**Invacare® Carroll CS Series™**

CS3, CS5, CS7, CS9, CS9FX600

** Beds
User Manual **

Invacare Continuing Care, Inc. A subsidiary of Invacare Corporation.

Invacare Continuing Care, Inc.
USA and Canada:
One Invacare Way
Elyria, Ohio USA
44035-2122
Tel: 800-468-2337

www.invacare-cs.com

Invacare Australis Pty. Ltd.

Designed by Invacare Corporation
Manufactured in Mexico for Invacare Corporation

In Australia:

1 Lenton Place
North Ryde NSW 2113
Sydney, Australia

01-61-1-8003-1333

NOTES

1. Document size: Half Size US Letter (5.5 X 8.5) or A5 (5.83 x 8.27)
2. Document dimension: Landscape
3. Page count: 64 pages
4. Color: BW
5. DO NOT print this drawing. For informational purposes only. See attached document.

**USER MANUAL, CS BED**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>REV</th>
<th>SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>1153410</td>
<td>N</td>
<td>1 OF 1</td>
</tr>
</tbody>
</table>

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

TOLERANCES (UNLESS OTHERWISE SPECIFIED):

<table>
<thead>
<tr>
<th>INCHES</th>
<th>METRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECIMALS: X = N/A</td>
<td>X = ± 0.3mm</td>
</tr>
<tr>
<td>X = ± 0.1</td>
<td></td>
</tr>
<tr>
<td>X = ± 0.02</td>
<td></td>
</tr>
<tr>
<td>X = ± 0.01</td>
<td></td>
</tr>
<tr>
<td>FRACTIONS: 1/8</td>
<td></td>
</tr>
<tr>
<td>1/16</td>
<td></td>
</tr>
<tr>
<td>1/32</td>
<td></td>
</tr>
<tr>
<td>ANGLES: ± 0.5°</td>
<td></td>
</tr>
<tr>
<td>± 0.25°</td>
<td></td>
</tr>
</tbody>
</table>

NATIVE FILES CONTROLLED BY INVACARE TECHNICAL WRITING ONLY
Invacare® Carroll CS Series™

CS3, CS5, CS7, CS9, CS9FX600

This manual MUST be given to the user of the product. BEFORE using this product, read this manual and save for future reference.
1 General

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

⚠️ **DANGER!**
– Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ **WARNING!**
– Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ **CAUTION!**
– Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.

ℹ️ Gives useful tips, recommendations and information for efficient, trouble-free use.
Symbols Used on the CS Bed

- **PROTECTIVE CONDUCTOR TERMINAL**
- **EQUIPOTENTIALITY**
- **WARNING - SAFE WORKING LOAD**
- **THE MAXIMUM ALLOWABLE LOAD ON EQUIPMENT IF THE INSTRUCTIONS FOR INSTALLATION AND USE ARE FOLLOWED**
- **~** ALTERNATING CURRENT
- **ON - SUPPLY**
- **OFF - SUPPLY**
- **IPX4** INTERNATIONAL PROTECTION CODE (IP44 - PROTECTION AGAINST WATER SPRAY FROM ANY DIRECTION)
- **APPLIED PART TYPE B EQUIPMENT**
- **CLASS I** EQUIPMENT CLASSIFICATION IN TERMS OF PROTECTION AGAINST ELECTRICAL SHOCK
- **Intertek's ETL Listed Mark for US and Canada. A product bearing the ETL Listed Mark is determined to have met the minimum requirements of prescribed product safety standards.**
- **Battery Charging (Yellow)**
- **Battery Fully Charged (Green)**

- **Lift with Two Persons (based on ISO 3864)**
- **FUNCTION LOCK-OUT ACTIVATE TOGGLE SWITCH TO DENY FUNCTION ACCESS ON THE HAND PENDANT**
- **INITIATE ACTION TO THE ENTIRE MATTRESS SUPPORT PLATFORM (HOLD)**
- **INITIATE ACTION TO HEAD SECTION OF MATTRESS SUPPORT PLATFORM**
- **TOGGLE SWITCH FOR ONE-TOUCH HEAD AND KNEE-FOOT RAISE OPERATION**
- **INITIATE ACTION TO THE KNEE-FOOT SECTION OF THE MATTRESS SUPPORT PLATFORM**
- **UP CONTROL - RAISE THE CORRESPONDING SECTION OF THE MATTRESS SUPPORT PLATFORM**
- **DOWN CONTROL - LOWER THE CORRESPONDING SECTION OF THE MATTRESS SUPPORT PLATFORM**
- **Trendelenburg Function**
- **Reverse Trendelenburg Function**

Recycle this product. Refer to 2.4 Disposal, page 17.
2 Safety

2.1 General Guidelines

DANGER!
Risk Of Death, Injury, Or Damage
Improper use of this product may cause injury or damage.
- If you are unable to understand the warnings, cautions or instructions, contact a healthcare professional, dealer or technical personnel before attempting to use this equipment
- Do not use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manuals, service manuals or instruction sheets supplied with this product or optional equipment.

Continued use of the bed with damaged parts could lead to the bed malfunctioning, causing injury to the user and/or caregiver.
- Check ALL bed components and carton for damage, and test components before use. In case of damage or if the bed is not working properly, contact a technician or Invacare for repair.

To avoid injury or product damage:
- Set-up and Assembly instructions MUST be performed by technicians only. “Technician Only” sections are marked accordingly.

DANGER!
Risk Of Death, Injury Or Damage
Bed accessories designed by other manufacturers have NOT been tested by Invacare. Use of NON-Invacare bed accessories may result in injury or death.
- Use ONLY Invacare rails, mattresses, bed extenders and other accessories with Invacare bed products.

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

DANGER!
Risk Of Death, Injury, Or Damage
Patient entrapment from the use of bed side rails may cause injury or death. To avoid patient entrapment:
- The Invacare mattress MUST fit firmly against the bed frame AND bed side rails to prevent patient entrapment. Follow the manufacturer's instructions. Monitor patient frequently. Read and understand the User Manual prior to using the Invacare bed and bed rails. User manuals are available at www.invacare.com or your dealer.
- After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely.
DANGER!
Risk Of Death, Injury Or Adverse Health Consequences
Fall hazard exists due to incorrect installation of bed rails
– To avoid injury, ensure that the Invacare bed rails are installed correctly and securely attached to the bed while entering or exiting.

Fall hazard exists due to use of NON-Invacare bed rails.
Non-Invacare bed rails are potentially incompatible with Invacare beds.
– To avoid injury, ensure that only Invacare bed rails are used with Invacare beds at all times.

Fall hazard exists due to use of NON-Invacare mattresses. Non-Invacare mattresses are potentially incompatible with Invacare beds.
– To avoid injury, ensure that only Invacare mattresses are used with Invacare beds at all times.

DANGER!
Risk Of Death, Injury, Or Damage
Conditions such as restlessness, mental deterioration and dementia or seizure disorders (uncontrolled body movement), sleeping problems, and incontinence can significantly impact a patient's risk of entrapment. Pediatric patients or patients with small body size may also have an increased risk of entrapment.
– Monitor patients with these conditions frequently.
– Place the mattress deck in the flat position when left unattended.

DANGER!
Risk Of Death, Injury, Or Damage
To reduce the risk of electrical shock:
– Unplug from the outlet before servicing.
– Use this bed only for its intended use as described in these instructions. DO NOT use attachments not recommended by the manufacturer.
– If a liquid is spilled in or around the electric bed, unplug the electric bed before cleaning. Clean up the spill and allow the electric bed or the area around the electric bed to dry thoroughly before using the electric controls again.

WARNING!
Risk Of Injury Or Damage
To avoid injury or damage when operating bed:
– After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely.
– Close supervision is necessary when the manual/electric bed is used near children or pets OR when this product is operated by or near people with physical/mental disabilities. Physically challenged individuals who cannot prevent themselves from rolling/climbing out of the electric bed may require alternative safe means of restraint.
– The CS Bed is not designed to be used as a patient transport. When transporting a patient, use an approved patient transport. Otherwise, injury or damage may result.
WARNING!  Risk Of Injury Or Damage
To avoid injury or damage when operating/moving bed:
– ALWAYS ensure that the individual utilizing the bed is positioned properly within the confines of the bed.
  DO NOT let any extremities protrude over the side or between the bed rails when performing these functions.
– Make sure head and foot springs/sections are connected securely to the bed ends before use.
– The CS bed is equipped with locking casters. Before using the bed, test the wheellocks to ensure casters lock correctly. When transferring into or out of the CS bed, ALWAYS lock the casters. Even with casters properly locked, some flooring surfaces (such as tile or wood,) will allow the bed to move under some conditions. Using the bed on these types of surfaces MUST be evaluated by the care provider. DO NOT transfer occupant if bed is not stable. Otherwise, injury and/or damage may occur.

DANGER!  Risk Of Death, Injury, Or Damage
To avoid serious injury or product damage due to tripping hazards, strangulation hazards, and/or entangled, pinched, or severed cords:
– Ensure that all cord(s) are routed and secured properly.
– Keep all moving parts, including the main frame, mattress deck, and all drive shafts, free of obstruction (i.e. blankets/sheets, tubing, wiring, cords, etc.) during operation of the bed. Otherwise, entanglement with bed components or bed collapse may cause damage and/or injury.
– Do not roll the bed over the power cord or pendant cord.
– Use the Power Cord Strap when moving the bed. Refer to 5.2 Pendant Storage and Location, page 38 and 5.3 Power Cord Storage, page 41.

WARNING!  Risk Of Injury Or Damage
To avoid electrical damage, product damage, shock and/or personal injury:
– DO NOT unplug power cord from junction box.
– When bed is not to be used for an extended period, unplug electric bed from the wall outlet.
– Keep all bed components and accessories a minimum of 12 inches away from hot or heated surfaces.
DANGER!
Risk Of Death, Injury, Or Damage
To avoid bed collapse and resulting injury or damage:
- The weight limit of the occupant of the CS Bed CANNOT exceed 600 lbs (272 kg) for model CS9FX600, 500 lbs. (228 kg) for models CS5, CS7, and CS9 and 450 lbs. (204 kg) for model CS3. The TOTAL weight limit of the CS Bed (including accessories, mattress, occupant and any other objects positioned on the bed) cannot exceed rated capacity or Safe Working Load.
- NEVER permit more than one person on the manual/electric bed at any time.
- Evenly distribute body weight over the surface of the manual/electric bed.
- DO NOT lay, sit or lean in such a way that your entire body weight is placed only on raised head or foot sections of the bed. This includes when repositioning or transferring in or out of bed.
- Each of the preceding impacts can permanently damage either HI/LO motor resulting in an inoperable bed. In the case of an inoperable bed due to a damaged HI/LO motor, the HI/LO motor must be replaced immediately. If left unattended, a damaged HI/LO motor can cause the bed to fall from the highest extended position, resulting in patient injury. DO NOT exceed the maximum continuous duty cycle. Refer to 3.1 Typical Product Parameters, page 20.
- NEVER allow patients to use trapeze or traction units as a total individual weight support. Trapeze units are to be used only for immobilizing a patient in various traction set-ups or assisting the patient in repositioning or transferring into or out of bed.

Refer to the Bed Rail Entrapment Risk Notification Guide at www.invacare.com for additional safety information.

WARNING!
Risk Of Product Damage
To avoid product damage:
- DO NOT open assemblies such as the motors, pendant, junction boxes or gear boxes. No user serviceable parts are inside. Contact dealer or Invacare for repair/replacement.
- Unplug the power cord from its power source before performing any maintenance on the electric bed. DO NOT unplug the power cord from the junction box. Damage to cord will result.
- The control box is mounted to the head motor with a cable tie. If replacing the control box, remove the cable tie and slide the control box away from the head motor until it is free. Disconnect all cable connections.

CAUTION!
Risk Of Product Damage
Mis-alignment of cable connections will cause permanent product damage.
- To avoid product damage, all cable connections MUST be aligned properly. Align locking levers with locking tabs for proper connection.
- DO NOT force the connector into the control box.
**DANGER!**
**Risk Of Death, Injury, Or Damage**
To avoid fire hazards and tubing entanglement:
- Use masked or nasal type oxygen administering equipment only in conjunction with the manual/electric bed. The use of any other type of oxygen administering equipment can result in a fire hazard.
- When using nasal or masked type oxygen administering equipment, the oxygen or air tubing MUST be routed and secured properly to ensure that the tubing does not become entangled and/or severed during normal operation of manual/electric bed.
- Do not use this bed in Active Treatment “Ether Environments.”

**DANGER!**
**Risk Of Death, Injury, Or Damage**
Shock hazards and risk of fire exist due to use of improper extension cord and use of three prong adapters.
- To avoid injury or product damage, when using an extension cord, use only a three wire extension cord having at least 16 AWG (American Wire Gauge) wire and the same or higher electrical rating as the device being connected.
- DO NOT use three prong to two prong adapters.

**DANGER!**
**Risk Of Shock Injury**
To avoid shock hazard, electric beds are equipped with three prong (grounding) plugs. Where a two prong wall receptacle is encountered:
- Contact a qualified electrician and have the two prong receptacle replaced with a properly grounded three prong wall receptacle in accordance with the National Electrical Code.
- If you must use an extension cord, use only a three wire extension cord having the same or higher electrical rating as the device being connected. DO NOT, under any circumstances, cut or remove the round grounding prong from any plug used with or for Invacare products. In addition, Invacare has placed RED warning tags on some equipment. DO NOT remove these tags.
- Securely connect the junction box to the bed with metal screws and the spacer provided for proper grounding.

**WARNING!**
**Risk Of Injury Or Damage**
The electronic motors, power supply and pendants are protected against the entrance of dust and water when properly attached.
- DO NOT spray water into any power supply connection ports.
- Before disassembling or washing an electric bed, disconnect the power supply from the electrical outlet and de-energize electrical components.
**DANGER!**
RISK OF DEATH, INJURY, OR DAMAGE
In the event of a power outage, the bed can be powered by its internal battery. (The internal battery is optional for CS7 and CS9FX600 models and standard on the CS9FX600 with Trendelenburg.) To avoid injury, damage, or death from electrocution:
- The Bed must remain plugged into the grounded outlet for proper grounding.

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

**WARNING!**
RISK OF INJURY OR DAMAGE
To avoid injury or damage from malfunctioning controller or electrocution:
- Charge battery through the controller. NEVER attempt to charge the battery by any other means.
- Internal battery, if present, should be tested monthly.

**WARNING!**
RISK OF INJURY OR ADVERSE HEALTH CONSEQUENCES
Fall hazard exists due to bed height.
- Always leave bed in lowest height when unattended.
DANGER! Risk Of Death, Injury, Or Damage
To avoid pinching, crush and collapse hazards from bed deck contact with objects under the bed:
– DO NOT place any objects or let any individual underneath the bed or in between the raised bed frame components at any time.

To avoid choking from small detachable parts contained underneath the bed:
– Closely supervise children, pets, or people with physical/mental disabilities.

DANGER! Risk of Death, Injury, or Damage
Mattress keepers are a set of four brackets that attach to the bed deck to hold the mattress in place. They are especially useful when rails are not used on a bed. To avoid injury or damage from fall or entrapment:
– Invacare recommends the use of mattress keepers.

2.2 EMI Information

CAUTION! Risk of Damage
To avoid product damage from electromagnetic interference:
– It is very important that you read this information regarding the possible effects of electromagnetic interference on this product.

This product may be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios, and cellular phones. The interference (from radio wave sources) can cause the powered bed to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered bed’s control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each powered bed can resist EMI up to a certain intensity. This is called its “immunity level.” The higher the immunity level, the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI.

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

The sources of radiated EMI can be broadly classified into three types:
1. Handheld Portable transceivers (transmitters/receivers with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, “walkie talkie”, security, fire and police transceivers, cellular telephones, and other personal communication devices).

   - Some cellular telephones and similar devices transmit signals while they are ON, even when not being used.

2. Medium range mobile transceivers, such as those used in police cars, fire trucks, ambulances and taxis. These usually have the antenna mounted on the outside of the vehicle; and

3. Long range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

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

2.3 Electromagnetic Compatibility Information

Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.

Portable and mobile RF communications equipment can affect medical electrical equipment.

---

**WARNING! Risk of Injury or Damage**

The use of accessories, transducers, and cables other than those specified by the manufacturer, may result in increased emissions or decreased immunity of this bed.

- Do not use this bed adjacent to or stacked with other equipment.
- If adjacent or stacked use is necessary, observe this bed to verify normal operation in the configuration in which it will be used.

---

### Guidance and Manufacturer’s Declaration - Electromagnetic Emissions

<table>
<thead>
<tr>
<th>Emissions Test</th>
<th>Compliance</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions</td>
<td>Group 1</td>
<td>The CS Bed uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.</td>
</tr>
<tr>
<td>CISPR 11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The CS Bed is intended for use in the electromagnetic environment specified below. The customer or the user of the CS Bed should assure that it is used in such an environment.
### Guidance and Manufacturer’s Declaration - Electromagnetic Emissions

<table>
<thead>
<tr>
<th>Emissions Test</th>
<th>Compliance</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions CISPR 11</td>
<td>Class B</td>
<td>The CS Bed is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>Harmonic emissions IEC 61000-3-2</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations / flicker emissions</td>
<td>Complies</td>
<td></td>
</tr>
<tr>
<td>IEC 61000-3-3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Guidance and Manufacturer’s Declaration - Electromagnetic Immunity

The CS Bed is intended for use in the electromagnetic environment specified below. The customer or the user of the CS Bed should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD) IEC 61000-4-2</td>
<td>±6 kV contact ±8 kV air</td>
<td>±6 kV contact ±8 kV air</td>
<td>Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>Electrical fast transient/burst IEC 61000-4-4</td>
<td>±2 kV for power supply lines ±1 kV for input/output lines</td>
<td>±2 kV for power supply lines ±1 kV for input/output lines</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>Surge IEC 61000-4-5</td>
<td>±1 kV differential mode ±2 kV common mode</td>
<td>±1 kV differential mode ±2 kV common mode</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
</tbody>
</table>
# Guidance and Manufacturer’s Declaration - Electromagnetic Immunity

<table>
<thead>
<tr>
<th>Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11</th>
<th>Mains power quality should be that of a typical commercial or hospital environment. If the user of the CS Bed requires continued operation during power mains interruptions, it is recommended that the CS Bed be powered from an uninterruptible power supply or a battery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 % UT (&gt;95 % dip in UT) for 0.5 cycle</td>
<td>&lt;5 % UT (&gt;95 % dip in UT) for 0.5 cycle</td>
</tr>
<tr>
<td>40 % UT (60 % dip in UT) for 5 cycles</td>
<td>40 % UT (60 % dip in UT) for 5 cycles</td>
</tr>
<tr>
<td>70 % UT (30 % dip in UT) for 25 cycles</td>
<td>70 % UT (30 % dip in UT) for 25 cycles</td>
</tr>
<tr>
<td>&lt;5 % UT (&gt;95 % dip in UT) for 5 sec</td>
<td>&lt;5 % UT (&gt;95 % dip in UT) for 5 sec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power frequency (50/60 Hz) magnetic field IEC 61000-4-8</th>
<th>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 A / m</td>
<td>3 A / m</td>
</tr>
</tbody>
</table>

## Guidance and Manufacturer’s Declaration - Electromagnetic Immunity

The CS Bed is intended for use in the electromagnetic environment specified below. The customer or the user of the CS Bed should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment – Guidance</th>
</tr>
</thead>
</table>

NOTE UT is the a.c. mains voltage prior to application of the test level.
| Conducted RF  | 3 Vrms | 3 Vrms | Portable and mobile RF communications equipment should be used no closer to any part of the CS Bed, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance  
  d=1.2√P |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 61000-4-6</td>
<td>150 kHz to 80 MHz</td>
<td>3 Vrms</td>
<td></td>
</tr>
</tbody>
</table>

| Radiated RF  | 3 V/m | 3 V/m | Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range. b  
  Interference may occur in the vicinity of equipment marked with the following symbol: |
|-------------|-------|-------|---------------------------------|
| IEC 61000-4-3 | 80 MHz to 2.5 GHz | 80 MHz to 800 MHz | d=1.2√P  
  d=2.3√P  
  where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). |

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>At 80 MHz and 800 MHz, the higher frequency range applies. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CS Bed is used exceeds the applicable RF compliance level above, the CS Bed should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the CS Bed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Recommended separation distances between portable and mobile RF communications equipment and the CS Bed

The CS Bed is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the CS Bed can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CS Bed as recommended below, according to the maximum output power of the communications equipment.

<table>
<thead>
<tr>
<th>Rated maximum output power of transmitter (W)</th>
<th>Separation distance according to frequency of transmitter (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 kHz to 80 MHz</td>
<td>80 MHz to 800 MHz</td>
</tr>
<tr>
<td>d=1.2*√P</td>
<td>d=1.2*√P</td>
</tr>
<tr>
<td>0.01</td>
<td>.12</td>
</tr>
<tr>
<td>0.1</td>
<td>.38</td>
</tr>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>100</td>
<td>12</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance \( d \) in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where \( P \) is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

\[ d = k \times \sqrt{P} \]

- At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
- These guidelines may not apply in all situations.
- Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according to legislation.

Please be environmentally responsible and recycle this product through your recycling facility at its end of life.

2.4 Disposal

This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EC.
## 2.5 Product Labeling

### Around Optional CPR Release Bar

- **WARNING**: Le dégagement de CPR abaissera la section de la tête rapidement. Utilisation avec prudence.

### Serial Number Label

- **ETL Label** - 120 V (CS3, CS5, CS7, CS9, CS9FX600)
- **ETL Label** - (CS5, CS7, CS9)

### On Both Sides of Bed of CS9FX600

- **WARNING**: Crush hazard due to LOW BED CLEARANCE. Stay clear of frame and ensure children and pets are not under or near the frame before lowering the bed. Beware of PINCH POINTS below deck panels, near to fixed attachments and between moving parts.

### For Optional CPR Release (On Both Sides of Bed)

- **WARNING**: Activation of CPR release may cause injury or death. All right adjustable deck sections MUST be set to the same width: 29 in. or 42 in. If using a headboard with the CS9FX600 model, an adjustable headboard model H850AU, must be used. Headboard must be set to the same width as the bed. Follow the manufacturer’s instructions for adjusting bed and headboard. The Invacare mattress is part of the equipment. A CPAP interface is available at www.invacare.com or call your dealer.

---

All labels applied to bed frame except where noted.
This hand control pendant can be located on either side of the bed by connecting into either of the connectors located under the left and right side frame.

When supplied, the pendant holder provides convenient pendant storage for the resident and attendant when the pendant is not in use. The holder must be snapped on the outside of the rail with the backside facing the mattress to prevent possible interference.

For resident access, the pendant may be attached to bedding using the linen clip provided.

When pendant access is limited to the attendant, the pendant can be stored behind the headboard using the Velcro® strips provided.

---

Optional Foot End Board ACP with Trendelenburg

---

AVERTISSEMENT

Risque d'entraînement lors de l'utilisation de Trendelenburg inverse. Un point de prise semble être entre le pied de lit et la terre à la position plus haute. L'entraînement du pied de lit peut causer des blessures à soi-même ou à un tiers. Ne PAS placer les pieds, genoux ou bras dans la zone d'entraînement sous le pied de lit. Se reporter au Manuel d'utilisation avant d'utiliser l'ACP.

WARNING

Crash hazard when using reverse Trendelenburg. Foot plate exists between the headboard and the floor at the lowest bed position. Lowering the foot may cause INJURY to oneself or others. DO NOT place feet or limbs in the crash zone located beneath the rail. Refer to the product manual prior to operating the bed.
## 3 Technical data

### 3.1 Typical Product Parameters

#### Certifications

All models (120 V~ models - CS3, CS5, CS7, CS9, CS9FX600 and 230 V~ models - CS5, CS7, CS9) conform to UL60601-1 and IEC60601-1. Certified to IEC60601-2-38 and IEC60601-1-2 and CAN/CSA C22.2 No. 601.1. 230 V~ models - CS5 and CS7 are CE marked for Australia and New Zealand.

#### Elevation Range (floor to deck)

<table>
<thead>
<tr>
<th></th>
<th>CS3</th>
<th>CS5</th>
<th>CS7</th>
<th>CS9</th>
<th>CS9FX600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability Range</td>
<td>8¼ to 26½ in (210 to 673 mm)</td>
<td>9 to 30 in (229 to 762 mm)</td>
<td>7 to 30 in (178 to 762 mm)</td>
<td>9 to 30 in (229 to 762 mm)</td>
<td></td>
</tr>
<tr>
<td>(casters locked or off casters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility range</td>
<td>8¼ in (210 mm) only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(on casters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle between back section (head deck) and deck platform</td>
<td></td>
<td></td>
<td>0° to 70°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle between back section and upper leg section</td>
<td></td>
<td></td>
<td>&gt;90°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trendelenburg or reverse trendelenburg (when configured)</td>
<td>not available</td>
<td></td>
<td></td>
<td>0° to 14° (Optional)</td>
<td></td>
</tr>
<tr>
<td>Under-bed clearance for 2/3 of bed - centered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14 in (356 mm)</td>
</tr>
</tbody>
</table>

20
# Electrical Specifications

<table>
<thead>
<tr>
<th>Control box mains voltage</th>
<th>CS3</th>
<th>CS5</th>
<th>CS7</th>
<th>CS9</th>
<th>CS9FX600</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120V~</td>
<td>120V~ or 230V~</td>
<td>120V~ or 230V~</td>
<td>120V~ or 230V~</td>
<td>120V~</td>
</tr>
<tr>
<td>Control box input current</td>
<td>3.5A max</td>
<td>3.5A max (1.5A max for 200V~ models)</td>
<td>3.5A max (1.5A max for 230V~ models)</td>
<td>3.5A max (1.5A max for 230V~ models)</td>
<td>3.5A max</td>
</tr>
<tr>
<td>Control box current frequency</td>
<td>60 Hz</td>
<td>60 Hz (50 Hz for 230 V models)</td>
<td>60 Hz (50 Hz for 230 V models)</td>
<td>60 Hz (50 Hz for 230 V models)</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Control box output voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 VDC (70W max)</td>
</tr>
<tr>
<td>Control box duty cycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10% Max (2 min ON 18 min OFF)</td>
</tr>
<tr>
<td>Motorized linear head actuator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 Volts DC</td>
</tr>
<tr>
<td>Motorized linear actuators (head, foot, and HI/LO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24 Volts DC</td>
</tr>
<tr>
<td>Six button hand pendant</td>
<td></td>
<td>standard</td>
<td></td>
<td></td>
<td>not available</td>
</tr>
<tr>
<td>Eight button hand pendant with contour function</td>
<td></td>
<td>not available</td>
<td></td>
<td></td>
<td>standard (10 button optional)</td>
</tr>
<tr>
<td>Attendant control panel (ACP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>optional</td>
</tr>
<tr>
<td>Trendelenburg ACP</td>
<td></td>
<td>not available</td>
<td></td>
<td></td>
<td>optional</td>
</tr>
</tbody>
</table>
## Safety Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>CS3</th>
<th>CS5</th>
<th>CS7</th>
<th>CS9</th>
<th>CS9FX600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective earth ground</td>
<td></td>
<td></td>
<td></td>
<td>Class I</td>
<td></td>
</tr>
<tr>
<td>Electric shock protection</td>
<td></td>
<td></td>
<td></td>
<td>Type B</td>
<td></td>
</tr>
<tr>
<td>Enclosure protection</td>
<td></td>
<td></td>
<td></td>
<td>IPX4</td>
<td></td>
</tr>
<tr>
<td>Floor lock</td>
<td>not available</td>
<td>Optional</td>
<td></td>
<td>standard</td>
<td></td>
</tr>
<tr>
<td>CPR release on head actuator</td>
<td>not available</td>
<td></td>
<td></td>
<td>optional</td>
<td></td>
</tr>
<tr>
<td>Built-in battery back-up</td>
<td>not available</td>
<td></td>
<td></td>
<td>optional</td>
<td></td>
</tr>
<tr>
<td>(standard with Trendelenburg 24V DC 9.2 Amps)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Security - Pendant Lock-Out

<table>
<thead>
<tr>
<th>Feature</th>
<th>CS3</th>
<th>CS5</th>
<th>CS7</th>
<th>CS9</th>
<th>CS9FX600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pendant connection from either side of bed</td>
<td></td>
<td></td>
<td></td>
<td>standard</td>
<td></td>
</tr>
<tr>
<td>ACL (attendant control lock-out) pendant HI/LO function lock-out</td>
<td></td>
<td></td>
<td></td>
<td>optional</td>
<td></td>
</tr>
<tr>
<td>Individual pendant function lock-out on ACP</td>
<td></td>
<td></td>
<td></td>
<td>optional</td>
<td></td>
</tr>
</tbody>
</table>
## Dimensions and Weight

<table>
<thead>
<tr>
<th></th>
<th>CS3</th>
<th>CS5</th>
<th>CS7</th>
<th>CS9</th>
<th>CS9FX600</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length (overall)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76 in and 80 in CS Beds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>84⅞ in (2140 mm)</td>
</tr>
<tr>
<td>80 in CS Bed with 4 in Extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>88⅛ in (2242 mm)</td>
</tr>
<tr>
<td><strong>Length between head and foot ends</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76 in CS Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78½ in (1994 mm)</td>
</tr>
<tr>
<td>80 in CS Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>82½ in (2096 mm)</td>
</tr>
<tr>
<td>80 in CS Bed with 4 in Extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>86½ in (2197 mm)</td>
</tr>
<tr>
<td><strong>Length, mattress platform</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76 in CS Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>76 in (1930 mm)</td>
</tr>
<tr>
<td>80 in CS Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80 in (2032 mm)</td>
</tr>
<tr>
<td>80 in CS Bed with 4 in Extension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>84 in (2134 mm)</td>
</tr>
<tr>
<td><strong>Width, mattress platform</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 in Standard Deck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35½ in (901 mm)</td>
</tr>
<tr>
<td>39 in Wide Deck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38½ in (978 mm)</td>
</tr>
<tr>
<td>42 in Wide Deck</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41½ in (1054 mm)</td>
</tr>
<tr>
<td></td>
<td>CS3</td>
<td>CS5</td>
<td>CS7</td>
<td>CS9</td>
<td>CS9FX600</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>Width with assist rails - 36 in standard deck</td>
<td></td>
<td></td>
<td>39¼ in (997 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width with Thinksoft® positioning devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 in Standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39 in Wide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 in Wide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 in Standard Deck</td>
<td>186 lb (84 kg)</td>
<td>190 lb (86 kg)</td>
<td>not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39 in Wide Deck</td>
<td>196 lb (89 kg)</td>
<td>200 lb (91 kg)</td>
<td>not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 in Wide Deck</td>
<td>199 lb (90 kg)</td>
<td>203 lb (92 kg)</td>
<td>not available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS9FX600 Adjustable Deck</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td>206 lb</td>
</tr>
<tr>
<td>Load capacity - safe working load</td>
<td>450 lb (204 kg)</td>
<td>500 lb (227 kg)</td>
<td>600 lb (272 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 in bed length extension</td>
<td>optional</td>
<td></td>
<td></td>
<td></td>
<td>optional</td>
</tr>
<tr>
<td>39 in or 42 wide bed deck</td>
<td>optional</td>
<td></td>
<td></td>
<td></td>
<td>not available</td>
</tr>
<tr>
<td>Not compatible with 68 inch rail.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustable Deck</td>
<td>Not Available</td>
<td></td>
<td></td>
<td></td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not compatible with 68 inch rail</td>
</tr>
</tbody>
</table>
### 3.2 Mattress Specifications

**DANGER! Risk Of Death, Injury Or Damage**

Bed accessories designed by other manufacturers have NOT been tested by Invacare. Use of NON-Invacare bed accessories may result in injury or death.

- Use ONLY Invacare rails, mattresses, bed extenders and other accessories with Invacare bed products.

**WARNING! Risk Of Injury Or Adverse Health Consequences**

Fall hazard exists due to use of NON-Invacare mattresses. Non-Invacare mattresses are potentially incompatible with Invacare beds.

- To avoid injury, ensure that only Invacare mattresses are used with Invacare beds at all times.

Refer to the [Bed Rail Entrapment Risk Notification Guide](https://www.invacare.com) at www.invacare.com for additional safety information.

A mattress may not be included with this bed. It is highly recommended that you use an Invacare branded mattress that is designed to conform to the following dimensions:

<table>
<thead>
<tr>
<th>Named Size</th>
<th>Minimum Size</th>
<th>Maximum Size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76 in (1930.4 mm)</td>
<td>75 in (1905 mm)</td>
<td>76 in (1930.4 mm)</td>
</tr>
<tr>
<td>80 in (2032 mm)</td>
<td>79 in (2006.6 mm)</td>
<td>80 in (2032 mm)</td>
</tr>
<tr>
<td>84 in (2133.6 mm)</td>
<td>83 in (2108.6 mm)</td>
<td>84 in (2133.6 mm)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 in (914 mm)</td>
<td>35.5 in (911 mm)</td>
<td>36.5 in (927 mm)</td>
</tr>
<tr>
<td>39 in (991 mm)</td>
<td>38.5 in (978 mm)</td>
<td>39.5 in (1004 mm)</td>
</tr>
<tr>
<td>42 in (1067 mm)</td>
<td>41.5 in (1054 mm)</td>
<td>42.5 in (1080 mm)</td>
</tr>
<tr>
<td><strong>Thickness</strong></td>
<td>6 in (152 mm)</td>
<td>5.88 in (149 mm)</td>
</tr>
</tbody>
</table>

### 3.3 Environmental Conditions for Storage and Transport

- Store and/or transport the bed in a clean and dry environment with an ambient temperature range between –10° and 50° Celsius (14° to 125° F).

### 3.4 Environmental Conditions for Operation

- Bring the bed to a Safe Operating Temperature between 5° and 40° Celsius (41° and 100° F) before operating the bed.
4 Setup

4.1 Unpacking Instructions

CAUTION!
Risk of Damage
To avoid product damage from misuse:
– DO NOT cut any trimmed plastic wire ties.
– Cut only the untrimmed plastic ties around the wood spacer. All other plastic ties are used to secure the electric cables in place and should not be cut.

1. Stand bed upright.
2. Slowly lower to floor — use two people if necessary.
3. Slide off end boxes and remove plastic sleeve.

4. Remove the locking key latch from both sides of the wood spacer at the foot end of the bed.

**WARNING!**
Risk of Injury or Damage
Bed damage or personal injury may occur if bed is dropped. To avoid:
- Slowly lower the bed to the floor.
- Use additional people if necessary.
5. Remove wood spacer from front end of bed by lifting it off of bed end brackets.

6. Cut the untrimmed or green tie holding the head deck to the frame.

7. Cut the untrimmed or green plastic tie holding the knee-foot panel to the frame.

8. Cut the untrimmed or green tie holding the mattress keepers on either side of the bed.
9. Cut the untrimmed or green ties holding the mattress keepers at the end of the bed.

10. Carefully cut the untrimmed or green tie holding the pendant bundle.

11. Carefully cut the untrimmed or green tie holding the mains cable bundle.

12. Plug power cord into a properly grounded outlet.

13. Cut the untrimmed or green tie while holding the wall bumper.
4.2 Installing the Mattress Keeper Rod to the Head and Foot Decks

**WARNING!**
Risk of Injury or Damage
By securing the mattress in place, the mattress keeper rods prevent unsafe gaps from forming between the bed ends or rails and the mattress.
– Install the mattress keeper rods correctly to decrease the risk of patient entrapment.

The mattress keeper rods hold the mattress in place. Install them in the head and foot decks.

**All Models Except CS9FX600**

1. With the mattress keeper upright, insert the rod ends into the appropriate deck holes.

**All Models Except CS9FX600**
2. There are two choices for mattress keeper rod insertion. (76 in bed option shown above).

**All Models Except CS9FX600**
3. Mattress keeper rod insertion on 80 in Bed.

   All Models Except CS9FX600

   Model CS9FX600

4. Fold the mattress keeper around the bed in the rod. The mattress keepers should rest flat on the foot deck and the head deck.

5. 76 in Bed Only - With a 7/16 in socket wrench and 7/16 in wrench loosen and remove the bed end bracket fasteners.
6. **76 in Bed Only** - Remove the fasteners on the bed end bracket.

7. **76 in Bed Only** - Slide the bed end bracket in the mounting channel. Align the hole in the bracket with the channel hole.

8. **76 in Bed Only** - Reinsert the bed end bracket fasteners.
9. 76 in Bed Only - Tighten the fasteners with two 7/16 in wrenches. Reposition the other three brackets and reapply the ends.

**All Models Except CS9FX600**

Model CS9FX600

10. Position the mattress on the deck.
11. Press the mattress inside the mattress keeper. Ensure the mattress is engaged on all four corners.

4.3 **Installing the Head and Foot Ends**

Head and foot ends are normally packaged together either in a cardboard box or on a wooden skid separate from the bed.

Bed end model IHBEADJ must be used with bed model CS9FX600. 6.10 Refer to Adjusting the Head Board Width for CS9FX600 on page 62, page 54.

1. Remove the key from the keyhole.

   Bed end not shown.
2. **Position Head End** next to the head board bracket. Hook the head post screws in the bracket slots.

3. **Slide the boards down** while plate/post screws are in the bracket slots.

5. **Guide the key through** the small bracket hole. The key is attached to the bed bracket with a lanyard.

4. **Position Foot End** next to the foot board brackets. Hook the board screws into the bracket slots.
6. Turn and lock the key once it is fully inserted. Repeat on the other side, then the opposite bed end, securing both mounting points on each board.

Some models only have one connection.

7. Attach the cables from the foot end board to the bed cables (ACP cable and pendant coupling). Tighten the nut*. ACP bed only.
5 Usage

5.1 Pendant Operation

DANGER!
Risk Of Death, Injury, Or Damage
To avoid injury or damage from entanglement with bed components or bed collapse:
- Keep all moving parts, including the main frame, mattress deck, and all drive shafts, free of obstruction (i.e. blankets/sheets, tubing, wiring, cords, etc.) during operation of the electric bed.

Raise/Lower Head

Raise/Lower Bed

Raise/Lower Knee
5.2 Pendant Storage and Location

**WARNING!**

**Risk of Injury or Damage**

To avoid injury or damage from electrical shock

- Before working on any electrical part, such as the 9-pin pendant coupling, ensure the main power to the bed is disconnected and the capacitor inside the control box is fully discharged.

- Full capacitor discharge can be achieved by sequentially depressing the ‘Up’ and ‘Down’ buttons on the hand pendant at least 20 times after main electrical power to the control box is cut. Ensure the hand pendant is not locked-out when discharging it.
1. Place the pendant holster between the top rail bars.

2. Slide the pendant into the holster.

3. Alternatively, use the pendant clip to secure the pendant to bed linen.

4. The pendant can also be attached to the back of either side of the Head end.
5. To move the pendant to the other side of the bed, disconnect the main power then unscrew the coupling cap on the pendant cable.

6. Remove the cable end from the Y cable housing.

7. On the other side of the bed, remove the cap from the Y cable housing. Replace the cap on the other side of the bed.

8. Align arrows then insert the pendant cable end into the Y cable housing.

9. Screw the coupling cap to the threaded Y cable housing end.
5.3 Power Cord Storage

Disconnect the main power cable from the wall outlet and store the power cord when the bed is not in use.

1. Secure the power cord to the back of the head end with the hook and loop strap when moving the bed.
2. Excess power cord can be secured to the back of head end with the hook and loop strap.

5.4 Raise and Lower the Heel Lift Ratchet

1. With knee-foot platform adjusted to the highest position, lift the foot panel.
2. The foot section can rest at any of the six pre-set stops.

3. Slowly lower the platform to engage the nearest stop.

4. The platform cannot lower past the nearest stop while being adjusted.

5. To reset the ratchet mechanism, raise the platform to the highest level then lower the platform in one motion.

6. At the lowest position the deck can once again be raised to the desired stop.
5.5 Foot Pad Lock Mechanism
For CS3 Model Only

CAUTION!
Risk of Damage
Moving the bed while the floor lock, caster lock, or foot pad is engaged may DAMAGE the bed. To avoid:
– DO NOT move the bed unless the floor lock, caster lock, or foot pad is disengaged (unlocked).

Mobility
Bed at the Lowest Position

Stability Range

5.6 Bed Steer Mechanism

1. Steer mechanism is on either side of the head end of the bed.
2. With the locking wheel tab facing outward, flip the steer mechanism.

3. When engaged the bed will steer easily.
6 Options

6.1 Bed Rails and Positioning Devices

DANGER!
Risk Of Death, Injury, Or Damage
Patient entrapment from the use of bed side rails may cause injury or death. To avoid patient entrapment:
– The Invacare mattress MUST fit firmly against the bed frame AND bed side rails to prevent patient entrapment. Follow the manufacturer’s instructions. Monitor patient frequently. Read and understand the User Manual prior to using the Invacare bed and bed rails. User manuals are available at www.invacare.com or your dealer.
– After any adjustments, repair or service and before use, make sure all attaching hardware is tightened securely.

DANGER!
Risk Of Death, Injury, Or Damage
To avoid pinching, crush and collapse hazards from bed deck contact with objects under the bed:
– DO NOT place any objects or let any individual underneath the bed or in between the raised bed frame components at any time.

To avoid choking from small detachable parts contained underneath the bed:
– Closely supervise children, pets, or people with physical/mental disabilities.

DANGER!
Risk Of Death or Injury
An increased risk of patient entrapment may occur over time due to mattress compression.
– Periodically monitor gaps between the bed, mattress, and/or bed rail. Where gaps occur, patient entrapment is possible and the mattress should be replaced.

DANGER!
Risk of Death, Injury, or Damage
Proper patient assessment and monitoring, and proper maintenance and use of equipment is required to reduce the risk of entrapment. Variations in bed rail dimensions, and mattress thickness, size or density could increase the risk of entrapment.
DANGER!
Risk Of Death, Injury, Or Damage
Conditions such as restlessness, mental deterioration and dementia or seizure disorders (uncontrolled body movement), sleeping problems, and incontinence can significantly impact a patient’s risk of entrapment. Pediatric patients or patients with small body size may also have an increased risk of entrapment.
– Monitor patients with these conditions frequently.

WARNING!
Risk of Injury or Damage
To avoid injury or damage from instability, entanglement, or misuse:
– Evaluate residents prior to allowing them to use a trapeze.
– Use only Invacare trapeze systems designed specially for the CS bed: Standard Trapeze (1153385) or Heavy Duty Trapeze (1153386).
– Never allow children to use, play, or swing on the trapeze.
– The Standard and Heavy Duty Trapeze are NOT designed, however, to support the total body weight of an individual. Use it for assistance ONLY.
– When in use, always rotate the trapeze until the handle is located over the center of the bed and ensure that it drops down into the anti-rotation position.


Safe Working Load of Heavy Duty Trapeze is 250 lbs. (1115 N). DO NOT exceed 250 lb. (1115 N).

WARNING!
Risk of Injury or Damage
Contact between the floor and the assist rail may cause the bed to become unstable. An unstable bed may tilt from horizontal and / or drop suddenly causing property damage or personal injury. To avoid injury or damage from instability:
– Before lowering the bed, ensure the assist rail is not in the transfer position. Injury from patient falls may occur even when operating the side rails as instructed. Place the bed in the lowest position to minimize the risk from falls.
– Invacare recommends removing the trapeze when using the Trendelenburg function.
– DO NOT install an 84 Inch CS Bed kit on a bed that is equipped with the CPR release feature.
– DO NOT install an 84 Inch CS Bed kit on a bed that is equipped with the Trendelenburg and Reverse Trendelenburg feature.

WARNING!
Risk of Injury or Damage
Risk of FALL when Assist Bar is UNLATCHED. Assist Bar may rotate quickly and drop to the next locked position causing the patient to lose their balance and fall.
– Ensure the Assist Bar is fully latched in down position after each use.
– Check that the Assist Bar is locked before leaving a patient unattended.
– Never use the Assist Bar as a Rail.
If necessary, the head and foot end board position can be adjusted in order to meet FDA guidelines. Refer to the section titled, “Install the Mattress Keeper Rod to the Head and Foot Decks” for detailed instructions on adjusting the end board bracket location.

The listed bed rails and positioning devices are available:

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHCSRLAS</td>
<td>CS Assist Rails - Set</td>
</tr>
<tr>
<td>IHCSRLAS-NG</td>
<td>CS No Guard Assist Rail - Set</td>
</tr>
<tr>
<td>IHCSBARS</td>
<td>CS Assist Bar - Set</td>
</tr>
<tr>
<td>IHCSTSPD</td>
<td>ThinkSoft® Positioning Device TSPD</td>
</tr>
<tr>
<td>IHCSRLPA</td>
<td>68 Inch Rail</td>
</tr>
<tr>
<td>IHCSRLAS - 39NG</td>
<td>CS No Guard assist rail for 39 inch wide deck - set</td>
</tr>
<tr>
<td>IHCSRLAS - 42NG</td>
<td>CS No Guard assist rail for 42 inch wide deck - set</td>
</tr>
<tr>
<td>IHCSBARS39</td>
<td>CS assist bar for 39 inch wide deck - set</td>
</tr>
<tr>
<td>IHCBSBARS42</td>
<td>CS assist bar for 42 inch wide deck - set</td>
</tr>
</tbody>
</table>

### 6.2 Other Accessories
The listed items are available as optional accessories:

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHCSBEK</td>
<td>4 Inch Extension Kit</td>
</tr>
<tr>
<td>IHCSDB</td>
<td>Drainage Bag Holder</td>
</tr>
<tr>
<td>IHCSTRP</td>
<td>Standard Trapeze and Mounting Bracket</td>
</tr>
<tr>
<td>IHCSTRPHD</td>
<td>Heavy Duty Trapeze and Mounting Bracket</td>
</tr>
<tr>
<td>IHCSPD</td>
<td>Aftermarket Pan Deck Kit</td>
</tr>
<tr>
<td>BTRANSPORTCS</td>
<td>Bed Transporter</td>
</tr>
<tr>
<td>IHCSPD42</td>
<td>Portable Battery Unit</td>
</tr>
<tr>
<td>BDTRANSPORTCS</td>
<td>Bed Transporter</td>
</tr>
<tr>
<td>BDTRANSPORTCS</td>
<td>Bed Transporter</td>
</tr>
<tr>
<td>IHCSBATPU-CB</td>
<td>Portable Battery Unit</td>
</tr>
</tbody>
</table>
6.3 Optional Drainage Bag Holder

6.4 Optional Touch-up Paint
Sherwin-Williams®
5A-58147 00(A)
CODE 82X
WHITE BIRCH
2nd Dimension 5.0 Acrylic Enamel
This product can be purchased at Sherwin Williams Automotive paint branches only.

6.5 Optional Attendant Control Panel Operation

4 Function Pendant
Using the integrated Nurse Call Feature
1. Locate call cord cable at the head of the bed along with the power cord.
2. Route cable to nurse call wall outlet and insert call cable plug into socket.
3. Coil any extra cable and secure to the bed.
4. Test Nurse Call \( \text{A} \) by pressing the red first aid button on the hand pendant.

   In the event of a power failure or an issue occurs within the electronic system of your Invacare bed, the nurse call button will be activated, and will not be reset until the electronic system is running properly. Remove the nurse call plug to disable nurse call signal until service is preformed.

Using the Underbed Light

1. The underbed light \( \text{B} \) has pre-installed at the foot end of the bed. All cabling has been routed and secured to keep it from getting pinched during normal operation of the bed.

   The underbed light can be turned on by pressing the blue light button on the hand pendant. Press again to turn off.
All functionality is the same on the alternate pendants except where noted.
6.6 Optional Trendelenburg and Reverse Trendelenburg Attendant Control Panel

**CAUTION!**
Risk of Damage
Use of Trendelenburg or Reverse Trendelenburg feature may not be appropriate for certain patients.
- Trendelenburg and Reverse Trendelenburg should only be used on the advice of a medical practitioner.
- Do not install a CS Bed Extender on a bed that is equipped with the Trendelenburg and Reverse Trendelenburg feature.
6.7 Optional Pendant HI/LO Lock Out

When in the “OFF” position, the HI/LO function on the pendant will NOT operate. When in the “ON” position, all pendant functions will operate normally. The head function and knee-foot function on the pendant remains operational whether the lock out is activated or deactivated.
6.8 Optional Cardiopulmonary Resuscitation (CPR) Release

**WARNING!**
Risk of Injury or Damage
Activation of the CPR release may cause attendant or resident injury. To avoid:
- Use the CPR release only for emergency situations. This function will rapidly bring the head deck to a flat position. Two-person operation is recommended; one person to release the head deck, and another to hold and gently guide the head deck down.
- DO NOT install a CS Bed Extender on a bed that is equipped with the CPR release feature.

When using the CPR Release function, it is recommended to use two people; one person to release the head deck at the foot end of the bed and another person to gently guide the head deck to a horizontal position.

**Additional Means to Lower the Back Rest in an Emergency**
The clevis pin and retaining clip can be removed from the connection between the head actuator and head deck section to lower it. The head deck must be supported while removing the pin and lowering the head deck.
2. Grip the CPR handle (at the foot end of bed).
   Foot end not shown for clarity.

3. Squeeze the CPR handle to drop the head deck.

4. Once the CPR handle is squeezed, the head deck will drop rapidly.

6.9 Optional 39 Inch and 42 Inch Wide Decks
   The following bed options are not compatible with the 39 inch or 42 inch wide bed deck: 68 inch rail.

The CS bed is available with wider decks for resident comfort. Both 39 inch wide deck and 42 inch wide decks are factory installed options.

6.10 Adjustable Width Bed Model CS9FX600
   The following bed options are not compatible with the CS9FX600: 68 inch rail.

6.10.1 Adjusting the CS9FX600 Bed Width
   All eight adjustable deck wings must be adjusted to the same width. Ensure the appropriate bed and head board settings are used as described in this procedure.
The CS9FX600 has eight adjustable deck wings which can be adjusted to 36 in, 39 in or 42 in. The locations of the wings and adjustment knobs are shown in the figure below.

Opposite side is the same as labeled side.
1. Loosen the knob A securing the adjustable deck wing B.
2. Depress the snap button C.
3. Slide the adjustable deck wing in or out to the desired position.
4. Ensure the snap button snaps into the appropriate adjustment hole.
5. Tighten the knob to secure the adjustable deck wing.
6. Adjust the head board width. Refer to 6.10.2 Adjusting the Head Board Width for CS9FX600, page 57.

7. Repeat steps 1 to 6 for each section until they are all adjusted to the same width.

6.10.2 Adjusting the Head Board Width for CS9FX600

Bed end model IHBEADJ is intended for use on bed model CS9FX600. The head board is adjustable and ships in the position for a 36 in wide bed.

1. Firmly grasp one of the board wings A.
2. While holding the board wing, remove the knobs B securing that wings to the center section C.
3. Move the board wing until the mounting holes line up with the desired adjustment holes in the center section.
4. Install the knobs to secure the board wing in the desired position. Tighten securely.
5. Repeat steps 1-4 for the remaining board wing.
7 Maintenance

7.1 Cleaning

1. Unplug product before washing.
2. Make sure all electrical parts (motors, control box and pendant) are not damaged and that all connection ports are plugged. DO NOT allow liquids to enter electrical components.
3. Disinfect and wash all components. DO NOT submerge the bed frame or electrical parts.
4. DO NOT power wash or steam-clean. Use household water pressure only.
5. Rinse thoroughly with water (maximum temperature 110°F or 43°C). DO NOT use solvents, bleach, alcohol, petroleum products, caustic agents, or highly alkaline or acidic agents to clean the bed.
6. Retract each actuator to the minimum stroke length before washing to avoid degreasing the piston rod.
7. Dry all components before storing.

7.2 Annual Maintenance Check

- Inspect the covering of the bed’s control panel and the patient control panel to assure that the covering is not cracked or damaged.
- Inspect for damaged or loose wiring. Have a qualified technician replace any frayed or damaged cords.
- Inspect for secure grounding.

7.3 Quarterly Maintenance Check

- Unplug bed from wall outlet and verify battery function, if equipped. Battery may be built-in or portable.
## 8 Troubleshooting

### 8.1 Troubleshooting

<table>
<thead>
<tr>
<th>Effect</th>
<th>Possible cause</th>
<th>Verification</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed does not stay in place</td>
<td>Floor lock not engaged.</td>
<td>Green plunger on floor lock post is visible.</td>
<td>Activate floor lock - green plunger should NOT be visible.</td>
</tr>
<tr>
<td></td>
<td>Insufficient static friction between floor lock foot</td>
<td></td>
<td>Clean the surrounding floor and remove loose material under the bed.</td>
</tr>
<tr>
<td></td>
<td>bumper and floor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Floor lock not functioning.</td>
<td>Floor lock is stuck in one position.</td>
<td>Contact Invacare Continuing Care Service Department 1-800-668-2337.</td>
</tr>
<tr>
<td>Bed is not level</td>
<td>Hi/Lo actuators are unevenly extended</td>
<td>Bed deck is not parallel with floor</td>
<td>Raise bed to highest position or Lower bed to lowest position.</td>
</tr>
</tbody>
</table>

---

**DANGER!**

Risk Of Injury Or Death

To reduce the risk of electrical shock:

- Always unplug the bed from the electrical outlet before performing maintenance.
- DO NOT unplug the power cord from the control box.
<table>
<thead>
<tr>
<th>Effect</th>
<th>Possible cause</th>
<th>Verification</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator not working.</td>
<td>System Fault</td>
<td>Flashing LEDs on ACP, Bed function will not operate. The control box may beep when pendant function is pressed.</td>
<td>To Reset - hold the pendant bed up and bed down buttons for 5+ seconds. The bed will beep and stop beeping when reset is complete. Then press the bed up button. If the bed beeps, the actuators are out of sync. Continue rising to the highest position to synchronize the actuators.</td>
</tr>
<tr>
<td>Actuator not working.</td>
<td>HI/LO lock-out is on.</td>
<td>For non-openbus (CS3, CS5) - A Lockout box (a square black box) with a toggle switch. When the switch is towards &quot;ON&quot; side, the HILO on the hand pendant will not function. There is no LED light. For openbus beds (CS7, CS9, CS9FX600) - The lockout box (a flatter rectangular white box) with a toggle dome button and LED light. When the light is on, the HILO on the hand pendant will not function.</td>
<td>Rotate the lockout dial to the “unlocked” position (horizontal), or flip switch to OFF.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lockout LED on the Attendant Control Pad (ACP) is ON.</td>
<td>Toggle-off the individual function lockout (LED should be OFF)</td>
</tr>
<tr>
<td></td>
<td>Loose wire connections.</td>
<td>Check cable connections visually.</td>
<td>Connect any loose cable couplings and/or power supplies.</td>
</tr>
<tr>
<td>Effect</td>
<td>Possible cause</td>
<td>Verification</td>
<td>Corrective action</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Faulty actuator.</td>
<td></td>
<td>Disconnect power supply, swap cable from unresponsive actuator with a functional actuator. Reconnect power and test functions. Faulty actuator will not work regardless of the connection port.</td>
<td>Contact Invacare Continuing Care Service Department 1-800-668-2337.</td>
</tr>
<tr>
<td>Actuator not working.</td>
<td>Faulty hand control pendant.</td>
<td>Pendant cable is connected, power is on, lock-out is off and hand control pendant does not function. Disconnect power supply then replace hand pendant with functioning unit (from another bed, if available). Reconnect power and test.</td>
<td>Contact Invacare Continuing Care Service Department 1-800-668-2337.</td>
</tr>
<tr>
<td>Bed ends to not fit properly.</td>
<td>Bent brackets.</td>
<td>Visually ensure the brackets are parallel to the frame.</td>
<td>Carefully straighten minor deformations. Call Service Department to replace significantly bent brackets, 1-800-668-2337.</td>
</tr>
</tbody>
</table>
9 Warranty

9.1 Limited Warranty

Please note: The warranty below has been drafted to comply with federal law applicable to products manufactured after July 4, 1975.

This warranty is extended only to the original purchaser who purchases this product when new and unused from Invacare Continuing Care, Inc (ICCI) or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person.

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

ICCI warrants the frame and welds on this product when purchased new and unused will be free from structural defects on the frame for a period of ten (10) years, electrical for a period of three (3) years, and mechanical for a period of five (5) years from date of purchase from ICCI or a dealer, with a copy of the seller’s invoice required for coverage under this warranty. ICCI warrants the frame of this product when purchased new and unused to be free from defects in materials and workmanship for a period of ten (10) years from date of purchase from ICCI or a dealer, with a copy of the seller’s invoice required for coverage under this warranty. For all other components of this product when purchased new and unused, ICCI warrants that they will be free from defects in material and workmanship for a period of one (1) year from date of purchase from ICCI or a dealer, with a copy of the seller’s invoice required for coverage under this warranty. Upholstery (vinyls, fabrics and/or laminates) are not covered under this warranty. If within such warranty periods any such product shall be proven to be defective, such product shall be repaired or replaced, at ICCI’s option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. ICCI’s sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

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

Limitations and Exclusions: The foregoing warranty shall not apply to serial numbered products if the serial number has been removed or defaced, products subjected to negligence, accident, improper operation, maintenance or storage, products modified without ICCI’s express written consent (including, but not limited to, modification through the use of unauthorized parts or attachments; products damaged by reason of repairs made to any component without the specific consent of ICCI, or to a product damaged by circumstances beyond ICCI’s control, and such evaluation will be solely determined by ICCI. The warranty shall not apply to normal wear and tear or failure to adhere to the product instructions.

“The foregoing express warranty is exclusive and in lieu of any other warranties whatsoever, whether express or implied, including the implied warranties

1153410-N-00
OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND THE SOLE REMEDY FOR VIOLATIONS OF ANY WARRANTY WHATSOEVER, SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT PERSUANT TO THE TERMS CONTAINED HEREIN. THE APPLICATION OF ANY IMPLIED WARRANTY WHATSOEVER SHALL NOT EXTEND BEYOND THE DURATION OF THE EXPRESS WARRANTY PROVIDED HEREIN. ICCI SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER.”