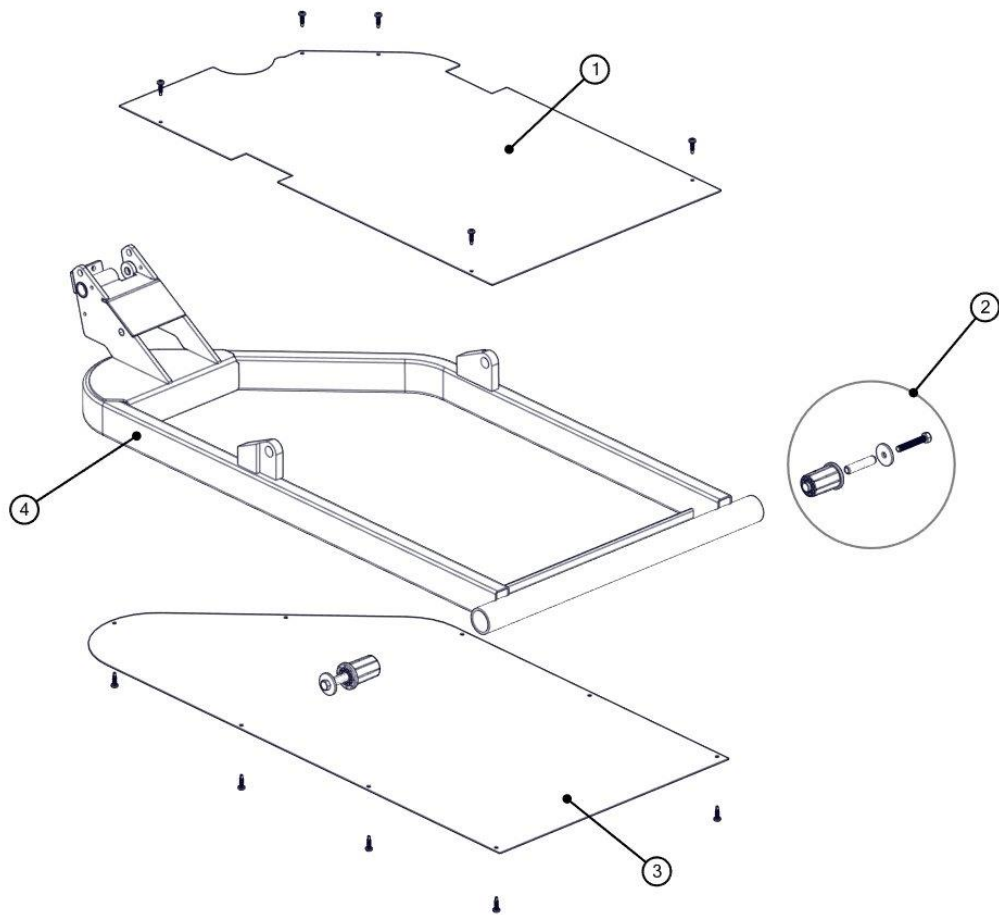
ITEM	KIT #	KIT DESCRIPTION
1	S0429	Service Kit, Suspension Arm A (N2/N3)
2	S0430	Service Kit, Suspension Arm B (N2/N3)
3	S0417	Service Kit, Control Arm

## LEG ASSEMBLY – CASTER BRACKET



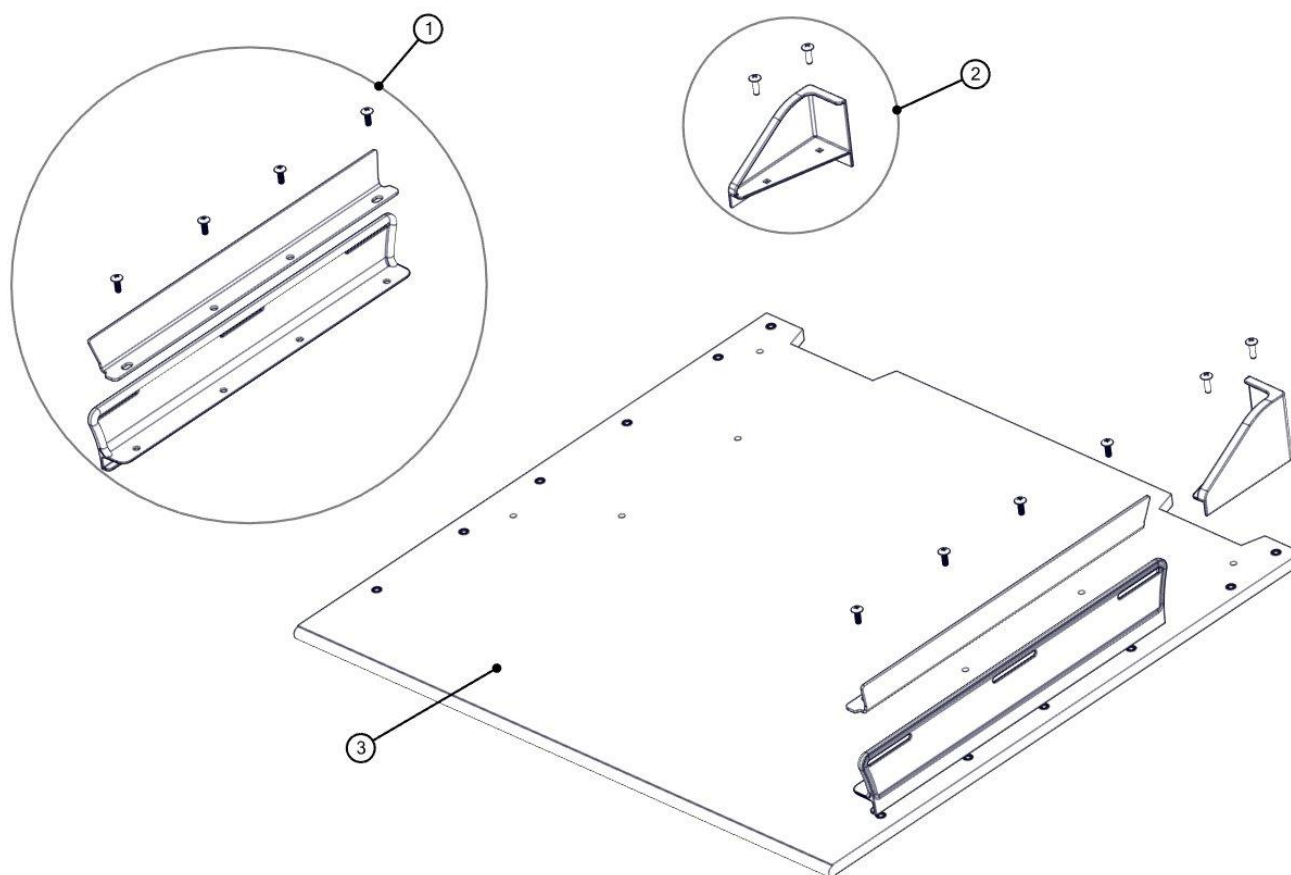
ITEM	KIT #	KIT DESCRIPTION
1	S0077	Service Kit, ABS Caster Cover
	S0161	Service Kit, ABS Caster Cover + OBS
	S0311	Service Kit, Caster Cover Obstruction Sensor
2	S0022	Service Kit, Caster Hex Rod
3	S0121	Service Kit, Brake Pedal Assembly (Head End)
	S0122	Service Kit, Brake Pedal Assembly (Foot End)
4	S0064	Service Kit, Head End Caster (Red Label)
	S0065	Service Kit, Foot End Caster (Green Label)
5	S0224	Service Kit, Complete Brake Pedal Linkage
6	S0103	Service Kit, Caster Assembly, Head, Complete
	S0104	Service Kit, Caster Assembly, Foot, Complete

# **LEG ASSEMBLY – PRIMARY LEG**



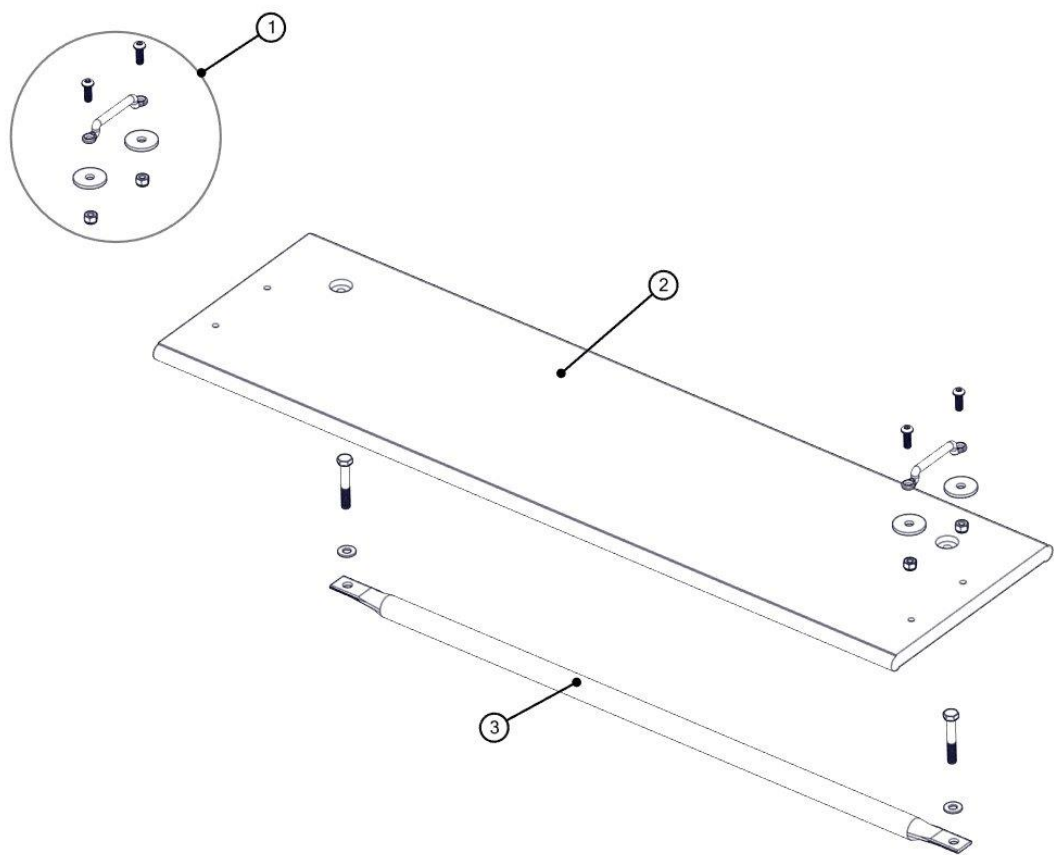
ITEM	KIT #	KIT DESCRIPTION
1	S0232	Service Kit, Top Leg Cover
	S0230	Service Kit, Top Leg Cover + OBS
	S0314	Service Kit, Top Leg Obstruction Sensor
2	S0239	Service Kit, Gatch Socket & Pin
3	S0233	Service Kit, Bottom Leg Cover
	S0160	Service Kit, Bottom Leg Cover + OBS
	S0193	Service Kit, Bottom Leg Obstruction Sensor
4	S0418	Service Kit, Primary Leg

## HEAD DECK



ITEM	KIT #	KIT DESCRIPTION
1	S0419	Service Kit, Mattress Keeper & Stiffener
2	S0050-A	Service Kit, Corner Mattress Keeper A (PL Head/PR Foot)
	S0050-B	Service Kit, Corner Mattress Keeper B (PR Head/PL Foot)
3	S0089	Service Kit, Head Deck Assembly Complete

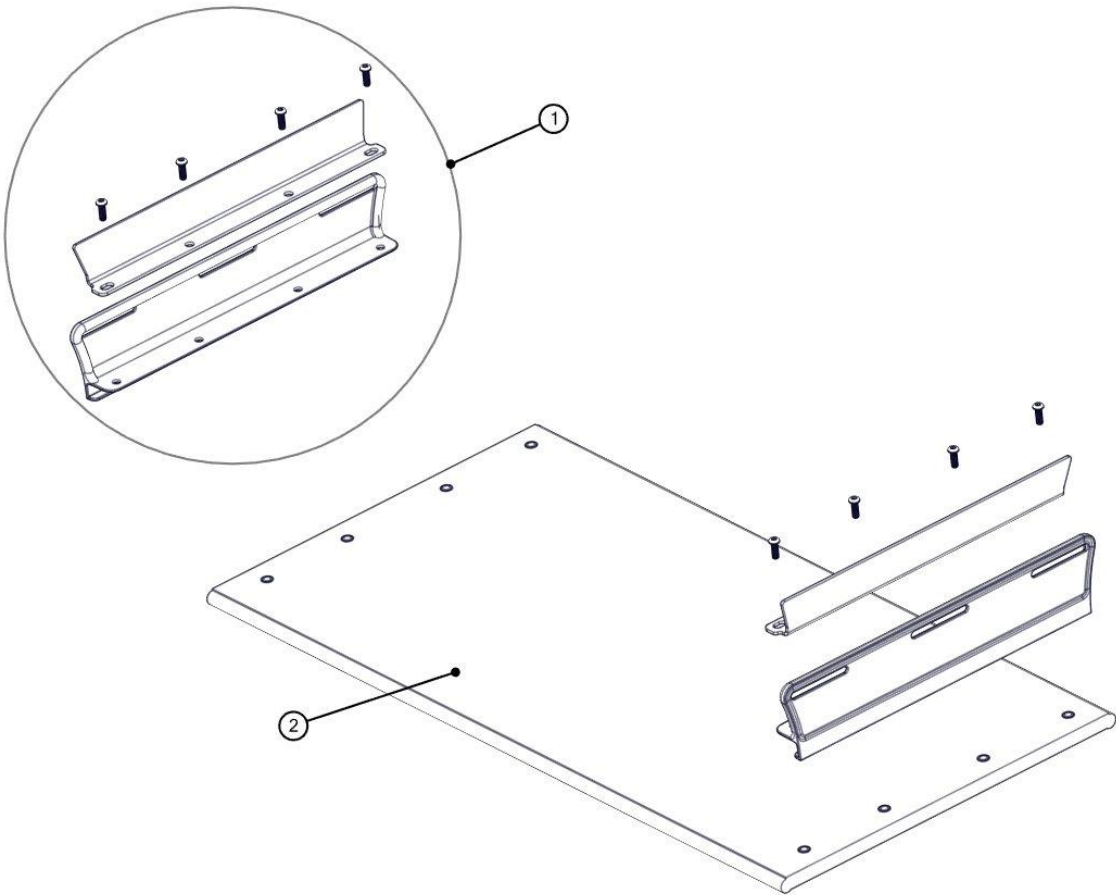
**SEAT DECK**



ITEM	KIT #	KIT DESCRIPTION
1	S0072	Service Kit, Restraint Loop
2	S0144	Service Kit, Seat Deck Assembly Complete
3	S0264	Service Kit, Seat Deck Support Tube

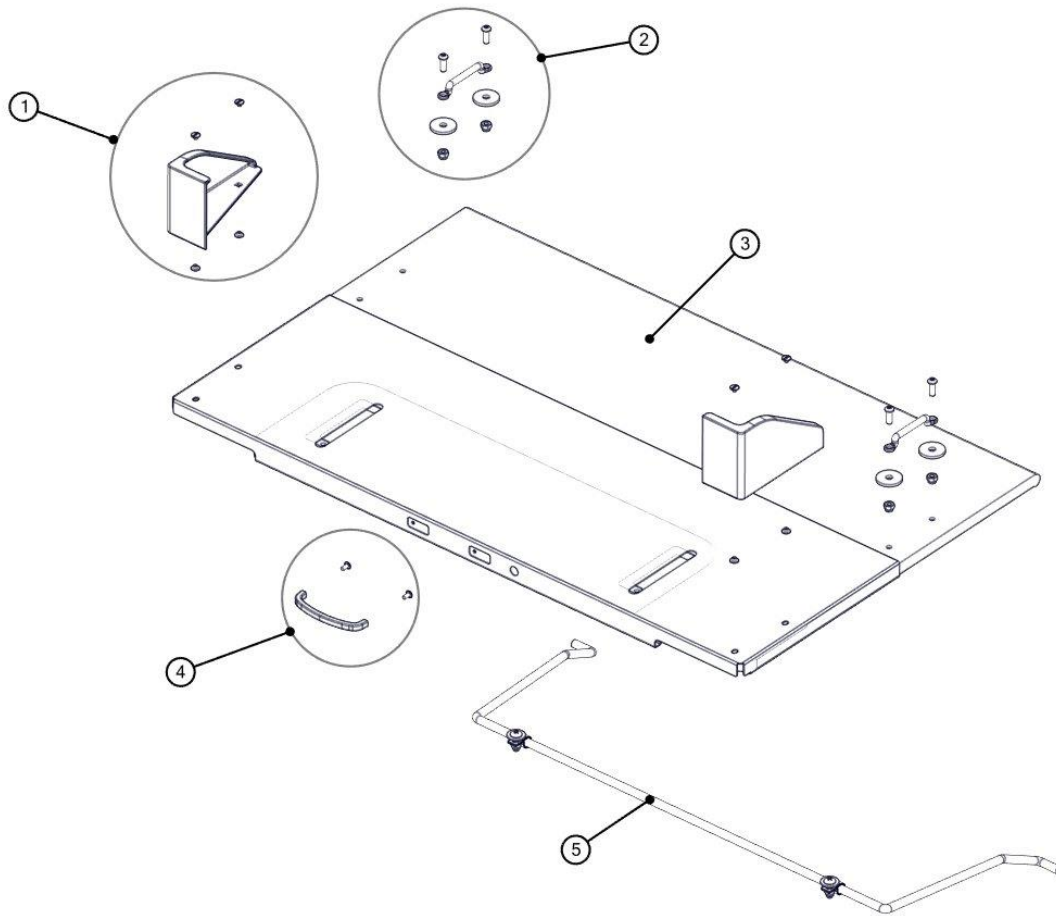


**KNEE DECK**



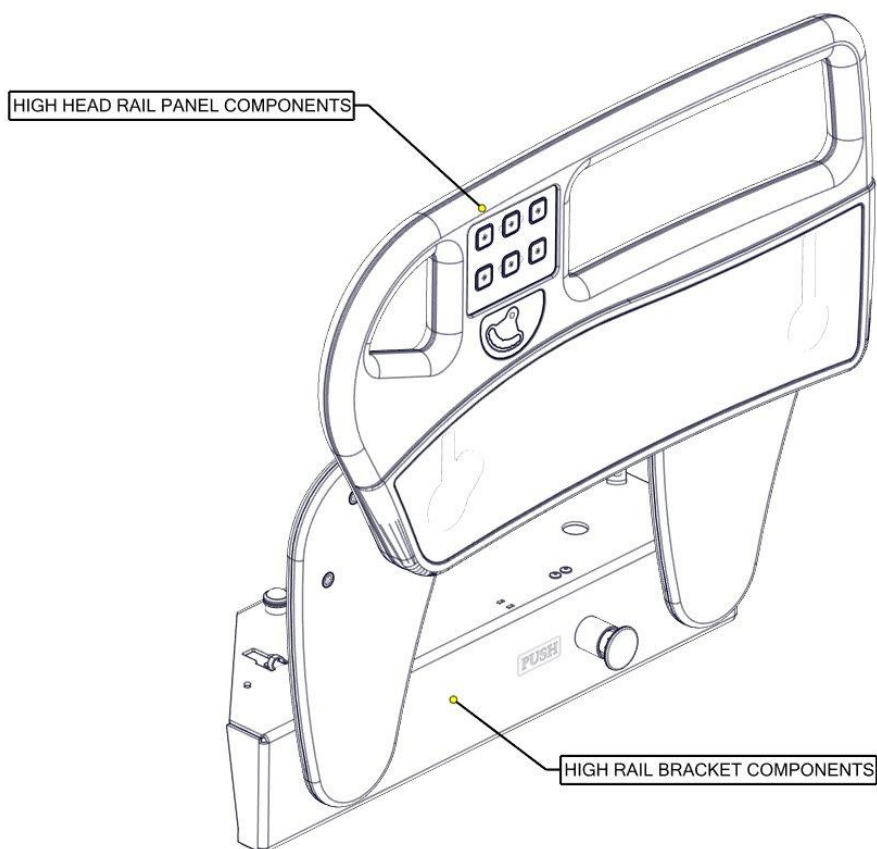
ITEM	KIT #	KIT DESCRIPTION
1	S0419	Service Kit, Mattress Keeper & Stiffener
2	S0090	Service Kit, Knee Deck Assembly Complete

## **FOOT DECK**



ITEM	KIT #	KIT DESCRIPTION
1	S0279	Service Kit, Foot Deck Extension Corner Mattress Keeper A (PR Foot)
	S0280	Service Kit, Foot Deck Extension Corner Mattress Keeper B (PL Foot)
	S0050-A	Service Kit, Corner Mattress Keeper A (PL Head/PR Foot)
	S0050-B	Service Kit, Corner Mattress Keeper B (PR Head/PL Foot)
2	S0072	Service Kit, Restraint Loop
3	S0086	Service Kit, Foot Deck Assembly Complete + Extension
	S0010	Service Kit, Foot Deck Assembly Complete
4	S0174	Service Kit, Extension Handle
5	S0119	Service Kit, Foot Bail

## **HIGH HEAD RAILS**

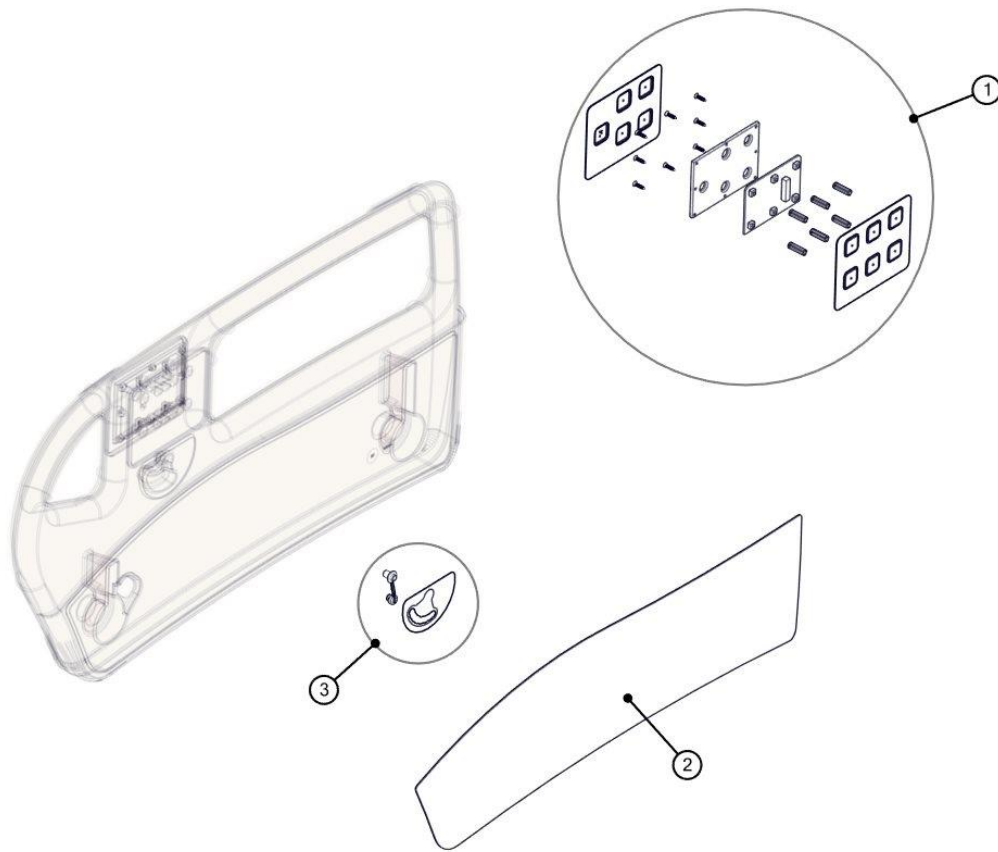


ITEM	KIT #	KIT DESCRIPTION
1		SEE HIGH HEAD RAIL PANEL COMPONENTS
2		SEE HIGH HEAD RAIL BRACKET COMPONENTS

### **COMPLETE RAIL ASSEMBLIES**

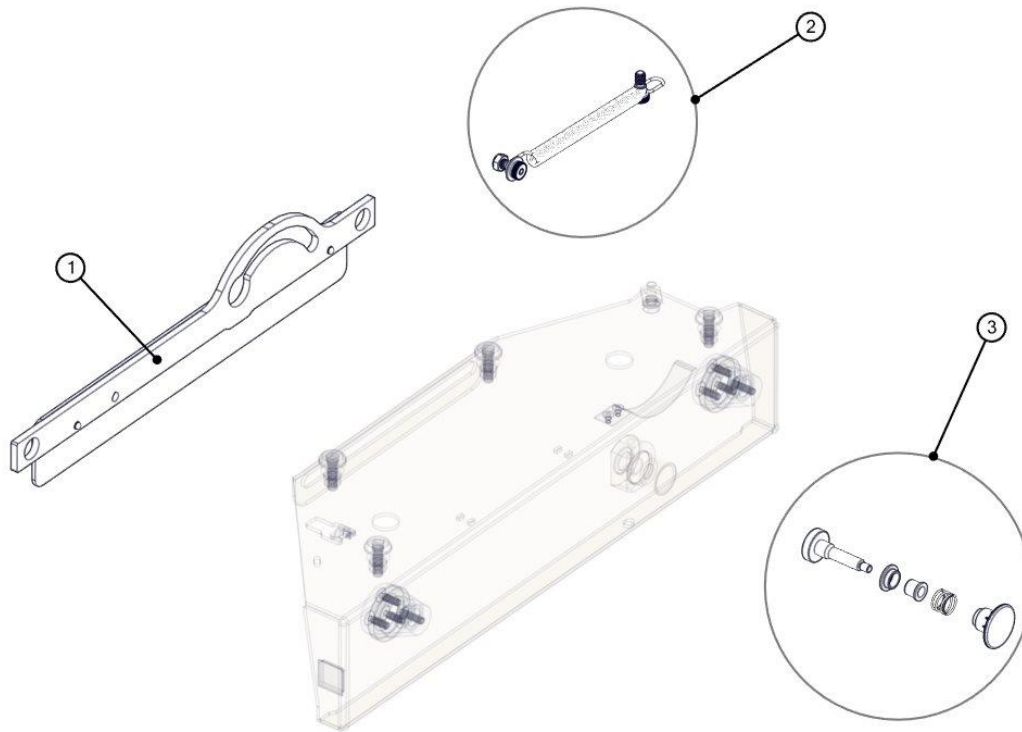
KIT #	KIT DESCRIPTION
S0095	Service Kit, High Head Rail & Bracket Assembly, PR
S0096	Service Kit, High Head Rail & Bracket Assembly, PL
S0249	Service Kit, High Head Rail & Bracket Assembly, PR FILLED
S0250	Service Kit, High Head Rail & Bracket Assembly, PL FILLED

## HIGH HEAD RAIL PANEL COMPONENTS



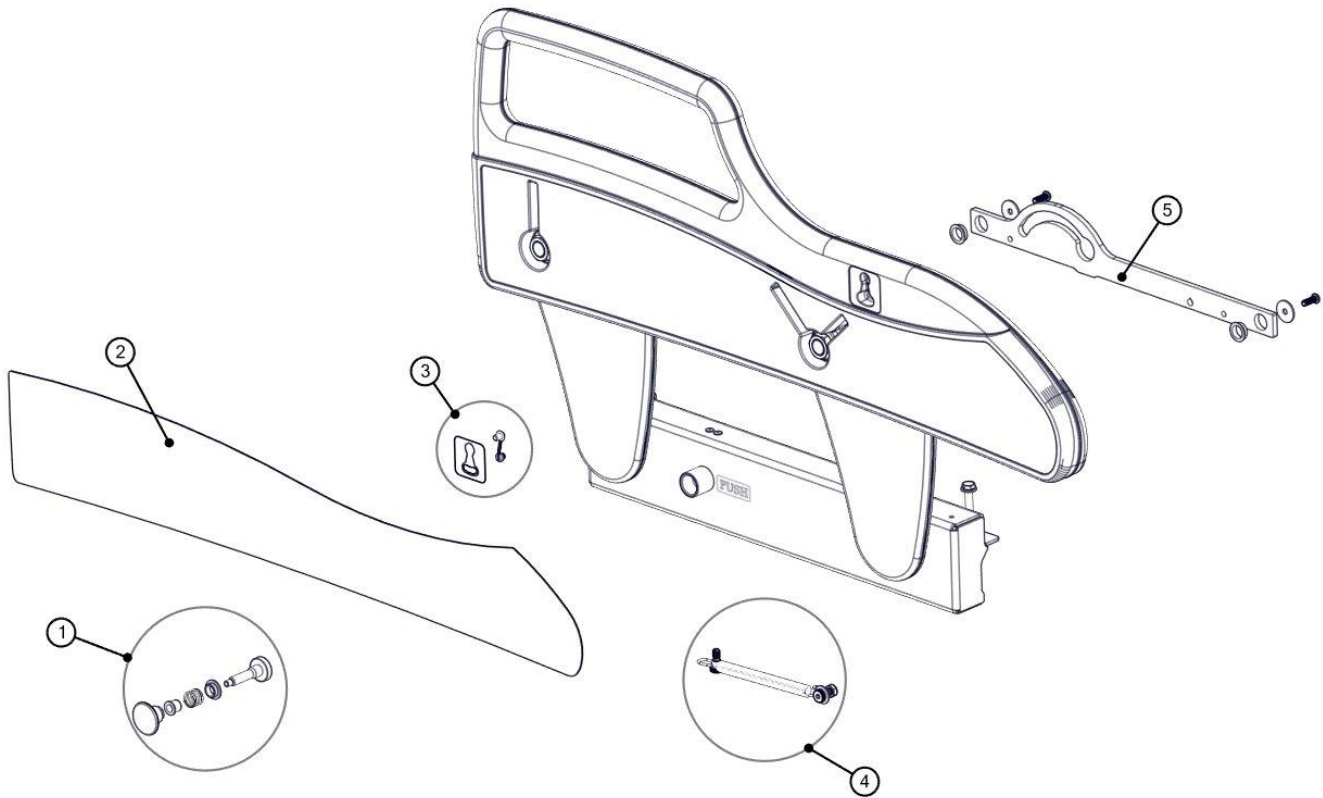
ITEM	KIT #	KIT DESCRIPTION
1	S0070	Service Kit, Head Siderail PCB Replacement Kit (PL)
	S0071	Service Kit, Head Siderail PCB Replacement Kit (PR)
	S0109	Service Kit, Side Rail Control Overlay A (PL Outside)
	S0110	Service Kit, Side Rail Control Overlay B (PL Inside)
	S0111	Service Kit, Side Rail Control Overlay C (PR Inside)
	S0112	Service Kit, Side Rail Control Overlay D (PR Outside)
2	S0087-XX	Service Kit, High Head Rail Inlays, Pair (where XX signifies Colour Option)
3	S0420	Service Kit, Head Angle Overlay Pendulum (PL)
	S0421	Service Kit, Head Angle Overlay Pendulum (PR)

## HIGH HEAD RAIL BRACKET COMPONENTS



ITEM	KIT #	KIT DESCRIPTION
1	S0259	Service Kit, High Rail Linkage & Shield (PL)
	S0258	Service Kit, High Rail Linkage & Shield (PR)
2	S0424	Service Kit, High Rail Dampening Spring
3	S0368	Service Kit, High Side Rail Knob & Latch Pin Assembly

## HIGH FOOT RAILS



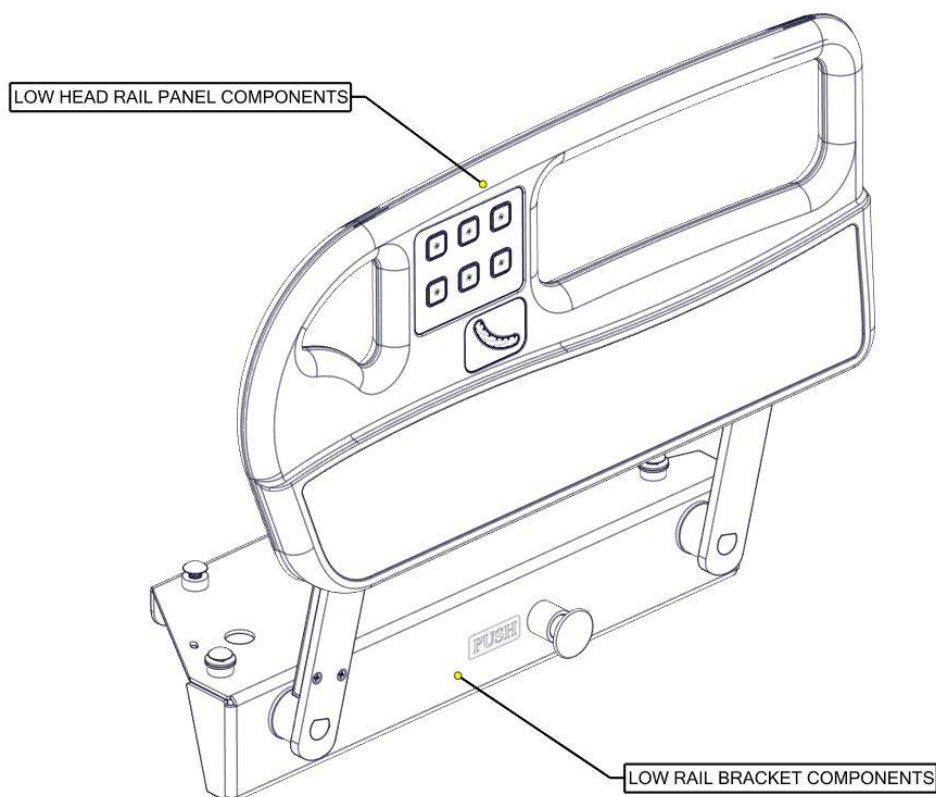
ITEM	KIT #	KIT DESCRIPTION
1	S0368	Service Kit, High Side Rail Knob & Latch Pin Assembly
2	S0088-XX	Service Kit, High Head Rail Inlays, Pair (where XX signifies Colour Option)
3	S0422	Service Kit, Trend Angle Overlay Pendulum (PL)
	S0423	Service Kit, Trend Angle Overlay Pendulum (PR)
4	S0424	Service Kit, High Rail Dampening Spring
5	S0263	Service Kit, High Rail Linkage (PL)
	S0262	Service Kit, High Rail Linkage (PR)

### COMPLETE RAIL ASSEMBLIES

KIT #	KIT DESCRIPTION
S0097	Service Kit, High Foot Rail & Bracket Assembly, PR
S0098	Service Kit, High Foot Rail & Bracket Assembly, PL
S0251	Service Kit, High Foot Rail & Bracket Assembly, PR FILLED
S0252	Service Kit, High Foot Rail & Bracket Assembly, PL FILLED



## LOW HEAD RAILS

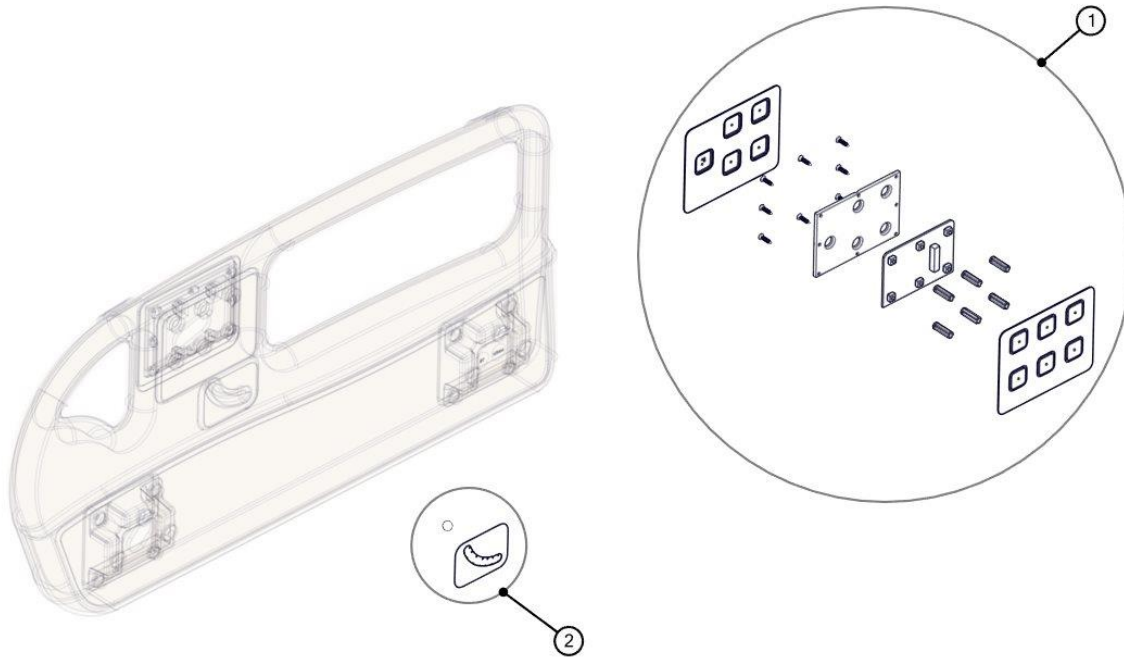


ITEM	KIT #	KIT DESCRIPTION
1		SEE LOW HEAD RAIL PANEL COMPONENTS
2		SEE LOW HEAD RAIL BRACKET COMPONENTS

### COMPLETE RAIL ASSEMBLIES

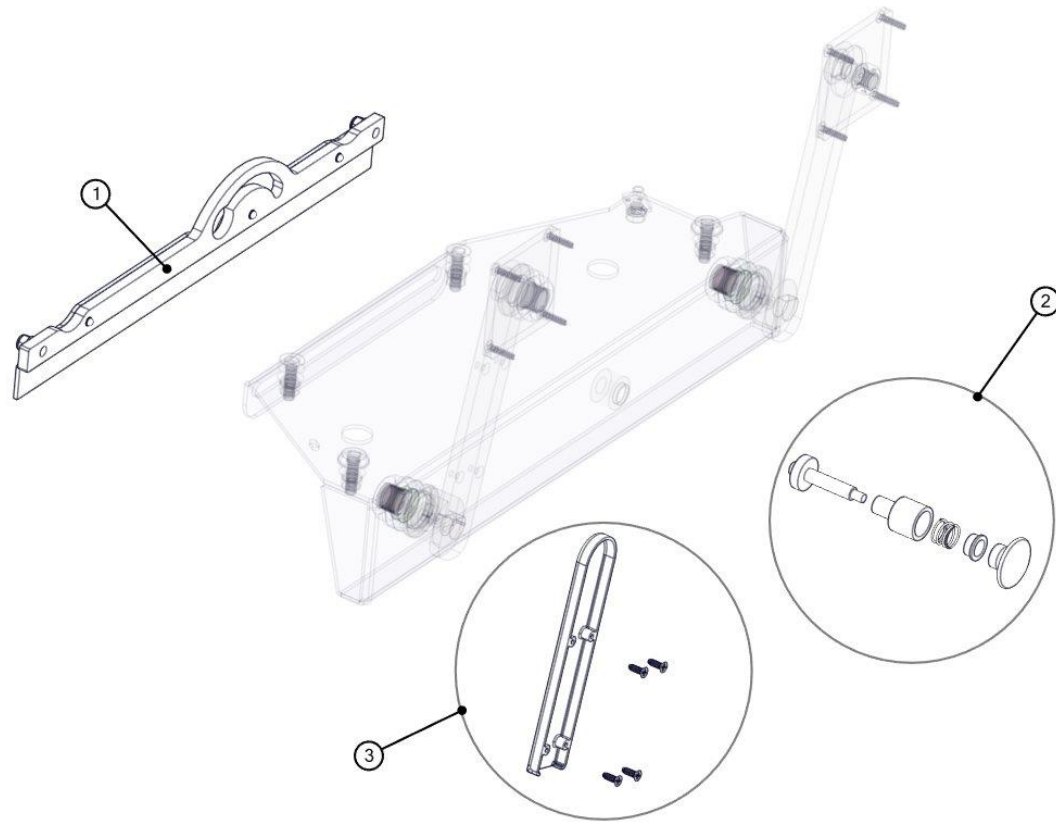
KIT #	KIT DESCRIPTION
S0038	Service Kit, Low Head Rail & Bracket Assembly, PR
S0039	Service Kit, Low Head Rail & Bracket Assembly, PL

## LOW HEAD RAIL PANEL COMPONENTS



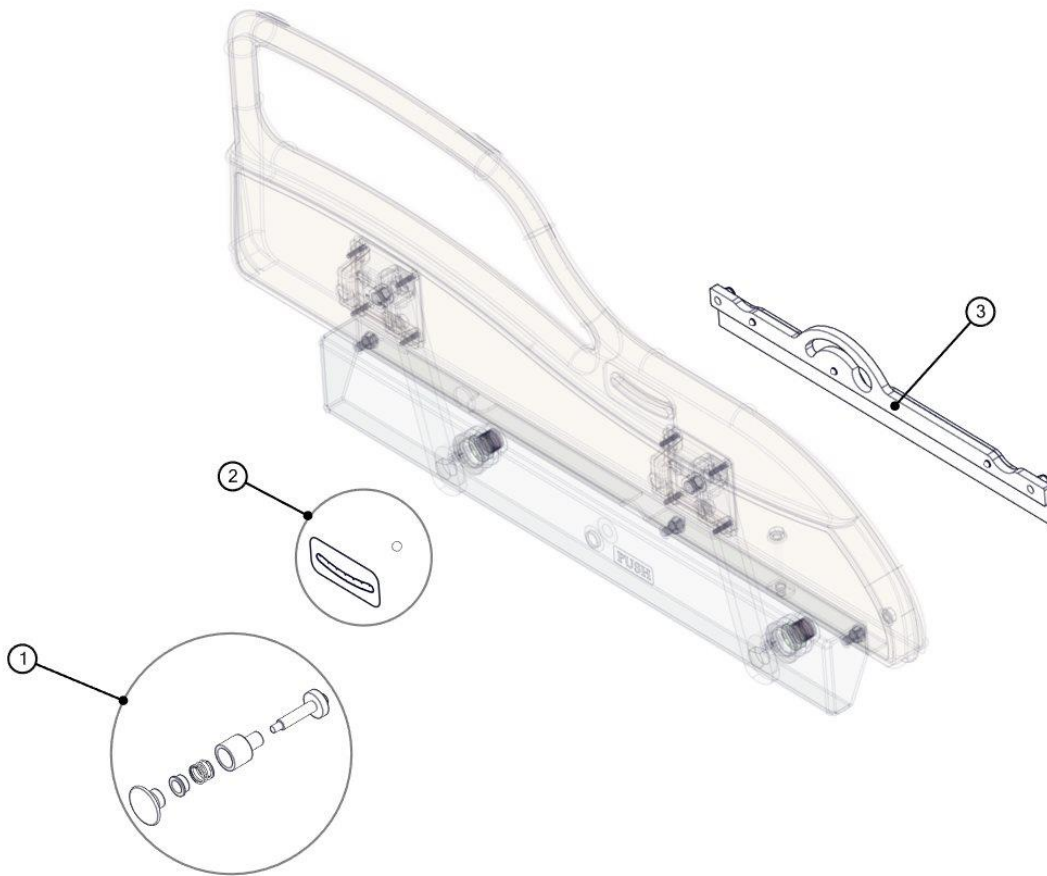
ITEM	KIT #	KIT DESCRIPTION
1	S0070	Service Kit, Head Siderail PCB Replacement Kit (PL)
	S0071	Service Kit, Head Siderail PCB Replacement Kit (PR)
	S0109	Service Kit, Side Rail Control Overlay A (PL Outside)
	S0110	Service Kit, Side Rail Control Overlay B (PL Inside)
	S0111	Service Kit, Side Rail Control Overlay C (PR Inside)
	S0112	Service Kit, Side Rail Control Overlay D (PR Outside)
2	S0106	Service Kit, Head Angle Overlay Complete (PL)
	S0105	Service Kit, Head Angle Overlay Complete (PR)

## LOW HEAD RAIL BRACKET COMPONENTS



ITEM	KIT #	KIT DESCRIPTION
1	S0028	Service Kit, Low Rail Linkage & Shield (PL Head)
	S0029	Service Kit, Low Rail Linkage & Shield (PR Head)
2	S0001	Service Kit, Low Rail Knob & Latch Pin Assembly
3	S0199	Service Kit, Low Rail Arm Cable Cover

## LOW FOOT RAILS

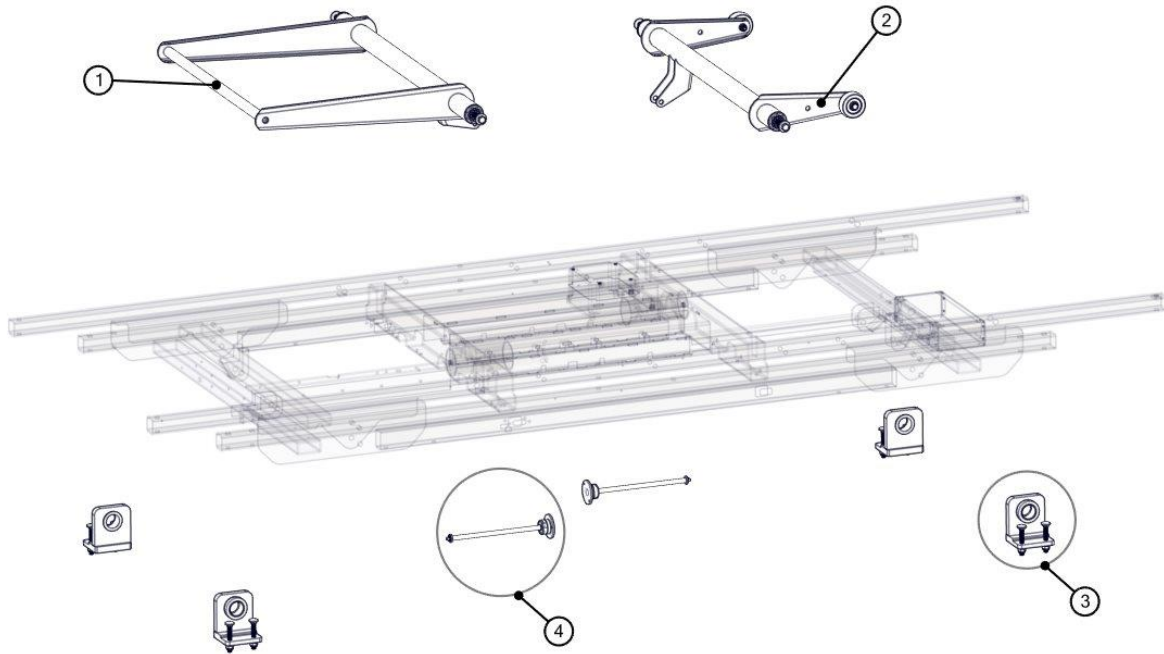


ITEM	KIT #	KIT DESCRIPTION
1	S0001	Service Kit, Low Rail Knob & Latch Pin Assembly
2	S0108	Service Kit, Trend Angle Overlay (PL)
	S0107	Service Kit, Trend Angle Overlay (PR)
3	S0028	Service Kit, Low Rail Linkage & Shield (PR Foot)
	S0029	Service Kit, Low Rail Linkage & Shield (PL Foot)

### COMPLETE RAIL ASSEMBLIES

KIT #	KIT DESCRIPTION
S0040	Service Kit, Low Foot Rail & Bracket Assembly, PR
S0041	Service Kit, Low Foot Rail & Bracket Assembly, PL

## UPPER FRAME



ITEM	KIT #	KIT DESCRIPTION
1	S0018	Service Kit, Head Gatch Assembly
	S0083	Service Kit, Head Gatch Assembly (Manual CPR)
2	S0020	Service Kit, Foot Gatch Assembly
3	S0425	Service Kit, Control Arm Hinge Block
4	S0426	Service Kit, Retainer Assembly Hi/Lo Spring







CHG Hospital Beds  
1020 Adelaide Street South  
London, Ontario  
N6E 1R6  
Canada



Montcalm International Ltd.  
Culham Science Centre  
Abingdon, Oxfordshire  
OX14 3DB  
U.K.