

INSTRUCTIONS FOR USE

Citadel

Bed Frame System



Design Policy and Copyright

® and ™ are trademarks belonging to the Arjo group of companies.

© Arjo 2019

As our policy is one of continuous improvement, we reserve the right to modify designs without prior notice. The content of this publication may not be copied either wholly or in part without the consent of Arjo.

Table of Contents

General Warnings	5
• Safety Information	8
Introduction	11
• Product Overview	11
Clinical Applications	14
• Intended Use	14
• Indications	14
• Contraindications	14
• General Product Information	15
• Precautions	15
Installation	16
• Weighing System Preparation	16
• Electricity Supply	17
• Potential Equalization Terminal	18
• Electrical Connections	18
• Power Cord	18
• Nurse Call and RS232 Connections	19
• Auxiliary Power Outlet (Optional Feature)	20
• Skin IQ Family Power Cable	20
• Skin IQ Installation	20
• Non Powered 5th Wheel Operation (Optional Feature)	21
• Citadel Patient Therapy System Connections	22
• Mattresses	22
• SafeSet™	23
Operating Instructions	25
• Lifting Pole and Accessory Sockets	25
• Drainage Bag Rails	26
• Bed Length Adjustment	26
• Foot Pedal for Adjustment of Bed Height (Optional Feature)	28
• Brakes and Steering	28
• Side Rails	29
• Head and Foot Boards	30
• Patient Restraints	30
• Under Bed Light	31
• Backup Battery	32
• Recharging the Backup Battery	32
• Over-Use Lockout	33
• Attendant Control Panel (ACP), Nurse Control Panel and Patient Control Panel	34
• Patient Handsets (Optional Feature)	37
• Weigh Scale Panels (With and Without Unit Selection)	38

•Weighing Accuracy	39
•Weighing Initialization	40
•Weighing	40
•Weighing Units	41
•Auto Compensation	41
•Weighing System Error Codes	42
•Angle Indication	42
• VariZone Patient Movement / Exit Detection	43
• VariZone Operation	44
•Anti-Entrapment System.....	45
•SafeSet™ (Optional Feature)	46
•RS232 Connection	48
•Controls for Television and Lighting (Optional Feature).....	49
Patient Placement	50
•Power On	50
•Preparation for Patient Placement	50
•Completion of Patient Placement	51
Nursing Care	52
•CPR	52
•CPR Backrest Release	53
•Patient Bathing	53
•Patient Transfer from the Citadel Bed Frame System	54
•Patient Transport	54
Care and Cleaning.....	55
•Deck Sections.....	55
•Decontamination.....	55
•General Recommendations.....	57
•Cleaning the Citadel Bed Frame System While in Use	57
•Cleaning the Citadel Bed Frame Between Patients.....	58
Preventive Maintenance	59
•Weighing System.....	60
•Battery Test	60
Troubleshooting.....	61
•Error Codes	62
•Fault Indications	63
•Product Lifetime.....	63
•Accessories	63
Electromagnetic Compatibility (EMC).....	64
Warranty and Service	67
Specifications	68
Explanation of Symbols Used.....	70

GENERAL WARNINGS

The following warnings should be considered prior to using this product:



Before using the bed, make sure that the power in rating on the specification label is compatible with the local electricity supply.

To make sure the patient can use the bed safely, their age and condition should be assessed by a clinically-qualified person. The use of head down tilt (Trendelenburg) or foot down tilt (reverse Trendelenburg) may be contraindicated for certain medical conditions. The tilt function should only be used under the guidance of a clinically-qualified person after assessment of the patient's condition.

All accessories added to the system reduce the safe working load of the frame by the same amount.

If the power cord or plug is damaged, the complete assembly must be replaced by authorized service personnel. Do not remove the fitted plug, or use a rewirable plug or adapter.

Make sure the power cord is not stretched, kinked or crushed.

Do not allow the power cord to trail on the floor where it may cause a trip hazard.

Make sure the power cord does not become entangled with moving parts of the bed or trapped between the bed frame and head board.

Always adjust the bed frame and deck to the same length and make sure both are latched securely in position.

Always use a mattress of the correct size and type. Incompatible mattresses can create hazards.

Entrapment hazards may exist when using a very soft mattress, even if it is the correct size.

The clinically-qualified person responsible should consider the age, size and condition of the patient before allowing the use of side rails.

Side rails are not intended to restrain patients who make a deliberate attempt to exit the bed.

To prevent possible entrapment, make sure the patient's head and limbs are clear of the side rails when adjusting the deck.

Make sure the locking mechanisms are securely engaged when the side rails are raised.

Prior to engaging any mattress turn feature, make sure that bed frame has side rails and that all side rails are fully engaged in their full upright and locked position. Do not activate the turning feature on any mattress system when patient restraints are in use.

Patient restraints should be used in compliance with all applicable local regulations and in accordance with the healthcare facility's own policies and procedures.

Patient restraints, even when correctly used, can result in entrapment or injury, particularly if the patient is disorientated or restless. The decision to use patient restraints must be made by the clinician overseeing the care of the individual patient, following a fully documented risk assessment.

Patient restraints are not intended as substitutes for good nursing practice. Arjo makes no recommendations regarding the use of such restraints.

To make sure the battery is kept fully charged and prevent damage to the battery, the bed should be connected to the electricity supply at all times during normal use.

The battery is intended for emergency, short term use only. Its life will be reduced if it is used to power the bed for long periods.

Only connect devices designed to be used with the bed. Connecting devices not designed to be used with the bed may result in damage to the equipment or to the bed.

At minimum height, clearance underneath the side rails is reduced. Keep your feet away from the areas below the side rails and take extra care when using patient hoists or similar equipment.

The weighing system should only be used by staff trained in the correct use of the weighing function.

The weighing system should only be used in closely supervised environments, where factors influencing patient weight (such as additions to the bed) can be controlled as described in the following instructions for use.

The weighing system MUST be zeroed every time a new patient is to be placed on the bed.

The weighing system MUST be zeroed every time a mattress is changed.

The weighing system cannot be zeroed if a mattress or accessories weighing more than 50 kg (110 lb) are fitted.

Data retrieved from the RS232 connection is not intended to be used to make clinical decisions. All patient diagnosis, treatment and care should be performed under the supervision of an appropriate healthcare professional.

The manual CPR release should only be used in an emergency; repeated everyday use can cause permanent wear.

Disconnect the bed from the mains wall outlet before starting any cleaning or maintenance activity. The bed will still operate on battery power if the function has not been locked on the Attendant Control Panel.

*To prevent cross contamination or equipment damage, Arjo recommends that the Citadel Bed Frame System be cleaned during use and between patients according to the **Care and Cleaning** section in this IFU. Local protocols and regulations / procedures for blood borne pathogens may be used provided the manufacturer's instructions are followed.*

Always disconnect the Citadel Bed Frame System from mains wall outlet before cleaning. Failure to do so could result in equipment damage and / or electric shock.

Do not allow fluids to penetrate the Citadel Bed Frame System control panels to avoid damage to system.

If the bed is stored for a long time, it should be connected to the electricity supply for 24 hours every three months to recharge the backup battery, otherwise it may become unserviceable.

When the bed is operated, make sure that obstacles such as bedside furniture do not restrict its movement.

Take care when using equipment that needs to be positioned under the base frame to ensure there is no contact with any part of the bed frame or component.

If a serious incident occurs in relation to this medical device, affecting the user, or the patient then the user or patient should report the serious incident to the medical device manufacturer or the distributor. In the European Union, the user should also report the serious incident to the Competent Authority in the member state where they are located.

Safety Information

General Protocols – Follow all applicable safety rules and institution protocols concerning patient and caregiver safety.

Brakes – Set all caster brakes before transferring patient.

Bed Height – To minimize risk of falls or injury, the bed should always be in the lowest practical position when the patient is unattended.

Fluids – Avoid spilling fluids on unit controls. If spills do occur, unplug unit, clean fluid from unit, wearing rubber gloves to avoid any possibility of shock. Once fluid is removed, check operation of components in area of spill.



Fluids remaining on controls can cause corrosion, which may cause components to fail or to operate erratically, possibly producing hazards for patient and staff.

Oxygen Use - Make sure that the unit is not contained in an oxygen enriched environment. Possible fire hazard when bed is used with oxygen administering equipment other than the nasal prongs, mask or half bed length tent type. Oxygen tent should not extend below mattress support level.

Lock-Outs – Lock-outs for bed functions should be used at staff's discretion to prevent unintentional operation of bed.

Power Cord – Make sure power cord is kept free from all pinch points, moving parts and is not trapped under casters. Improper handling of power cord can cause damage to the cord, which may produce risk of fire or electric shock. Pull the power cord out of the mains wall outlet to remove power from the unit.

Avoid Fire Hazards – To minimize the risk of fire, connect the unit's power cord directly into a wall-mounted outlet. Do not use extension cords or multiple outlet strips. In the US, review and follow FDA's Safety Tips for Preventing Hospital Bed Fires. Outside the US, consult the local Competent Authority or Government Agency for Medical Device Safety for specific local guidance.

Disposal – At the end of useful life, dispose of waste according to local requirements or contact the manufacturer for advice. There may be special requirements for disposal of batteries, leaded foam and / or angle sensors (if present in this product). Improper disposal of any component may result in regulatory non-compliance.

Moving Parts - Keep all equipment, tubes and lines, loose clothing, hair and parts of the body away from moving parts and pinch points.

Patient Entrance / Exit – Caregiver should always aid patient in exiting the bed. Make sure a capable patient knows how to get out of bed safely (and, if necessary, how to release the side rails) in case of fire or other emergency.

Side Rails / Patient Restraints - Whether and how to use side rails or restraints is a decision that should be based on each patient's needs and should be made by the patient and the patient's family, physician and caregivers, with facility protocols in mind. Caregivers should assess risks and benefits of side rail /

restraint use (including entrapment and patient falls from bed) in conjunction with individual patient needs, and should discuss use or non-use with patient and / or family. Consider not only the clinical and other needs of the patient but also the risks of fatal or serious injury from falling out of bed and from patient entrapment in or around the side rails, restraints or other accessories. In the US, for a description of entrapment hazards, vulnerable patient profile and guidance to further reduce entrapment risks, refer to FDA's Hospital Bed System Dimensional and Assessment Guidance To Reduce Entrapment.

Outside the US, consult the local Competent Authority or Government Agency for specific local guidance on Medical Device Safety. Consult a care giver and carefully consider the use of bolsters, positioning aids or floor pads, especially with confused, restless or agitated patients. It is recommended that side rails (if used) be locked in the full upright position when the patient is unattended. Make sure a capable patient knows how to get out of bed safely (and, if necessary, how to release the side rails) in case of fire or other emergency. Monitor patients frequently to guard against patient entrapment.

When selecting a standard mattress (as defined by IEC 60601-2-52:2015), make sure the distance between top of side rails (if used) and top of mattress (without compression) is at least 22 cm (8.66 in) to help prevent inadvertent bed exit or falls. Consider individual patient size, position (relative to the top of the side rail) and patient condition in assessing fall risk.



Make sure the distance between top of side rails (if used) and top of a speciality mattress (as defined by IEC 60601-2-52:2015) (without compression) is approximately 11.4 cm (4.5 in) or greater. Consider individual patient size, position (relative to the top of the side rail) and patient condition in assessing fall risk.

Skin Care – Monitor skin conditions regularly and consider adjunct or alternative therapies for high acuity patients. Give extra attention to skin over any raised side bolster and to any other possible pressure points and locations where moisture or incontinence may occur or collect. Early intervention may be essential to preventing skin breakdown.

Maximum Recommended Patient Weight - Total patient weight capacity should not exceed 227 kg (500 lb). The use of accessories on the bed may decrease the patient weight capacity of the bed. Contact Arjo Customer Service for questions concerning the use of accessories and see the Questions and Contact Information section of this guide for contact information.

I.V. and Drainage Tubes – Prior to activating any positioning function assess the security of all invasive lines and tubes to accommodate the desired angle of articulation and minimize the risk of binding, disconnecting or dislodging. Tubes and lines should always have sufficient slack for articulation and patient movement.

Turning - Prior to engaging any mattress turn feature, make sure that bed frame has side rails and that all side rails are fully engaged in their full upright and locked position. Do not activate the turning feature on any mattress system when patient restraints are in use.

Scale Readings - Scales / patient weights are for reference only. Scale readings should not be relied upon for medication dosage. All equipment on the weighed portion of the unit is included in weight displayed.

Patient Migration – Specialty surfaces have different shear and support characteristics than conventional surfaces and may increase the risk of patient movement, sinking and / or migration into hazardous positions of entrapment and / or inadvertent bed exit. Monitor patients frequently to guard against patient entrapment.

Skeletal Traction or Unstable Fracture (if not contraindicated) – With skeletal traction, unstable pelvic fracture or any other unstable fracture (to the extent not contraindicated), maintain physician directed angle of articulation and guard against risks of patient migration or inadvertent deflation of surface.

Electromagnetic Interference – Although this equipment conforms with the intent of electromagnetic compatibility, all electrical equipment may produce interference. If interference is suspected, move equipment away from sensitive devices or contact the manufacturer.

Shock Hazard – Electrical shock hazard; do not remove electrical compartment covers. Refer to qualified service personnel.

INTRODUCTION

These instructions contain information for the installation, use and maintenance of the Arjo Citadel™ Bed Frame System. These beds have multiple functions to provide the optimum nursing position for both patient and caregiver.

Product Overview

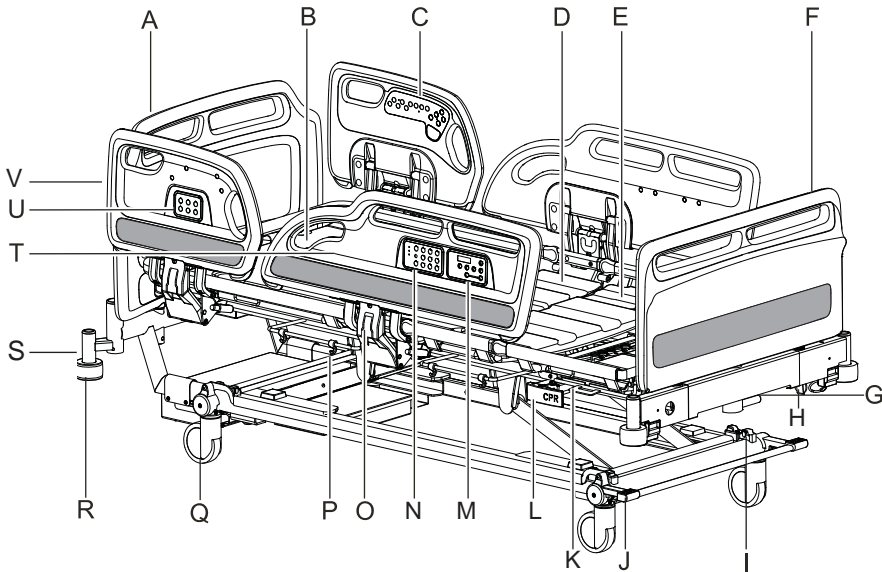


Figure 1: Product overview

- | | |
|-----------------------------|--|
| A. Head Board | M. Weighing / Movement Detection System Controls |
| B. Backrest Section | N. Attendant Control Panel (ACP) |
| C. Patient Controls | O. Side Rail Release Lever |
| D. Seat Section | P. Drainage Bag Rail |
| E. Thigh Section | Q. Caster |
| F. Foot Board | R. Roller Buffer |
| G. Extension Locking Handle | S. Lifting Pole Socket |
| H. Accessory Power Outlet | T. Foot End Side Rail |
| I. Anti-Entrapment Sensor | U. Caregiver Controls |
| J. Foot End Brake Pedal | V. Head End Side Rail |
| K. Extension Catch Bar | |
| L. CPR Release Handle | |

*not pictured, optional foot pedal for adjustment of bed height.

All **Citadel** beds have the following standard features:

- Folding split side rails with integrated bed controls
- Electrical adjustment of bed height and leg section elevation
- Electrically operated retracting backrest
- Auto-Chair facility
- Electrical adjustment of head down tilt (Trendelenburg) and foot down tilt (reverse Trendelenburg)
- Electrical adjustment of calf section vascular position
- Mattress support surface with removable panels
- Adjustable length deck
- Drainage bag rails
- Under bed lights
- 125 mm single wheel casters
- Patient weighing
- VariZone™ patient egress detection
- Anti-Entrapment System

The following are optional features:

- IndiGo™ Intuitive Drive Assist
- Non Powered 5th Wheel
- Vertical Height Foot Switch
- One-way nurse call
- Two-way nurse call
- Environmental controls
- RS232 connection allowing transfer of bed status data
- 150 mm (single or dual wheel) casters
- Additional brake pedals at head end
- DIN accessory rails
- Foot pedal for adjustment of bed height
- Patient handset
- Auxiliary power outlet

Optional features are specified by the customer at the time of ordering. The chosen options are indicated by the equipment model number. The model and serial number can be found on the specification label which is located on the bed frame below the head board.



Before using the bed, make sure that the Power in rating on the specification label is compatible with the local electricity supply.

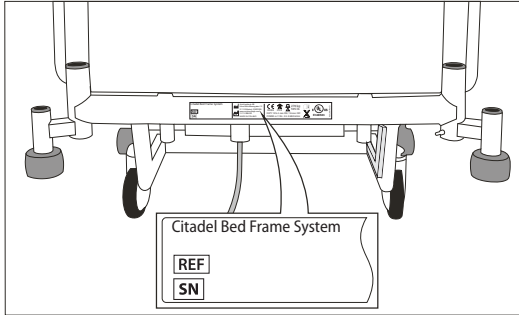


Figure 2: Specification label

CLINICAL APPLICATIONS



To make sure the patient can use the bed safely, their age and condition should be assessed by a clinically qualified person.

The use of head down tilt (Trendelenburg) or foot down tilt (reverse Trendelenburg) may be contraindicated for certain medical conditions. The tilt function should only be used under the guidance of a clinically-qualified person after assessment of the patient's condition.

Intended Use

The *Citadel* Bed Frame System is intended for the acute and post-acute care environments. It is not intended for use in the homecare environment.

The bed is suitable for use in the following situations:

- Intensive / critical care provided in a hospital where 24-hour medical supervision and constant monitoring is required, e.g. ITU, ICU and CCU.
- Acute care provided in a hospital or other medical facility where medical supervision and monitoring is required, e.g. general medical and surgical wards.
- Long term care in a medical area where medical supervision is required and monitoring is provided if necessary, e.g. nursing homes and geriatric facilities.

Indications

The *Citadel* Bed Frame System is indicated for medical purposes to aid the patient and staff during the performance of routine care.

Contraindications

The *Citadel* Bed Frame System is contraindicated for patients weighing in excess of 227 kg (500 lb). The caregiver should refer to and follow any contraindications in the product labeling for the pressure redistribution surface being used with the *Citadel* Bed Frame System.

The bed is not suitable for patients under 40 kg (88 lb) in weight.

General Product Information

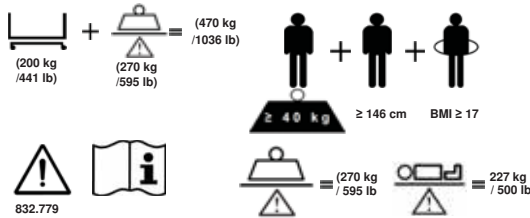


All accessories added to the system reduce the safe working load of the frame by the same amount.

Safe working load (SWL)..... 270 kg (595 lb)

Maximum patient weight..... 227 kg (500 lb)

The recommended patient height is between 146 cm (58 in) and 190 cm (75 in). At the discretion of the caregiver, patients taller than 190 cm (75 in) may be accommodated by extending the bed - refer to bed length adjustment on page 26. Make sure that the patient's height does not exceed the in-bed length.



Maximum Patient Weight		
With 45 kg accessories or mattress		Without Accessories or mattress
Safe Working Load	270 kg	270 kg
Patient Therapy System	45 kg	45 kg
Accessories	45 kg	0 kg
Maximum allowable patient weight	180 kg	225 kg

Precautions

Precautions may need to be taken when using this product with certain patient conditions, including, but not limited to:

- hemodynamic instability
- severe agitation
- uncontrollable claustrophobia or fear of confinement
- uncontrollable diarrhea
- pregnancy
- extensive facial trauma
- any other unstable fracture
- ICP monitoring or intracranial drainage devices

INSTALLATION

The following chapter describes how to install the bed.

Weighing System Preparation



To prevent damage to the weighing mechanism, replace the transport locking bolts and washers before transporting the bed. This is not necessary when moving the bed short distances.

When replacing the transport locking bolts care must be taken to avoid trapping or damaging any cables.

Position the bed on a flat, level surface and apply the brakes.

Remove the four transport locking bolts (1) and washers (2); there are two locking bolts at the head end of the bed and two at the foot end.

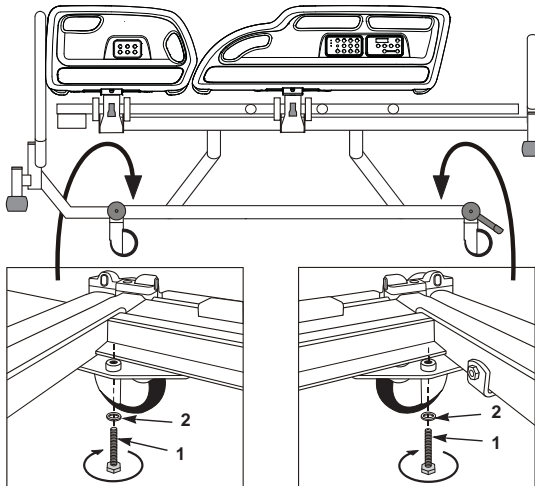


Figure 3: Removing the transport bolts

Retain the bolts and washers in case the bed needs to be transported at a later date.

Electricity Supply



If the power cord or plug is damaged, the complete assembly must be replaced by authorized service personnel. Do not remove the fitted plug, or use a rewirable plug or adapter.

Make sure the power cord is not stretched, kinked or crushed.

Do not allow the power cord to trail on the floor where it may cause a trip hazard.

Make sure the power cord does not become entangled with moving parts of the bed or trapped between the bed frame and head board.

Unplug the power cord from the electricity supply, and store it, before moving the bed.

Before the first use, or if the bed has been unused for more than three months, connect the bed to the electricity supply for at least 24 hours to allow the backup battery to recharge fully; failure to do this may reduce the life of the battery. After charging, check that the battery is fully serviceable by carrying out a battery test as shown on page 60.

Connect the mains plug to a suitable outlet. Make sure the plug is easily accessible so it can be unplugged quickly in an emergency.

When the bed is connected to the electricity supply, the Power On Indicator LED will light on the Attendant Control Panel (see page 34).

The power supply cord (1) is fitted with a plastic hook (2).

When not in use or before moving the bed, clip the hook onto the head board, coil up the cable and place it over the hook as shown.

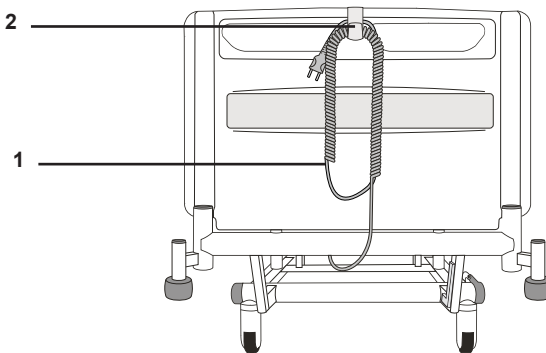


Figure 4: Power supply cord and potential equalization terminal

To isolate the bed from the electricity supply, unplug the mains plug from the outlet.

Potential Equalization Terminal

A potential equalization terminal (Figure 5, item 1) is located at the foot end of the bed.

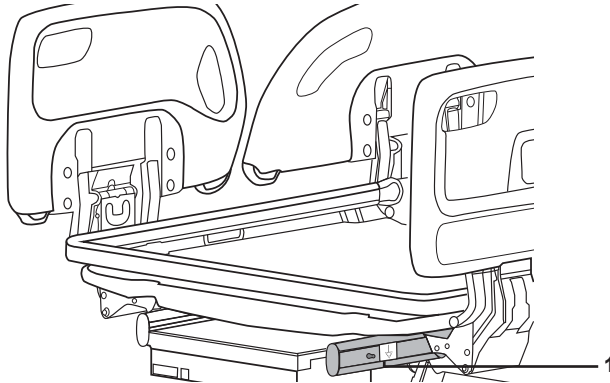


Figure 5: Location of potential equalization terminal

When other electrical equipment is within reach of the patient or caregiver, potential differences between the equipment can be minimized by connecting together their potential equalization terminals.

Electrical Connections

The *Citadel* bed contains the following electrical connections.

Frame:

- Power Cord
- Nurse Call Connector
- RS232 Connector (if specified)
- Auxiliary Power Outlet
- Skin IQ™ Family Power Cable

Citadel™ Patient Therapy System:

- AC Power Connection
- CPR Switch Connection
- Communication Connection

Power Cord

The power cord is located at the head end of the bed. Make sure power cord is kept free from all pinch points, moving parts and is not trapped under casters. Improper handling of power cord can cause damage to the cord, which may produce risk of fire or electric shock. Pull the power cord out of the mains wall outlet to remove power from the unit.

Nurse Call and RS232 Connections

1. Connect one end of the nurse call cable to the 37-pin D-type outlet, located below the head end of the bed on the patient's right hand side.
2. Connect the other end of the nurse call cable to a compatible nurse call system. The type of connector will vary depending on the nurse call system.
3. Connect one end of an RS232 cable to the 9-pin D-type outlet, located below the head end of the bed on the patient's right hand side.
4. Connect the other end of the RS232 cable to a device capable of receiving data through an RS232 connection.



Connection to the nurse call and RS232 connector must be made with the correct cables. Use of the wrong cables may cause malfunction of the bed or devices connected to the nurse call or RS232 connectors.

Verify correct operation of the nurse call system before placing a patient on the bed.

Do not allow the nurse call or RS232 cables to trail on the floor where they may cause a trip hazard. Unplug both cables before moving the bed.

Do not allow the cables to touch the bed frame as this may affect the accuracy of the weighing system.

Only connect devices designed to be used with the bed.

Connecting devices not designed to be used with the bed may result in damage to the equipment or to the bed.

Only use cables with an in-line breakaway connector (below). Failure to do so could result in damage to the bed or to other hospital equipment.

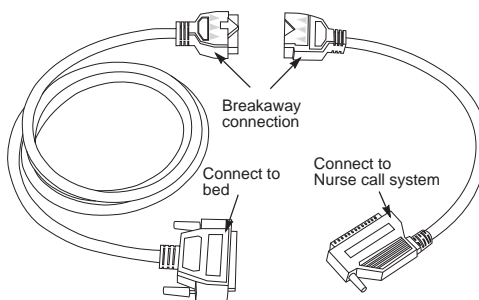


Figure 6: Example of an in-line breakaway connector

Auxiliary Power Outlet (Optional Feature)



Do not connect any critical or life-sustaining equipment to auxiliary outlet. These devices should be connected to hospital outlets.

Devices connected to this outlet shall not exceed:

- 115 VAC / 7A
- 230 VAC / 4A

This outlet does not remain powered when the bed is on battery backup.

Auxiliary power outlet is provided as a convenience for powering devices intended to be placed at or near the foot end of the bed.

Skin IQ Family Power Cable



The cable should only be used to power the Skin IQ Family of products.

Skin IQ Power Cable is provided as a convenience for powering Skin IQ. This feature remains powered for four hours when the bed is on battery backup. A 12 VDC power cable is located at the foot end of the bed which provides a connection point for the Skin IQ of products.

Skin IQ Installation



Refer to *Skin IQ* Instructions for Use for detailed installation instructions.

1. Stretch the *Skin IQ* coverlet over existing surface and use straps to secure to existing mattress.
2. When using the *Skin IQ* on the *Citadel* mattress, the mattress comes already equipped with straps located mid way under the mattress exclusively for attaching the tie-down straps from the *Skin IQ* coverlet.
3. Use the 12 VDC power cable, centered at the foot end of the bed to plug in the *Skin IQ*. Cable has a tag indicating it is for *Skin IQ* use.

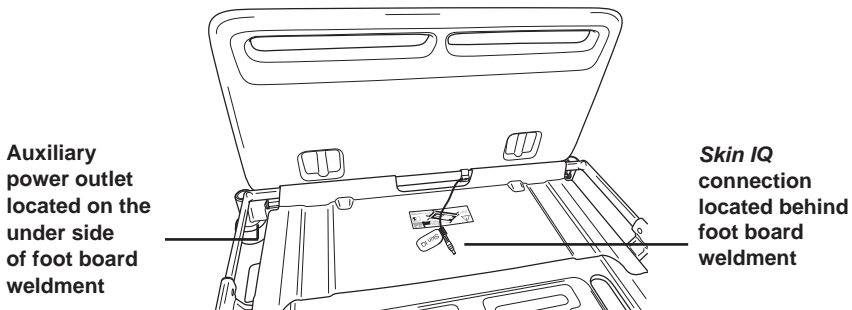


Figure 7: Auxiliary power outlet and *Skin IQ* Family power cable

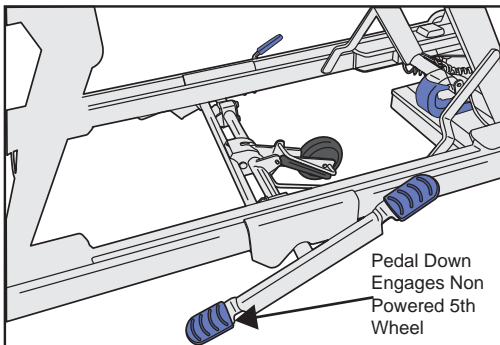
Non Powered 5th Wheel Operation (Optional Feature)

The Non Powered 5th wheel accessory provides improved mobility and steering assistance for the Citadel and Enterprise series beds. The Non Powered 5th wheel reduces physical demands on the caregiver during patient transport. The improved steering assistance provides more controlled turning around corners, through doorways and positioning of the bed within rooms.

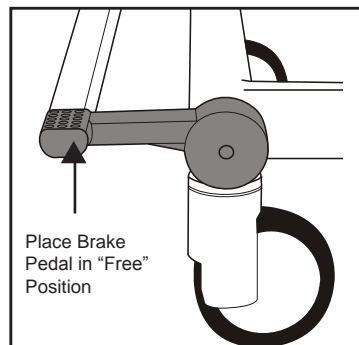
Engage Non Powered 5th Wheel - step down on the head end of the Non Powered 5th wheel activation pedal. The Non Powered 5th wheel will lower and contact the floor. After checking that the brakes are unlocked and brake pedal is in the “Free” position (shown below) the bed is ready for movement.

Disengage Non Powered 5th Wheel - step down on the foot end of the Non Powered 5th wheel activation pedal. The pedal will raise off the floor.

HEAD



FOOT



Citadel Patient Therapy System Connections

The following connections are provided for attaching a *Citadel Patient Therapy System* to the *Citadel Bed Frame System*. More details on proper connection can be found in the *Citadel Patient Therapy System Instructions for Use*.

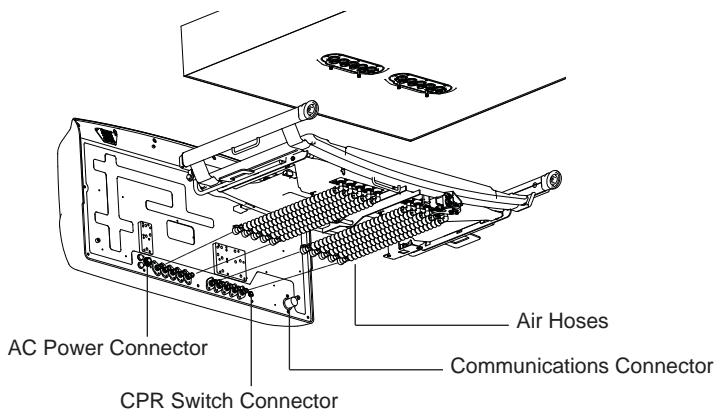


Figure 8: *Citadel Patient Therapy System* connections



*For attachment to *Citadel Patient Therapy System* only. Refer to *Citadel Patient Therapy System Instructions for Use* for more information.*

- Pneumatic (air) hoses - Air hoses attach straight across from the frame to the air mattress control unit in order from left to right / right to left
- Communications cable / connection
- CPR Switch connection
- AC Power cable connection

Mattresses



Always use a mattress of the correct size and type. Incompatible mattresses can create hazards.

Where the maximum patient weight specified for the mattress is different to that specified for the bed, the lower value applies.

When choosing bed and mattress combinations, it is important to consider the use of side rails based on clinical assessment of each individual patient and in line with local policy.

When assessing the suitability of a mattress for use with side rails, the following factors should be considered:

- The bed is designed to provide an acceptable side rail height when used with a foam mattress between 15 cm (6 in) and 20.5 cm (8 in).
- Specialty powered air / foam replacement mattresses will typically envelop the patient when loaded and can generally be deeper than a foam mattress without compromising safety. Other makes of specialty mattress replacement must be assessed individually prior to use to verify sufficient clearance is maintained.



Make sure the distance between top of side rails (if used) and top of a specialty mattress (without compression) is approximately 11.4 cm (4.5 in) or greater. Consider individual patient size, position (relative to the top of the side rail) and patient condition in assessing fall risk.

- To ensure compliance with EN 60601-2-52:2015, an approved Arjo mattress should be used. Compliance with this standard when using other mattresses must be validated by the user.
- For more information on suitable mattresses and mattress replacements, contact your local Arjo office or an Arjo approved distributor. A list of Arjo offices can be found at the back of this manual.

SafeSet™

- When using *SafeSet* with a *Citadel* Patient Therapy System installed, use the extender brackets, p/n: 830.307, to extend *SafeSet* for improved visibility.

A label on the calf extension sheet indicates the mattress size:

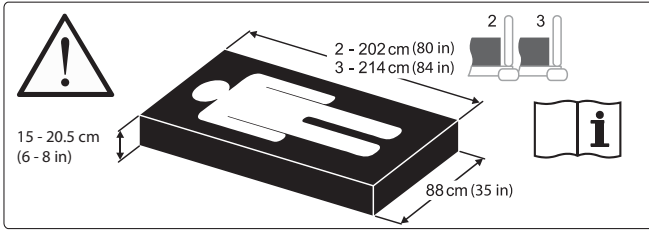


Figure 9: Mattress size label



The numbers 2 and 3 on the label indicate different deck lengths; refer to Bed Length Adjustment on page 26.

Entrapment hazards may exist when using a very soft mattress, even if it is the correct size.

The maximum recommended standard mattress thickness for use with side rails is 20.5 cm (8 in).

Read the instructions for use supplied with the mattress.

Valve Covers

If a non-integrated mattress is used, make sure that the valve covers are in place prior to use. These covers protect the valves from fluid and debris.

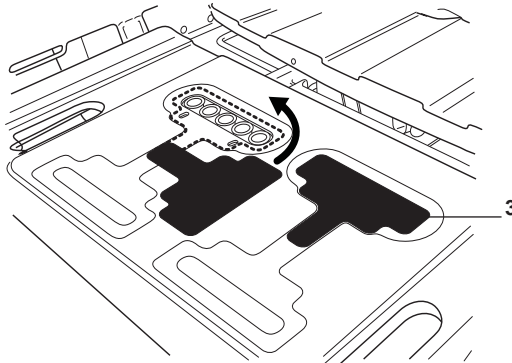


Figure 10: Valve Covers

OPERATING INSTRUCTIONS

It is recommended that all chapters of this manual be reviewed prior to product use. Carefully read the **Contraindications, Risks and Precautions** and **Safety Information** sections in the **Introduction** chapter of this manual prior to installing a mattress and placing a patient on the *Citadel* Bed Frame System.

Lifting Pole and Accessory Sockets

Lifting pole sockets (1) are located at the head end of the deck.

Sockets to support compatible accessories are located at the head end (2) and foot end (3) of the bed.

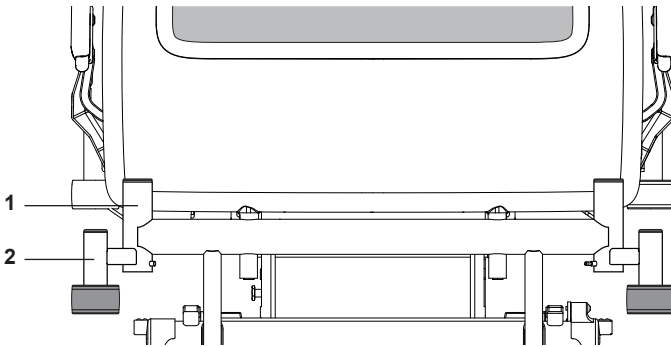


Figure 11: Lifting pole and accessory sockets (head end)

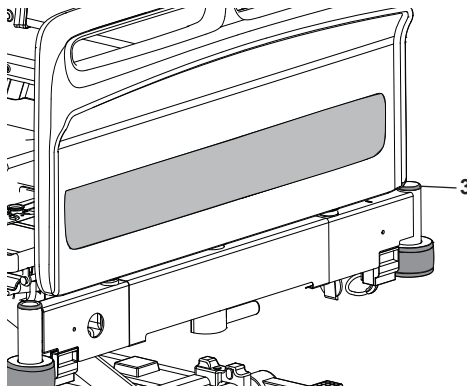


Figure 12: Accessory sockets (foot end)

Drainage Bag Rails



The maximum weight that can be safely supported by each drainage bag rail and DIN rail is 5 kg (11 lb).

Items placed on the drainage bag rails (such as patient drains and urine bags) are included in the weighing calculation, and can influence measurement of patient weight - see Weighing Accuracy on page 39.

Rails (1) to support drainage bags, etc. are located below the thigh and backrest sections on either side of the bed.

The bed may also be fitted with optional DIN accessory rails (2).

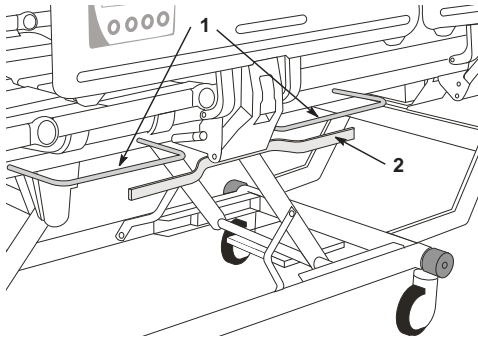


Figure 13: Drainage bag rails and DIN rail

Bed Length Adjustment



Install a suitable foam mattress extension (squab) at the foot end when the bed is extended with a foam mattress.

Always adjust the bed frame and deck to the same length and make sure both are latched securely in position.

Take care not to pinch your fingers when lifting the catch bar.

The length of the bed is adjustable to two set positions and an additional transport position. These are typically used as follows:

1. Transport, for maneuvering the bed in confined spaces. No mattress should be sized for this length as it is only to be used as a temporary transport length, when necessary.
2. Standard length, for normal use. Sets deck length at 202 cm (80 in).
3. Extended, to accommodate very tall patients. Sets deck length at 214 cm (84 in).

To extend the bed frame:

1. Level the deck before adjusting the bed length.
2. Rotate the blue extension locking handle (1) located under the foot end of bed and pull out the bed frame (2) to the required position and release the handle. Ensure extension locks in position.

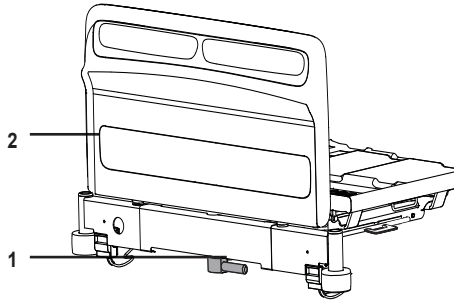


Figure 14: Extending the bed frame

To extend the deck:

1. Lift the blue extension locking handles on either side of the bed (1). Pull out the deck extension (2) to the required position and release the handles. Ensure deck extension locks in position.

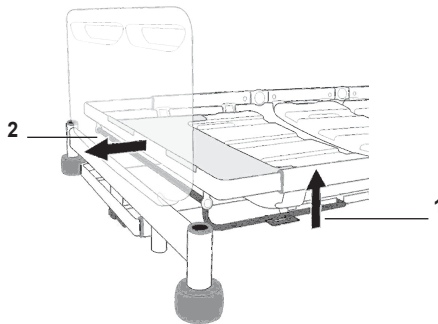


Figure 15: Extending the deck



After extending the deck make sure the calf extension sheet is clipped over the end of the deck frame.

2. To shorten the bed: Reverse the above procedures.

Foot Switch for Adjustment of Bed Height (Optional Feature)

Bed height can be adjusted from bed control panels and from the foot switch located near the foot end of the bed.

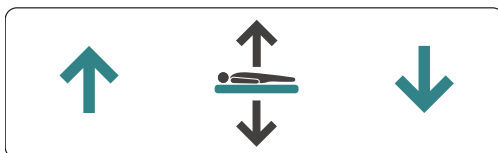


Figure 16: Bed Height Foot Switch

Lift cover of switch with foot and press left side to raise the bed height. Press right side of switch to lower bed height.

Brakes and Steering



Operate the brake pedals with your feet while wearing suitable shoes. Do not operate the pedals with your hands.

The steering caster may be at either end of the bed, as specified by the customer.

The pedals have three positions as shown below:

- BRAKE: brakes are applied on all four casters.
- FREE: all four casters are free to rotate and swivel.
- STEER: all four casters can rotate, but the steering caster (see below) is locked so that it cannot swivel. This helps to keep the bed on a straight line.



Figure 17: Brakes and Steering

Using the Steering Caster

Position the bed so that all the casters line up in the direction of travel. Raise the pedals to lock the steering caster and move the bed by pushing it from the opposite end of the steering caster. The steering caster is identified by a yellow collar at the top of the caster stem.

Head End Brake Pedals

Additional brake pedals are located at the head end of the bed. These operate in the same way as the foot end pedals.

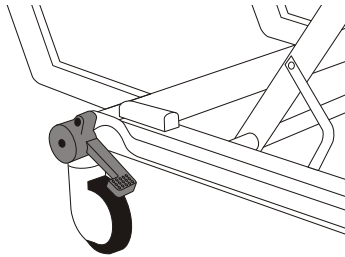


Figure 18: Head End Brake Pedal

Side Rails



The clinically-qualified person responsible should consider the age, size and condition of the patient before allowing the use of side rails.

Side rails are not intended to restrain patients who make a deliberate attempt to exit the bed.

Make sure that the mattress is suitable for use with side rails - see Mattresses on page 22.

To prevent possible entrapment, make sure the patient's head and limbs are clear of the side rails when adjusting the deck.

To lower the side rail:

1. Hold either side rail handle.
2. Pull the blue release lever and lower the side rail, holding the side rail until it is completely lowered. The side rail folds down next to the deck.

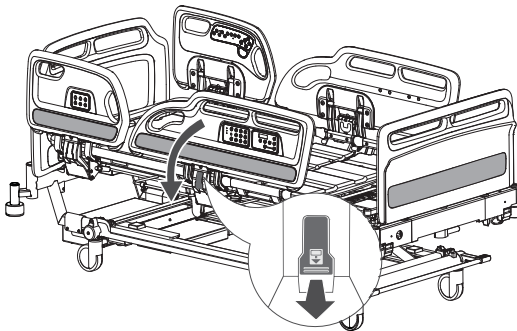


Figure 19: Side Rail Operation

To raise the side rail:

1. Hold either side rail handle. Pull the split side rail up and away from the bed until it locks in the raised position.
2. The head end and foot end side rails operate in the same way.



Make sure the locking mechanism is securely engaged when the side rails are raised.

Head and Foot Boards

The head and foot boards can be easily lifted off the bed for access to the patient. To remove, pull straight up on the handle. To replace, align the rods with the holes in the frame and push straight down.

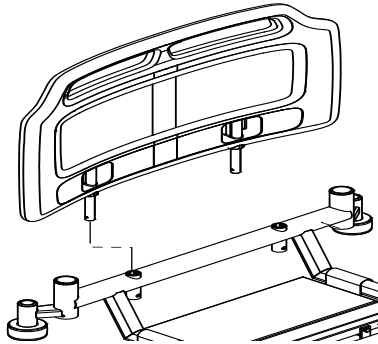


Figure 20: Align head and foot board with holes in frame to replace

Patient Restraints



Do not activate the turning feature on any mattress system when patient restraints are in use.

Follow the instructions for use provided with the patient restraint devices.

Patient restraints should be used in compliance with all applicable federal and state regulations and in accordance with the healthcare facility's own policies and procedures.

Do not attach patient restraints to any part of the bed other than detailed above. Example: side rails or head / foot boards.

Patient restraints, even when correctly used, can result in entrapment or injury, particularly if the patient is disorientated or restless. The decision to use patient restraints must be made by the clinician overseeing the care of the individual patient, following a fully documented risk assessment.

Patient restraints are not intended as substitutes for good nursing practice. Arjo makes no recommendations regarding the use of such restraints.

Patient restraints can be attached to either side of the deck frame. Attachment points are provided on the backrest (1), thigh section (2) and calf section (3).

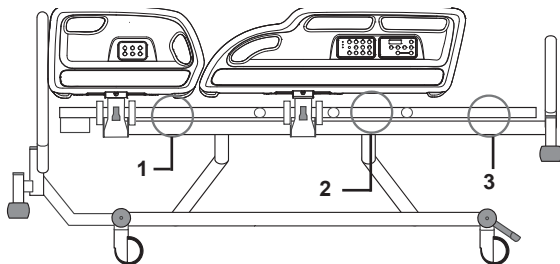


Figure 21: Patient restraint attachment points (circled)

Restraint straps should be attached as shown below to prevent sliding along the deck frame.

Backrest and calf section: feed the strap between the guide (1) and the frame of the backrest or calf section (2).

Thigh section: feed the strap around the thigh section frame (3) between the cross-members (4).

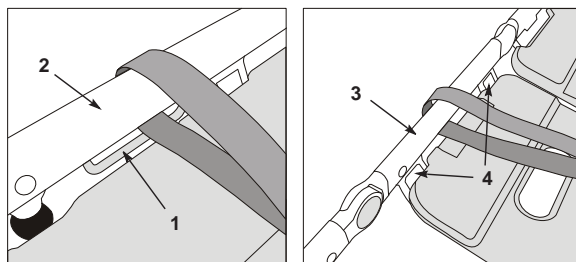


Figure 22: Restraint strap attachment - backrest / calf section (left) and thigh section (right)

Under Bed Light

The under bed light illuminates the floor on either side of the bed. The under bed light can be turned on from the Nurse Control Panel unless the bed is in its low-power state.

Backup Battery



To make sure the battery is kept fully charged and prevent damage to the battery, the bed should be connected to the electricity supply at all times during normal use.

The battery is intended for emergency short-term use only. Its life will be reduced if it is used to power the bed for long periods.

The backup battery will power Skin IQ for four hours before shutting off to preserve battery life for emergency bed functions. Skin IQ is only powered if plugged into the bed's Skin IQ 12 VDC power cable.

The backup battery allows operation of the bed for short periods when it is unplugged from the electricity supply or in emergency situations when the electricity supply is not available.

When the bed is unplugged from mains power, it enters a low-power mode to conserve battery power. In this state, the under bed lights, the indicator LEDs on the control panels and the weighing system display are turned off.

Pressing any of the control buttons brings the bed out of low-power mode. The bed will return to low-power mode two minutes after the last control button was pressed.

The battery's charge level is indicated as follows:

- If an intermittent warning tone (beep-beep-beep) sounds when operating the bed, the battery is between 75% and 100% charged. In this condition, all bed functions remain operational.
- If a continuous warning tone sounds when operating the bed, the battery is between 10% and 75% charged. In this condition, all functions except CPR and Tilt will be locked five seconds after the last button is pressed. The other functions can be temporarily reinstated by pressing the Function Lock button once and then pressing the required Function button to unlock its operation.
- If the ACP battery indicator LED lights red, the battery is less than 10% charged. In this condition, all functions are locked. Plug bed in.



All functions will remain locked even after mains power is reconnected. To unlock all functions connect mains power and then press the Function Lock button, then select the function(s) to unlock.

Recharging the Backup Battery



If the battery is left uncharged for long periods, its operational life will be reduced.

The battery must only be recharged using the built-in charger. Do not use a separate charger or power supply.

The backup battery must be ventilated while recharging. Do not cover the battery vent hole or obstruct the area around it.

To recharge the battery, connect the bed to the electricity supply. Allow at least eight hours to recharge the battery when it is completely uncharged. While the battery is recharging, the ACP battery indicator LED lights yellow. The indicator LED will go out when the battery is fully charged.

Over-Use Lockout

Continuous operation of the controls may cause the indicator LED above the buttons to flash. After 30 seconds, the indicator LEDs will light and all functions will be locked.

If this happens, wait for at least 20 minutes and then follow the unlocking procedure on page 35.

Attendant Control Panel (ACP), Nurse Control Panel and Patient Control Panel

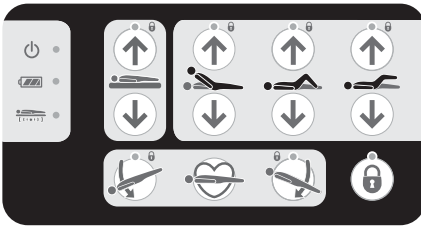


Figure 23: Attendant Control Panel

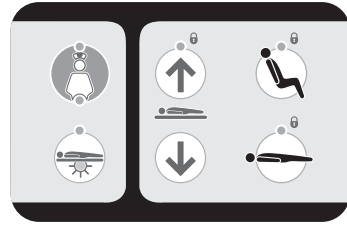


Figure 24: Nurse Control Panel

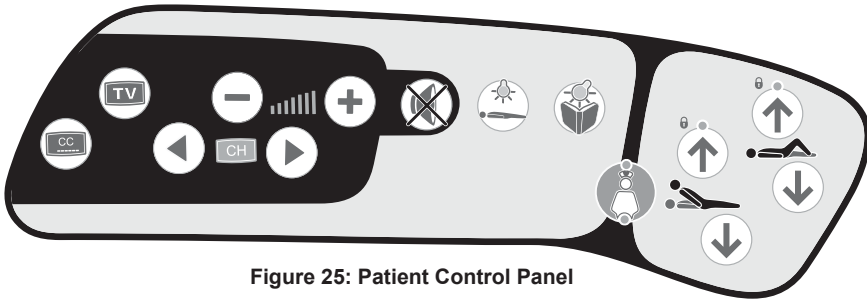






Figure 25: Patient Control Panel

-  ● **Power On Indicator** - Indicator LED lights when the bed is connected to the electricity supply.
-  ● **Battery Indicator** - Indicates status of the battery system. Refer to the section Backup Battery on page 32.
-  ● **Anti-Entrapment System (AES) Indicator** - Indicates status of the anti-entrapment system. Refer to the section Anti-Entrapment system on page 45.
-  ● **Deck Height** - These buttons raise and lower the deck. All sections will lower at maximum speed until the bed reaches low height (40cm*) where it will continue to lower at half speed until it has reached extra low height (32cm*). The deck will not lower to extra low height if the bed platform is tilted (in Trendelenburg or reversed Trendelenburg position).

(*Low height and extra low height dimensions are for reference only.)



At minimum height, clearance underneath the side rails is reduced. Keep your feet away from the areas below the side rails and take extra care when using patient hoists or similar equipment.



Backrest Angle - These buttons raise and lower the backrest. The backrest will pause when it reaches an angle approximately 30° above the horizontal.



Thigh Section - These buttons raise and lower the thigh section. When the thigh section is first raised from the flat position, the calf section will be in the fowler position (angled downwards).



Calf Section - These buttons raise and lower the calf section.



Trendelenburg - This button lowers the head end of the deck (Trendelenburg position). When returning from a tilted position, the deck will pause at the level (no tilt) position.



Reverse Trendelenburg - This button lowers the foot end of the deck (reverse Trendelenburg position). When returning from a tilted position, the deck will pause at the level (no tilt) position.



CPR Position - Press and hold the CPR button to flatten the deck (and lower it if necessary) to enable cardio-pulmonary resuscitation to be performed.

The CPR button overrides all lockout settings.



Function Lockout - Function lockout can be used to prevent operation of the controls.

To lock (prevent) or unlock (allow) functions:

- Press the Function Lockout button. The indicator above the button will light.
- Press the ACP button(s) corresponding to the function(s) to be locked or unlocked. The lock indicator LED above each function button shows its current status:
 - **LED on = function locked**
 - **LED off = function unlocked.**
- When all functions are locked or unlocked as required, press the Function Lockout button again or wait for five seconds. The indicator LED above the Function Lock button will turn off and the lockout settings are stored.



When a function is locked, any associated functions are automatically disabled. Example: locking the backrest also disables Auto-Chair.

Function lockout settings are retained if the bed is disconnected from the electricity supply.



Under bed Light - The under bed light illuminates the floor on either side of the bed. Press this button to turn the under bed lights on or off. The indicator LED above the button will light when the under bed lights are on.



Nurse Call - Press the Nurse Call button to request assistance. The indicator LED above the button will light to confirm operation. At the nurse's station, the call location will be displayed and / or an audible alert will sound, depending on the type of nurse call system. Procedures to reset nurse call vary from one system to another. Refer to the manufacturer's instructions for use.



Nurse call is only available in certain models.



Auto-Chair - The Auto-Chair up button simultaneously raises the backrest and thigh sections, pausing when the backrest reaches 45°. Continue to hold the button to lower the foot end of the deck into a chair position.

When the backrest and thigh sections are raised, pressing the Auto-Chair up button again lowers the foot end of the mattress platform into a chair position; if the backrest angle is greater than 45°, it will return to 45° to prevent the patient from tipping forwards.



Auto-Chair Down - The Auto-Chair Down button returns the deck to a flat and level position.

Patient Handsets (Optional Feature)

The controls on these handsets operate in the same way as those on the side rails.



Store the handsets on the split side rail using the clip on the back; this will help to prevent accidental operation of the controls.

The patient should be shown how to use the handset by the caregiver.

Take care not to squeeze or trap the handset cable between moving parts of the bed.

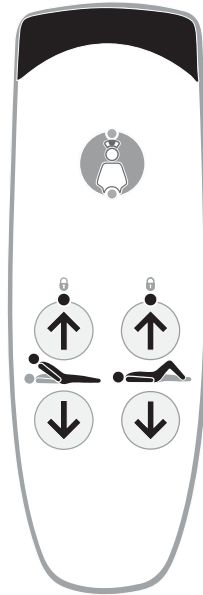


Figure 26: Patient handset

Weigh Scale Panels (With and Without Unit Selection)



The weighing system is intended to provide reference data only. Be aware that scale readings may be affected by several factors, including but not limited to: improper zeroing, equipment added or removed without proper use of AutoComp, lack of regular scale calibration, and inappropriate use not in line with user instructions.

The weighing system should only be used by staff trained in the correct use of the weighing function.

The weighing system should only be used in closely supervised environments, where factors influencing patient weight (such as additions to the bed) can be controlled as described in the following instructions for use.

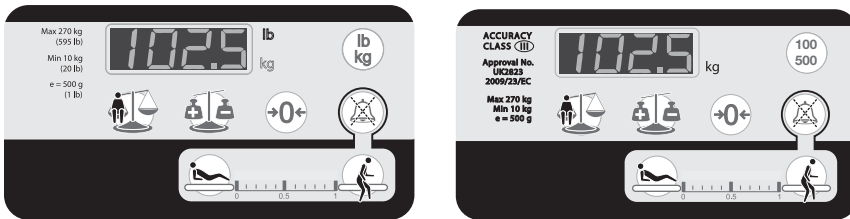


Figure 27 Weigh Scale Panels (Dependent on country)



Display - indicates the patient's weight. It can also be used to show other information. Example: bed section angles and error codes.



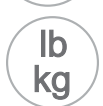
Weigh - This button is used to calculate and display the current patient weight. Weight is displayed for 10 seconds after a button press.



Auto Compensation (tare) - This button allows items to be added to or removed from the bed without affecting the indicated patient weight.



Zero - This button is used to reset the weighing system when the bed is first set up and before a new patient is placed on the bed.



Select Units - If available, this button will change the weight readings to either pounds or kilograms. An indicator next to the display will light to show the selected units (lb or kg).



Select Weight Display - If available, this button allows the patient weight to be displayed rounded to the nearest 100g or 500g.



VariZone Mute Button - This button will mute the bed exit alarm for three minutes.

Weighing Accuracy

Patient weighing system	
Minimum verification interval (scale division) e	500g (1 lb)
Minimum capacity	10kg (20 lb)
Maximum capacity	270kg (595 lb)
Approvals	Complies with 90/383/EEC Class III.

The weighing system is very sensitive and can be affected by a number of external factors. For best performance, observe the following precautions:

- Position the bed such that the lower frame and upper frame do not touch one another. This may require that the bed is raised from its lowest position.
- Make sure the bed is on a flat, level surface.
- Make sure the transport locking bolts and washers have been removed before use – refer to page 16.
- Position the bed so that it is clear of obstructions. Example: walls, furniture, cables and curtains.
- Make sure the patient is fully on the mattress during weighing.
- While weighing is taking place, the patient should keep as still as possible and other persons should keep clear of the bed.
- Make sure that the patient, pillows and bed linen do not touch the head board or floor during weighing.

The head board (1), head end lifting pole accessory sockets (2) and bed sub frame (3) do not influence the patient weighing system.

Any item attached to or placed on any other part of the bed will influence the patient weighing system. Use the AUTO COMPENSATION feature before adding or removing any items (example: urine bags, IV poles, mattress pumps, bed-clothes, etc.).

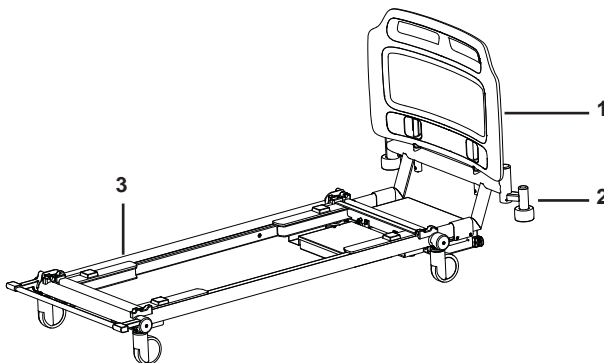


Figure 28: Area not influencing patient weighing

Weighing Initialization



The weighing system MUST be zeroed every time a new patient is to be placed on the bed.

The weighing system MUST be zeroed every time a mattress is changed.

The weighing system cannot be zeroed if a mattress or accessories weighing more than 50 kg (110 lb) are fitted.

It is not recommended to zero the bed or take a weight reading in the lowest position.

After connecting the bed to the electricity supply, the weighing system must be initialized as follows:

1. Place the mattress, bed linen and all necessary accessories on the bed. The patient must not be on the bed at this point.
2. Press the Zero button once.
3. After a few seconds the display will read zero .
4. The patient can now be placed on bed.
5. The bed cannot be re-zeroed once a patient is on the bed. Use the Auto Compensation feature if adding or removing items from the bed such as linen or accessories

Weighing

To calculate and display the patient's weight:



1. With the patient centered on the bed, press the Weigh button once.



2. The display will show a moving circular pattern until a stable weight reading is obtained.



3. The patient's weight will be displayed for ten seconds then the display will go blank.



Scale Readings - Scales / patient weights are for reference only. Scale readings should not be relied upon for medication dosage. All equipment on the weighed portion of the unit is included in weight displayed.

Weighing Units

On select models, weight readings can be viewed in pounds or kilograms by pressing the Select Units button. An indicator LED next to the display will light to show the selected units (lb or kg), if equipped.

To lock the Select Units button so that the display always shows readings in either pounds or kilograms, if equipped:

1. Hold down the Function Lockout button.
2. Press and hold the Select Units button. Keep both buttons pressed until you hear an audible tone. Check that the required indicator LED is illuminated (lb or kg), if equipped.

Normal operation of the Select Units button can be restored by repeating this procedure.

Auto Compensation

The Auto Compensation function allows weight (up to a maximum of 100 kg [220 lb]) to be added to or removed from the bed, without affecting the indicated patient weight.



1. With the patient lying on the bed, press the Auto Compensation button once.



2. The display will show a moving circular pattern until a stable weight reading is obtained.



3. The display will read AUTO to indicate that the system is in Auto Compensation mode.

4. Add or remove accessories, bed linen, pillows, etc. as required.










5. Press the Auto Compensation button again.



6. The display will show a moving circular pattern for a few seconds then revert to showing the patient's weight.

Weighing System Error Codes

Error codes are shown on the display. They are used to indicate a problem with the weighing system; this may be due to an operator error or a possible fault condition. The table below shows common error code displays with their causes and solutions.

Display	Cause	Solution
	More than safe working load applied to frame	Remove excess weight from frame
	More than 50 kg (110 lb) applied during scale zeroing.	Remove excess weight prior to re-initializing scale zeroing
	Components i.e. footboard and / or deck sections removed from the frame prior to zeroing.	Install missing components and re-initialize the weighing system
	Zero on battery power	Connect bed to mains supply and re-initialize the weighing system
	Auto Compensation weight decrease more than 100 kg (220 lb)	Replace weight removed from bed
	Auto Compensation weight increase more than 100 kg (220 lb)	Remove added weight from bed
	A stable weight reading was not obtained within 10 seconds	Refer to the points listed in the section Weighing Accuracy on page 39



If the display shows an error code other than those given above, refer to the product service manual or contact an approved Arjo service agent.

Angle Indication

When operating the controls for backrest or tilt, the weighing system display shows the approximate angle in degrees of the selected function.



Angles are shown relative to the floor, so the displayed values of backrest angle and thigh angle change when the deck is tilted.



The tilt angle is shown as a positive value for head down tilt and a negative value for foot down tilt.

VariZone Patient Movement / Exit Detection



The patient movement detection function should be checked periodically for correct operation and before each new patient uses the bed.

Mattresses that are not approved by Arjo should be validated by the user to make sure correct operation with the VariZone system.

The patient movement detection system can be set to alarm when undesired movement of the patient occurs. The sensitivity of the patient movement detection, relative to the center of the deck, can be varied incrementally.

The controls for the patient movement detection system are located on the foot end split side rails.

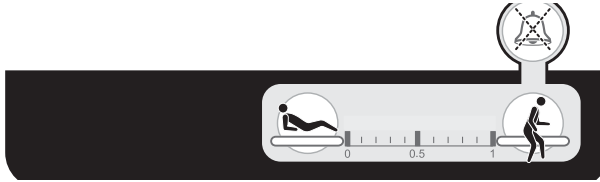


Figure 29: Patient movement detection controls



In Bed - this button activates / deactivates patient movement detection and increases the sensitivity of the system.



Patient Movement Detection Threshold Display - an indicator shows the current system status and the selected sensitivity of patient movement detection.



Egress - this button activates / deactivates patient movement detection and decreases the sensitivity of the system.



Adjusting the deck profile while patient movement detection is active can trigger an alarm if patient movement detection is set to a high sensitivity.



VariZone Mute Button - When the VariZone alarm is triggered, pressing the mute button will silence the audio portion of the alarm for three minutes. When the VariZone alarm is triggered and is muted, adding the patient weight +/- 10% back onto the bed will clear the alarm and re-enable VariZone to the last VariZone setting.

VariZone Operation

Before activating patient movement detection, make sure that:

- The patient's weight has been measured and recorded.
- All additional items (example: accessories) have been accounted for using the Auto Compensation function.
- The weighing system display is blank.



Before using patient movement detection, verify that the alarm can be easily heard by caregivers. Example: at the nurse's station.



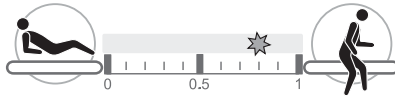
To activate patient movement detection, press and hold either the In Bed button or Egress button for two seconds.



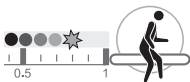
The threshold display indicator LED will flash to show the alarm threshold level.

The further to the left the flashing indicator LED is, the lower the alarm threshold, and small movements of the patient in bed will be detected.

The further to the right the flashing indicator LED is, the higher the alarm threshold, and only large movements, such as the patient exiting the bed, will be detected.



To increase the patient movement detection threshold:



Press and hold the Egress button; the flashing indicator LED will move towards the right. When the required threshold is reached, release the button.

To reduce the patient movement detection threshold:



Press and hold the In Bed button; the flashing indicator LED will move towards the left. When the required threshold is reached, release the button.



After a few seconds the indicator LED will stop flashing and remain illuminated to show that patient movement detection is active.



If movement of the patient above the set threshold is detected, an audible tone will sound and the threshold indicator LED will flash.

To cancel the alarm or deactivate patient movement detection:



Press the In Bed button or Egress button once.



The alarm will be silenced and the threshold display indicator will go out to show that movement detection is deactivated.



To silence the alarm: Press the Bed Exit Silence button. The alarm will be silenced for three minutes and the *VariZone* system will be re-enabled once patient weight is returned to the bed.

Anti-Entrapment System

The anti-entrapment system is designed to detect patient entrapment between the base and deck when the deck is lowered, or is placed into tilt or Auto-Chair. The system is permanently active and cannot be switched off.

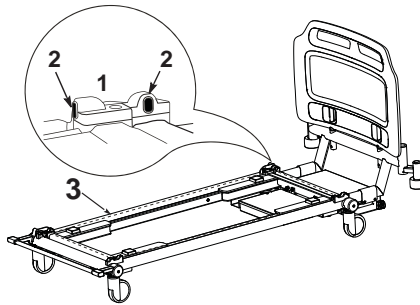


Figure 30: Anti-entrapment sensors and beam

There are four infrared sensors (1), one above each castor, which generate an invisible beam around the base of the bed (3).



If the beam is interrupted (example: by a patient's limb) while the deck is lowering, the deck stops moving, lifts slightly to allow the obstruction to be cleared, and the weighing system display reads AES.



In addition, the AES indicator LED on the ACP lights. Upward movement of the deck is not affected.



The anti-entrapment system may also be triggered if the beam is interrupted by bed linen, etc.



Clean the lenses (See Figure 30, item 2) of the infrared sensors regularly using a soft dry cloth.

SafeSet™ (Optional Feature)



*SafeSet visual status indicators **intended** for patients at risk for falls. Patients should be assessed for fall risk by a clinically qualified person with facility protocols in mind.*

SafeSet visual status indicators provide a quick visual indication of optimum bed settings for patients identified as being at risk of falls.

SafeSet visual status indicators show four safety-critical bed parameters:





- Brake setting
- Side rail position
- Mattress platform height
- Movement detection status

Two identical SafeSet indicator panels are located just below the foot board.

Indicator lights (1) above each symbol light red to show a potentially unsafe condition, or green to indicate a safe condition.



Figure 31: SafeSet indicator panel

Symbol	Indicator light green ("safe" condition)	Indicator light red ("unsafe" condition)
	Brakes on	Brakes off
	All side rails raised*	If either of the head end panels are lowered. If both foot end panels are lowered.
	Mattress platform at minimum height (or within 25mm of minimum height)	Mattress platform not at minimum height
	VariZone patient movement detection set	VariZone patient movement detection not set

* To comply with FDA guidelines, the system will still show a "safe" condition if one (but not both) of the foot end side rails are down.

The indicator lights are positioned so they can be easily seen at a distance. A sensor (2) will automatically reduce the brightness of the indicator lights in low light conditions, except when an indicator light is showing an unsafe (red) condition.

When *SafeSet* visual status indicators are not being used, the indicator lights can be turned off using the supplied magnetic key fob (3). Swipe the key fob horizontally across the bottom of the *SafeSet* indicator panel as shown to turn the indicator lights off.

Once disabled the lights cannot be re-enabled within four seconds.

Swipe the key fob again to turn the indicator lights back on.

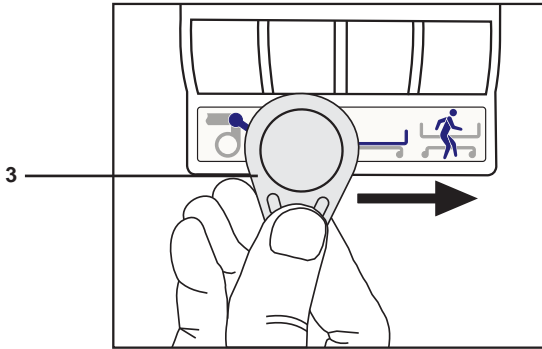


Figure 32: Turning the *SafeSet* indicator lights on / off



If the bed is disconnected from the electricity supply and operated on battery power the indicator lights will not illuminate.

When reconnected to the electricity supply the indicator lights do not automatically illuminate. Swipe the fob to re-enable. This is by design and is intended to conserve battery longevity.

RS232 Connection

The bed continuously transmits data about its status through an RS232 connection at the head end of the bed (see page 19).

The transmitted data can be recorded by a compatible device.



An RS232 serial cable is not supplied by Arjo.

Data is transmitted every ten seconds and includes the following information:

- Patient weight
- *VariZone Patient Movement Detection* / Bed exit alarm (on or off)
- Backrest angle in degrees relative to horizontal
- Bed height at low position (yes / no)
- Side rail position (up / down)
- Brake position (on / off)

This information can be stored in a database.



Data retrieved from the RS232 connection not intended to be used to make clinical decisions. All patient diagnosis, treatment and care should be performed under the supervision of an appropriate healthcare professional.

Controls for Television and Lighting (Optional Feature)

Button controls for television and lighting are located on the head end side rails. The side rails also contain loudspeakers for television sound.

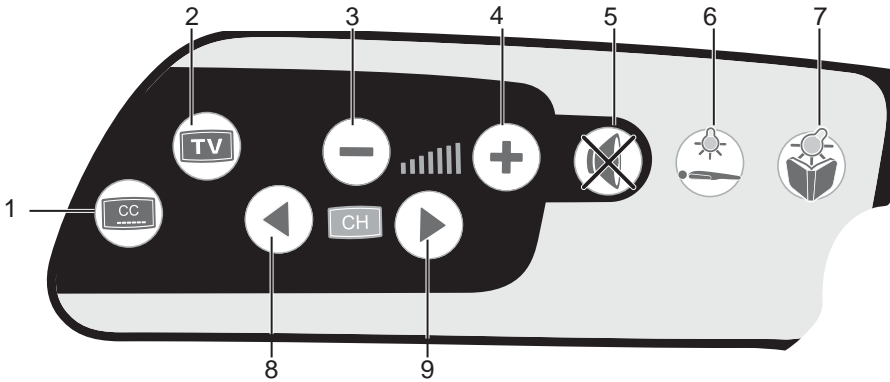


Figure 33: TV and lighting controls (patient's left hand side)

1. Closed Captioning on / off
2. Television on / off
3. Decrease volume
4. Increase volume
5. Sound on / off (mute)
6. Main room lights on / off
7. Reading lamp on / off
8. Channel down
9. Channel up

The bed must be connected to a compatible Headwall system for the TV and lighting controls to operate. The bed's electronics will recognize the type of television in use and configure the controls automatically.

The controls have been designed to be compatible with the majority of TV sets found in hospitals. If you encounter any problems, please contact the Arjo Service Department.

PATIENT PLACEMENT

It is recommended that all chapters of this manual be reviewed prior to product use. Carefully read the **Contraindications, Risks and Precautions**, and **Safety Information** sections in the **Introduction** chapter of this manual prior to placing a patient on the *Citadel* Bed Frame System.

Power On

1. Plug the power cord into a wall outlet. Verify that the electrical outlet can be easily accessed when disconnecting device from wall outlet.



Do not use wall outlet controlled by a wall switch.

Arjo recommends keeping the frame plugged into a wall outlet when possible.

Preparation for Patient Placement

1. If applicable, connect nurse call system to connectors provided at the head end of the bed.
2. Apply the brakes to all four casters.
3. Make sure patient surface is level.
4. Adjust the bed to a comfortable working height.
5. Configure unit as required (add the pressure redistribution surface of choice, pillows, blankets, lines, IV poles, other equipment, accessories, etc., as necessary).
6. Press the Zero Button to reset the weighing scale to zero.



Scales / patient weights are for reference only. Scale readings should not be relied upon for medication dosage. All equipment on the weighed portion of the unit is included in weight displayed.

7. Adjust the height of the patient surface to the same level as the surface from which the patient is being transferred.
8. Make sure caster brakes on both units are locked.
9. Lower side rails.
10. Transfer patient following all applicable safety rules, institution protocols and patient placement instructions for the pressure redistribution surface used with the *Citadel* Bed Frame System.
11. Raise and lock side rails on both sides of unit.

Completion of Patient Placement

1. Press the In Bed or Egress buttons to activate and set the desired sensitivity of the *VariZone* patient movement detection system. Adjust patient surface for patient comfort.
2. Bring the bed to the lowest practical height for patient comfort.
3. Make sure caster brakes are locked.
4. Lock-out bed functions as required.

NURSING CARE

It is recommended that all chapters of this manual be reviewed prior to product use. Carefully read the **Contraindications, Risks and Precautions** and **Safety Information** sections of the **Introduction** chapter of this manual prior to performing nursing care for a patient on the *Citadel* Bed Frame System.

CPR

The following steps indicate how to place the bed into the CPR position.



1. **Press and hold the CPR button.** This will immediately flatten the head and knee sections and return the frame to level from the Trendelenburg or reverse Trendelenburg positions. If the bed is set to a height > 480mm (19 in), then activating the CPR function will also lower the bed to 480mm (19 in). The CPR buttons will flash on all control panels and an audible tone will sound. If installed, the *Citadel* Patient Therapy System will deflate the mattress and turn off.
2. Lower side rails.
3. Remove headboard, if necessary.
4. Depending on the patient support surface in use, a crashboard may be needed.
5. Begin CPR. Follow institution CPR guidelines.
6. Reinstall headboard, if necessary.
7. Raise and lock side rails.
8. If applicable, resume therapy as directed by physician.
9. Adjust patient surface for patient comfort.

In a fault or power loss condition where the CPR button is not responding, use the CPR backrest release to position the patient for CPR. If installed, the *Citadel* Patient Therapy System will deflate the mattress and turn off.

CPR Backrest Release



The backrest can fall quickly; keep hands clear to avoid injury.

The CPR backrest release should only be used in an emergency; repeated everyday use can cause permanent wear.

CPR backrest release handles are located below the calf section on either side of the bed.

If the patient suffers a cardiac arrest, pull the CPR backrest release handle. This will lower the backrest to enable cardiopulmonary resuscitation to be performed.

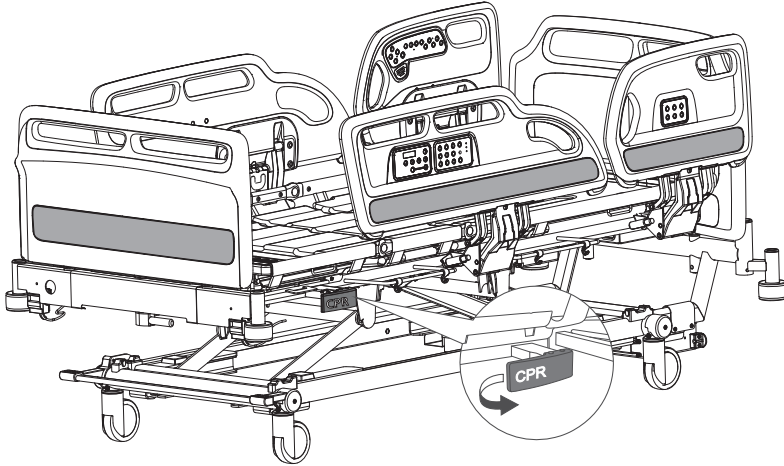


Figure 34: CPR backrest release

Patient Bathing

1. Adjust height and level patient surface to facilitate ease of bathing.
2. Lower side rails (on caregiver's side).
3. Bathe patient following institution protocols. Avoid spilling fluids on frame controls.



Fluids remaining on controls can cause corrosion, which may cause components to fail or operate erratically, possibly producing potential hazards for patient and staff.

4. Raise and lock side rails.
5. Adjust patient surface for patient comfort.

Patient Transfer from the *Citadel* Bed Frame System

1. Level patient surface.
2. Adjust height of patient surface to same level as surface to which patient is being transferred.
3. Make sure caster brakes on both units are locked.
4. Lower side rails.
5. Transfer patient, following all applicable safety rules and institution protocols.

Patient Transport

1. If necessary, place patient's IV therapy onto IV poles that may be placed into sockets located on all four corners of the frame.
2. Verify side rails are raised and locked.
3. Unplug the power cord from the wall outlet and wrap the cord on to the plastic hook on the headboard.
4. Unlock brakes.
5. Transport patient following all applicable safety rules and institution protocols.
6. Firm mattress and Transport mode can be used as assisting functions during patient transport if using the *Citadel* Patient Therapy System.
7. Plug power cord into wall outlet immediately following completion of patient transport.



To make sure the battery is kept fully charged and prevent damage to the battery, the bed should be connected to the electricity supply at all times during normal use.

CARE AND CLEANING



Disconnect the bed from the electricity supply before starting any cleaning or maintenance activity. The bed will still operate on battery power if the function has not been locked on the ACP.

Deck Sections

The four deck sections (backrest, seat, thigh and calf) can be removed by pulling them upwards off the deck frame.

Lift off the calf extension sheet (1) before removing the calf section (2).

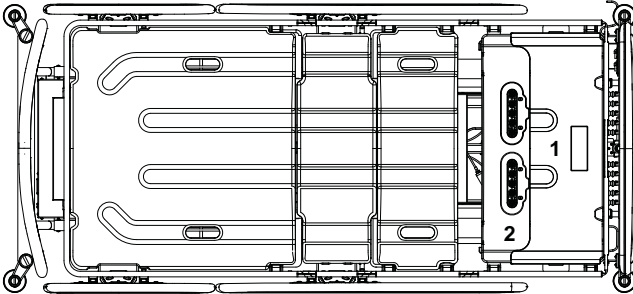


Figure 35: Deck sections (top view)

To replace each section, make sure it is correctly positioned on the deck frame then press down firmly until it snaps into place.

Replace the calf extension sheet (1) by clipping it over the end of the deck frame.

Decontamination



Do not allow the mains plug or power cord to get wet.

Do not use abrasive compounds or pads, or phenol-based disinfectants.

Do not use jet stream cleaning or wash tunnels.

Do not remove grease from the actuator pistons.

Do not allow the accessory outlet to get wet.

Do not allow the CPR valves to get wet.



These instructions also apply to accessories but not to mattresses.

For lifting straps and handles, refer to the manufacturer's instructions supplied with the product.

The bed should be cleaned and disinfected weekly, and before a new patient is placed on the bed.

Cleaning

1. Remove the mattress and all accessories from the bed.
2. The head and foot boards and mattress platform sheets should be removed from the bed for cleaning.
3. Wearing suitable protective clothing, clean all surfaces with a disposable cloth moistened in hand hot water and a neutral detergent.
4. Start by cleaning the upper sections of the bed and work along all horizontal surfaces. Work methodically towards the lower sections of the bed and clean the wheels last. Take care to clean areas that may trap dust or dirt.
5. Wipe over with a new disposable cloth moistened with clean water and dry with disposable paper towels.
6. Allow the cleaned parts to dry before replacing the mattress.

Disinfecting

1. After cleaning the bed as described above, wipe all surfaces with sodium dichloroisocyanurate (NaDCC) at a concentration of 1,000 parts per million (0.1%) of available chlorine.
2. In case of pooling body fluids, e.g. blood, the concentration of NaDCC should be increased to 10,000 parts per million (1%) of available chlorine.
3. Wipe over with a new disposable cloth moistened with clean water and dry with disposable paper towels.



Iodophor type disinfectants (e.g. Betadine, etc.) are not recommended and will stain fabric.

General Recommendations

The following are the Arjo recommended cleaning and infection control procedures for the *Citadel* Bed Frame System while it is in use.

It is recommended that all sections of this guide be reviewed prior to product use. Carefully read the **Risks and Precautions** and **Safety Information** sections in the **Introduction** chapter prior to performing cleaning procedures on the *Citadel* Bed Frame System.



To prevent cross contamination or equipment damage, Arjo recommends that the Citadel be cleaned during use and between patients according to the instructions below. Local protocols and regulations / procedures for blood borne pathogens may be used provided the manufacturer's instructions are followed.



Always disconnect the Citadel Bed Frame System from mains wall outlet before cleaning. Failure to do so could result in equipment damage and / or electric shock.

Cleaning the *Citadel* Bed Frame System While in Use



Do not allow fluid to penetrate the Citadel Bed Frame System control panels.

1. If possible, remove the patient from the bed prior to cleaning. Daily care and cleaning consists of wiping down all surfaces and side rails (as needed) during patient bathing.
2. Follow care and cleaning instructions for the specific patient support surface in use.
3. Unplug the *Citadel* Bed Frame System from wall outlet.
4. Inspect the power cord for any signs of wear or damage. The *Citadel* Bed Frame System should not be operated with a worn or damaged power cable. Contact Arjo if damage is found.
5. Using a cloth dipped in warm soapy water or approved hospital disinfectant (diluted according to manufacturer's instructions), wipe the surfaces of the *Citadel* Bed Frame System. Rinse with plain water and allow to dry completely.
6. Allow all components to dry completely before returning to use.
7. Inspect all parts of the *Citadel* Bed Frame System for damage prior to returning them to use. Contact Arjo as required for service or replacement.
8. Plug in bed to wall outlet and adjust settings.

Cleaning the *Citadel* Bed Frame Between Patients

The bed should be cleaned and disinfected weekly and before a new patient uses the bed.



Disconnect the bed from the mains power supply before performing cleaning procedures.

Do not allow the mains plug or power supply cord to get wet when cleaning the bed.

Cleaning

1. Remove the mattress and all accessories from the bed.
2. The head and foot boards and mattress platform sheets should be removed from the bed for cleaning.
3. Wearing suitable protective clothing, clean all surfaces with a disposable cloth moistened in hand hot water and a neutral detergent.
4. Start by cleaning the upper sections of the bed and work along all horizontal surfaces. Work methodically towards the lower sections of the bed and clean the wheels last. Take extra care to clean areas that may trap dust or dirt.
5. Wipe over with a new disposable cloth moistened with clean water and dry with disposable paper towels.
6. Allow the cleaned parts to dry before replacing the mattress.

Disinfecting

1. After cleaning the bed as described above, wipe all surfaces with sodium dichloroisocyanurate (NaDCC) at a concentration of 1,000 parts per million (0.1%) of available chlorine.
2. In case of pooling body fluids, e.g. blood, the concentration of NaDCC should be increased to 10,000 parts per million (1%) of available chlorine.
3. Wipe over with a new disposable cloth moistened with clean water and dry with disposable paper towels.



Iodophor type disinfectants (e.g. Betadine, etc.) are not recommended and will stain fabric.

Do not use abrasive compounds or pads or phenol-based disinfectant solutions.

Do not use jet stream cleaning or wash tunnels. Take care not to remove grease from the actuator pistons.

PREVENTIVE MAINTENANCE

This product is subject to wear and tear during use. To make sure that it continues to perform within its original specification, preventive maintenance procedures should be carried out at the intervals shown.



This list indicates the minimum recommended level of preventive maintenance. More frequent inspections should be carried out when the product is subjected to heavy use, aggressive environments or where required by local regulations.

Failure to carry out these checks, or continuing to use the product if a fault is found, may compromise the safety of both the patient and caregiver. Preventive maintenance can help to prevent accidents.

Actions to be completed by caregiver	Daily	Weekly
Check operation of side rails	X	
Visually check casters		X
Check operation of the CPR backrest release handles on both sides of the bed		X
Visually check power supply cord and mains plug		X
Carry out a full test of all electrical bed positioning functions (backrest, height, tilt, etc.)		X
Check that the patient controls, caregiver controls and Attendant Control Panels operate correctly		X
Check that the weighing system controls operate correctly		X
Check operation of the anti-entrapment system and clean the sensor lenses (see page 45)		X
Check the mattress for damage and fluid ingress		X
Examine the lifting pole, strap and handle	X	

If the result of any of these tests is unsatisfactory, contact Arjo or an Arjo-approved service agent.



The procedures in the following table must be carried out by suitably trained and qualified personnel. Failure to do so may result in injury or an unsafe product.

Actions to be completed by qualified personnel	Yearly
Check that the bed operates correctly using the backup battery as described in the Battery test section below	X
Check operation of the casters, paying special attention to braking and steering functions	X
Check that the bed extension locks securely in both non-transport positions	X
Examine the power cord and mains plug; if damaged, replace the complete assembly; do not use a rewirable plug	X
Examine all accessible flexible cables for damage and deterioration	X
Check all accessible nuts, bolts and other fasteners to ensure they are present and correctly tightened	X
Check any accessories fitted to the bed, paying particular attention to fasteners and moving parts	X

Weighing System

The weigh system should be re-verified before the date of expiry shown on the bed. Make sure the bed is re-verified every 12 months. If verification does not pass, the weigh system should be re-calibrated. Refer to the product service manual for verification and calibration procedures or contact an Arjo-approved service agent.

Battery Test

Check the condition of the backup battery by carrying out the following test.

1. Disconnect the bed from the electricity supply.
2. Raise the deck to maximum height - ignore the battery warning tone.
3. Raise the backrest and thigh sections to highest position.
4. Press and hold the CPR button. The deck will flatten and lower to a mid-height position.
5. Lower the deck to minimum height.
6. Apply maximum head down tilt (Trendelenburg).
7. Return the deck to the level position; then apply maximum foot down tilt (reverse Trendelenburg).

If this test is not completed successfully, connect the bed to the electricity supply for at least eight hours to recharge the battery then perform the test again. If the bed fails a second time, contact Arjo or an Arjo-approved service agent.

To maintain best performance, the backup battery should be replaced every four years by an Arjo-approved service agent.

TROUBLESHOOTING

If the equipment fails to operate correctly, the table below suggests some simple checks and corrective actions. If these steps fail to resolve the problem, contact Arjo or an Arjo-approved service agent.

Symptom	Possible Cause	Action
Audible tone when using the bed	Bed is operating from the backup battery	Check that the power supply cord is plugged in and the electricity supply is functioning correctly Check fuse in mains plug (where fitted)
One or more bed functions inoperative	Function(s) locked on ACP	Unlock function(s) on ACP
Bed is difficult to maneuver	Brake pedal in steer position	Place brake pedals in the free position
All indicator LEDs on ACP lit or flashing	Duty cycle of electrical system exceeded	Refer to the section Over-Use Lockout on page 33
Deck cannot be lowered	Height control software error	Raise the deck to maximum height to reset software
Error code E300 is displayed	Control button depressed for more than 90 seconds	Remove pressure from control buttons. If error code does not clear call an Arjo-approved service agent
Deck cannot be lowered and error code AES is displayed	Anti-Entrapment system activated	Remove obstruction(s) from below the deck. If bed still cannot be lowered, call an Arjo-approved service agent
Error code E410	Service Error	Call an Arjo-approved service agent
Alarm sounds when patient moves on the bed	Movement detection threshold set too low	Increase <i>VariZone</i> patient movement detection threshold setting
Errors in indicated patient weight	Deck obstructed	Check to ensure the deck is not touching furniture, curtains, cables, etc. Check to ensure that weight has not been added to the bed without using the auto compensation function. Raise the bed from its lowest position.
Nurse call function not working	Nurse call cable not connected or wrong type	Check to ensure cable is of correct type and properly connected
Backrest does not lower using the manual CPR backrest release handle	Mis-adjustment of the CPR backrest release cable.	Pull CPR release handle and push the backrest down to initiate lowering

Symptom	Possible Cause	Action
Weighing system display shows unknown value	System fault or operator error	Refer to the table of error codes on page 42
TV / lighting controls not working	Nurse call cable not connected or wrong type	Check to ensure cable is of correct type and properly connected

Error Codes

Display	Error Name	Description	Action
E001	Zeroing the bed on battery	Zero on battery power	Connect bed to mains supply and re-initialize the weighing system
E002	Unsteady weight	Error when auto compensation weight is lower than minus 100 kg (220 lb)	The E002 error will be cleared by adding weight until the auto compensation is above -100 kg and then pressing the auto-comp key (H1) again, or when weight is removed and weighing zeroed.
E003	Error when auto compensation weight is higher than minus 100 kg (220 lb)	The auto compensation weight of 100 kg (220 lb) change has been exceeded and the auto compensation will not be completed	Error will be cleared by removing weight until the auto compensation is below 100 kg (220 lb)
E102	Weigh time-out (10 seconds)	During a weight command, the weight was not stable and changing too much	The bed was touched or leaned on, repeat with no one touching the bed
E300	Button stuck error	Control button depressed for more than 90 seconds	Remove pressure from control buttons
E410	General Error	Service error which requires technical investigation	

Fault Indications

The bed's control software indicates problems in the electrical system by means of flashing indicators on the Attendant Control Panel (ACP). If you experience any of the indications below, contact Arjo or an Arjo-approved service agent.

Indication	Possible cause
ACP deck height and head down tilt indicator LEDs flashing	Height actuator fault (head end)
ACP deck height and foot down tilt indicator LEDs flashing	Height actuator fault (foot end)
ACP backrest indicator LED flashing	Backrest actuator fault
ACP thigh section indicator LED flashing	Thigh section actuator fault
ACP calf section indicator LED flashing	Calf section actuator fault
Deck height, head down tilt, backrest and thigh section indicator LEDs flashing	Control unit fault

Product Lifetime

The lifetime of this equipment is typically ten (10) years. Lifetime is defined as the period during which the product will maintain the specified performance and safety, provided it has been maintained and operated in conditions of normal use in accordance with the requirements in these Instructions for Use

Accessories

Recommended accessories for the *Citadel* range are shown in the table below. Note that some items may not be available in all countries.

Accessory	Product code
Lifting pole with strap and handle	ENT-ACC01
IV pole	ENT-ACC02
Angled IV pole	ENT-ACC04
Fracture frame	ENT-ACC05
Syringe pump holder	ENT-ACC07
Oxygen bottle holder (PD cylinder)	ENT-ACC08
Small traction assembly	ENT-ACC10
Additional 2 hooks for IV pole	ENT-ACC14
Oxygen bottle holder (B5 cylinder)	ENT-ACC18
Urine bottle holder	ENT-ACC19
Heavy duty IV pole	ENT-ACC24
Transducer mounting pole	ENT-ACC26
Head end traction assembly	ENT-ACC32
Head end ITU panel	ENT-ACC34
Oxygen Cylinder Holder	ENT-ACC58
IV Fluid Bag Holder	ENT-ACC65
Monitor shelf	ENT-ACC74
Mattress storage bag	ENT-ACC80
Hanger bracket	ENT-ACC81

ELECTROMAGNETIC COMPABILITY (EMC)

Product has been tested for compliance with current regulatory standards regarding its capacity to block EMI (electromagnetic interference) from external sources.

Some procedures can help reduce electromagnetic interferences:

- Use only Arjo cables and spare parts to avoid increased emissions or decreased immunity which can compromise the correct functioning of the equipment.
- Ensure that other devices in patient-monitoring and/or life-support areas comply to accepted emissions standards.



Wireless communications equipment such as wireless computer network devices, mobile phones, cordless telephones and their base stations, walkie-talkies, etc. can affect this equipment and should be kept at least 1.5 m away from the equipment.


Intended Environment: Professional Healthcare Facility Environment.


Exceptions: HF Surgical Equipment and the RF Shielded room of an ME SYSTEM for magnetic resonance imaging.



Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

Guidance and manufacturer's declaration – electromagnetic emission		
Emission test	Compliance	Guidance
RF emissions CISPR 11	Group 1	This equipment uses RF energy only for its internal functions. Therefore its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	This equipment is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.

Guidance and manufacturer's declaration – electromagnetic immunity			
Immunity test	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±2kV, ±4kV, ±8kV, ±15kV air ±8kV contact	±2kV, ±4kV, ±8kV, ±15kV air ±8kV contact	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material the relative humidity level should be at least 30%
Conducted disturbances induced by RF fields EN 61000-4-6	3V in 0,15 MHz to 80 MHz 6V in ISM and amateur radio bands between 0,15 MHz and 80 MHz 80% AM at 1 kHz	3V in 0,15 MHz to 80 MHz 6V in ISM and amateur radio bands between 0,15 MHz and 80 MHz 80% AM at 1 kHz	Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than 1.0m, if the transmitter's output power rating exceeds 1W ^a . Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range ^b . Interference may occur in the vicinity of equipment marked with this symbol: 
Radiated RF electromagnetic field EN 61000-4-3	Professional Healthcare environment 3 V/m 80 MHz to 2,7 GHz 80% AM at 1 kHz	Professional Healthcare environment 3 V/m 80 MHz to 2,7 GHz 80% AM at 1 kHz	
Proximity fields from RF wireless communications equipment EN 61000-4-3	385 MHz - 27 V/m 450 MHz - 28 V/m 710, 745, 780 MHz - 9V/m 810, 870, 930 MHz - 28 V/m 1720, 1845, 1970, 2450 MHz - 28 V/m 5240,5500, 5785 MHz - 9V/m	385 MHz - 27 V/m 450 MHz - 28 V/m 710, 745, 780 MHz - 9V/m 810, 870, 930 MHz - 28 V/m 1720, 1845, 1970, 2450 MHz - 28 V/m 5240,5500, 5785 MHz - 9V/m	
Electrical fast transient/burst EN 61000-4-4	±1kV SIP/SOP ports ±2kV AC port 100kHz repetition frequency	±1kV SIP/SOP ports ±2kV AC port 100kHz repetition frequency	Mains power supply should be that of a typical commercial or hospital environment.
Power frequency Magnetic field EN 61000-4-8	30A/m 50 Hz or 60 Hz	30A/m 50 Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Guidance and manufacturer's declaration – electromagnetic immunity			
Immunity test	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±2kV, ±4kV, ±8kV, ±15kV air ±8kV contact	±2kV, ±4kV, ±8kV, ±15kV air ±8kV contact	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material the relative humidity level should be at least 30%
Surge IEC 61000-4-5	±0,5kV ±1kV; ±2 kV, AC Mains, Line to Ground ±0,5kV ±1kV, AC Mains, Line to Line	±0,5kV ±1kV; ±2 kV, AC Mains, Line to Ground ±0,5kV ±1kV, AC Mains, Line to Line	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% UT; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% UT; 1 cycle and 70% UT; 25/30 cycles Single phase: at 0° 0% UT; 250/300 cycle	0% UT; 0,5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% UT; 1 cycle and 70% UT; 25/30 cycles Single phase: at 0° 0% UT; 250/300 cycle	
 U_T is the a.c. mains voltage prior to the application of the test level			
<p>^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 product is used exceeds the applicable RF compliance level above, the product should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary.</p> <p>^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 1 V/m.</p>			

WARRANTY AND SERVICE


Arjo standard terms and conditions apply to all sales; a copy is available on request. The standard terms and conditions contain full details of warranty terms and do not limit the statutory rights of the consumer.

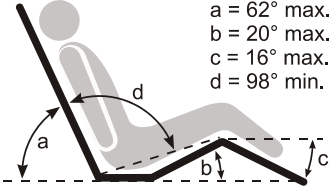
For service, maintenance and any questions regarding this product, please contact your local Arjo office or Arjo-approved distributor. A list of Arjo offices can be found at the back of this manual in the **Questions and Information** section.

Have the model number and serial number of the equipment available when contacting Arjo regarding service, spare parts or accessories.

SPECIFICATIONS

Specifications subject to change without notice.

General	
Safe working load	270 kg (595 lb)
Maximum patient weight	227 kg (500 lb)
Product weight (approx.)	200 kg (441 lb)
Audible noise	<35dB approx.
Operating conditions	
Temperature	14°C to 35°C (58°F to 95°F)
Relative humidity	20% to 80% noncondensing
Altitude	Up to 2000 m (6,562 ft)
Electrical data	
Power input	9.5A max at 115 VAC 60Hz 4.5A max at 230 VAC 50Hz 4.5A max at 230 VAC 60Hz (Kingdom of Saudi Arabia)
Duty cycle	10% (2 min. on, 18 min. off)
Safety standards USA / Canada 	ANSI/AAMI ES60601-1 (2005) AMD 1 (2012) CAN/CSA-C22.2 No. 60601-1:14 IEC60601-2-52:2015
Other Safety standards	IEC 60601-1:2005 & IEC 60601-2-52:2015
Electric shock protection	Class I Type B Applied Part
EMC	Complies with IEC 60601-1-2:2014
Potential equalization terminal	Complies with EN 60601-1:1990 and 2006
Liquid ingress protection	IPX4
Backup battery	2 x 12V series connected, sealed, rechargeable lead/acid gel, 5Ah
Patient weighing system	
Minimum verification interval (scale division)	500 g or 1 lb
Minimum capacity	10 kg (22 lb)
Maximum capacity	270 kg (595 lb)

Dimensions (subject to normal manufacturing tolerances)	
Overall length	
Position 2 (Standard)	230 cm (90.6 in)
Position 3 (Extended)	242 cm (95.3 in)
In-bed length	
Position 2 (Standard)	202 cm (80 in)
Position 3 (Extended)	214 cm (84 in)
Overall width	103 cm (40.6 in)
Height of mattress platform (measurement taken from centre and edge of seat section to floor)	
With 125 mm (5 in) castors	34 cm to 78 cm (13.3 to 30.7 in) Flat Deck Sheets
With 150 mm (6 in) castors	36 cm to 80 cm (14.1 to 31.5 in) Flat Deck Sheets
Head down tilt angle	12° min.
Foot down tilt angle	12° min.
Mattress size (refer to the section Mattresses on page 22)	
Position 2 (Standard)	202 cm x 88 cm, 15 to 20.5 cm thick (80 in x 35 in, 6 to 8 in thick)
Deck angles	 <p> a = 62° max. b = 20° max. c = 16° max. d = 98° min. </p>
End of Life Disposal	
<ul style="list-style-type: none"> Equipment that has electrical and electronic components should be disassembled and recycled per Waste of Electrical and Electronic Equipment (WEEE) or in accordance with local or national regulation. All batteries in the product must be recycled separately. Batteries are to be disposed in accordance with national or local regulations. Components that are primarily made up of different kinds of metal (containing more than 90% metal by weight) for example bed frame, should be recycled as metals. 	
Transport and storage	
Handle with care. Do not drop. Avoid shock or violent impact. Do not stack or store product close to other equipment. This equipment should be stored in a clean, dry and well-ventilated area which meets the following conditions:	
Temperature	-15°C to 60°C (4°F to 140°F)
Relative humidity	non-condensing
If the bed is stored for a long time, it should be connected to the electricity supply for 24 hours every three months to recharge the backup battery, otherwise it may become unserviceable.	

EXPLANATION OF SYMBOLS USED



Certified to UL Std. 60601-1



Temperature Low and High Limits



No Hooks

IPX4

Protected against ingress of liquids



Important Operational Information



Auxiliary Power Outlet



Warning of possible hazard to system, patient or staff



Refer to Instructions for Use



CE marking indicating conformity with European Community harmonised legislation. Figures indicate Notified Body supervision.



Serial Number



Indicates the product is a Medical Device according to EU Medical Device Regulation 2017/745



This product or its parts are designated for separate collection at an appropriate collection point. At the end of useful life, dispose of all waste according to local requirements, or contact your local Arjo representative for advice.



Consult Instructions for Use



Alternating Current



Type B Applied Part



Shock Hazard



Manufacturer



Date of Manufacture



Reference Number



Non-ionizing Radiation



Tripping Hazard



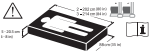
Do Not Shower



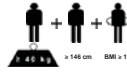
Protective earth (ground)

CPR

Cardiopulmonary Resuscitation



Recommended Mattress Size



Recommended patient size



Torque



Product Weight



Safe Working Load



Maximum Patient Weight

Intentionally left blank

Intentionally left blank

Intentionally left blank

AUSTRALIA

Arjo Australia Pty Ltd
78, Forsyth Street
O'Connor
AU-6163 Western Australia
Tel: +61 89337 4111
Free: +1 800 072 040
Fax: + 61 89337 9077

BELGIQUE / BELGIË

Arjo NV/SA
Evenbroekveld 16
BE-9420 ERPE-MERE
Tél/Tel: +32 (0) 53 60 73 80
Fax: +32 (0) 53 60 73 81
E-mail: info.belgium@arjo.be

BRASIL

Arjo Brasil Equipamentos Médicos Ltda
Rua Marina Ciufuli Zanfelice, 329 PB02
Galpão - Lapa
São Paulo – SP – Brasil
CEP: 05040-000
Phone: 55-11-3588-5088
E-mail: vendas.latam@arjo.com
E-mail: servicios.latam@arjo.com

CANADA

Arjo Canada Inc.
90 Matheson Boulevard West
Suite 300
CA-MISSISSAUGA, ON, L5R 3R3
Tel/Tél: +1 905 238 7880
Free: +1 800 665 4831 Institutional
Free: +1 800 868 0441 Home Care
Fax: +1 905 238 7881
E-mail: info.canada@arjo.com

ČESKÁ REPUBLIKA

Arjo Czech Republic s.r.o.
Na Strži 1702/65
140 00 Praha
Czech Republic
Phone No: +420225092307
e-mail: info.cz@arjo.com

DANMARK

Arjo A/S
Vassingerødvej 52
DK-3540 LYNGE
Tel: +45 49 13 84 86
Fax: +45 49 13 84 87
E-mail:
dk_kundeservice@arjo.com

DEUTSCHLAND

Arjo GmbH
Peter-Sander-Strasse 10
DE-55252 MAINZ-KASTEL
Tel: +49 (0) 6134 186 0
Fax: +49 (0) 6134 186 160
E-mail: info-de@arjo.com

ESPAÑA

Arjo Ibérica S.L.
Parque Empresarial Rivas Futura, C/Marie
Curie 5
Edificio Alfa Planta 6 oficina 6.1-62
ES-28521 Rivas Vacia, MADRID
Tel: +34 93 583 11 20
Fax: +34 93 583 11 22
E-mail: info.es@arjo.com

FRANCE

Arjo SAS
2 Avenue Alcide de Gasperi
CS 70133
FR-59436 RONCQ CEDEX
Tél: +33 (0) 3 20 28 13 13
Fax: +33 (0) 3 20 28 13 14
E-mail: info.france@arjo.com

HONG KONG

Arjo Hong Kong Limited
Room 411-414, 4/F, Manhattan Centre,
8 Kwai Cheong Road, Kwai Chung, N.T.,
HONG KONG
Tel: +852 2960 7600
Fax: +852 2960 1711

ITALIA

Arjo Italia S.p.A.
Via Giacomo Peroni 400-402
IT-00131 ROMA
Tel: +39 (0) 6 87426211
Fax: +39 (0) 6 87426222
E-mail: Italy.promo@arjo.com

MIDDLE EAST

Arjo Middle East FZ-LLC
Office 908, 9th Floor,
HQ Building, North Tower,
Dubai Science Park,
Al Barsha South
P.O Box 11488, Dubai,
United Arab Emirates
Direct +971 487 48053
Fax +971 487 48072
Email: Info.ME@arjo.com

NEDERLAND

Arjo BV
Biezenwei 21
4004 MB TIEL
Postbus 6116
4000 HC TIEL
Tel: +31 (0) 344 64 08 00
Fax: +31 (0) 344 64 08 85
E-mail: info.nl@arjo.com

NEW ZEALAND

Arjo Ltd
34 Vestey Drive
Mount Wellington
NZ-AUCKLAND 1060
Tel: +64 (0) 9 573 5344
Free Call: 0800 000 151
Fax: +64 (0) 9 573 5384
E-mail: nz.info@Arjo.com

NORGE

Arjo Norway AS
Olaf Helset's vei 5
N-0694 OSLO
Tel: +47 22 08 00 50
Faks: +47 22 08 00 51
E-mail: no.kundeservice@arjo.com

ÖSTERREICH

Arjo GmbH
Lemböckgasse 49 / Stiege A / 4.OG
A-1230 Wien
Tel: +43 1 8 66 56
Fax: +43 1 866 56 7000

POLSKA

Arjo Polska Sp. z o.o.
ul. Ks Piotra Wawrzyniaka 2
PL-62-052 KOMORNIKI (Poznań)
Tel: +48 61 662 15 50
Fax: +48 61 662 15 90
E-mail: arjo@arjo.com

PORTUGAL

Arjo em Portugal
MAQUET Portugal, Lda.
(Distribuidor Exclusivo)
Rua Poeta Bocage n.º 2 - 2G
PT-1600-233 Lisboa
Tel: +351 214 189 815
Fax: +351 214 177 413
E-mail: Portugal@arjo.com

SUISSE / SCHWEIZ

Arjo AG
Fabrikstrasse 8
Postfach
CH-4614 HÄGENDORF
Tél/Tel: +41 (0) 61 337 97 77
Fax: +41 (0) 61 311 97 42

SUOMI

Arjo Scandinavia AB
Riihitontuntie 7 C
02200 Espoo
Finland
Puh: +358 9 6824 1260
E-mail: Asiakaspalvelu.finland@arjo.com

SVERIGE

Arjo International HQ
Hans Michelsensgatan 10
SE-211 20 MALMÖ
Tel: +46 (0) 10 494 7760
Fax: +46 (0) 10 494 7761
E-mail: kundservice@arjo.com

UNITED KINGDOM

Arjo UK and Ireland
Houghton Hall Park
Houghton Regis
UK-DUNSTABLE LU5 5XF
Tel: +44 (0) 1582 745 700
Fax: +44 (0) 1582 745 745
E-mail: sales.admin@arjo.com

USA

Arjo Inc.
2349 W Lake Street Suite 250
US-Addison, IL 60101
Tel: +1 630 307 2756
Free: +1 800 323 1245 Institutional
Free: +1 800 868 0441 Home Care
Fax: +1 630 307 6195
E-mail: us.info@arjo.com

JAPAN

Arjo Japan K.K.
東京都港区虎ノ門三丁目7番8号 ランディ
ック第2虎ノ門ビル9階
電話 : +81 (0)3-6435-6401

Address page - REV 24: 04/2019

At Arjo, we are committed to improving the everyday lives of people affected by reduced mobility and age-related health challenges. With products and solutions that ensure ergonomic patient handling, personal hygiene, disinfection, diagnostics, and the effective prevention of pressure ulcers and venous thromboembolism, we help professionals across care environments to continually raise the standard of safe and dignified care. Everything we do, we do with people in mind.



ArjoHuntleigh AB
Hans Michelsensgatan 10
211 20 Malmö, Sweden
www.arjo.com

arjo

CE
2797