Enterprise 8000+ & 9000+ Instructions for Use

ARJOHUNTLEIGH GETINGE GROUP



...with people in mind

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Warnings, Cautions and Notes

WARNINGS given in this manual identify possible hazards in procedures or conditions, which if not correctly followed, could result in death, injury or other serious adverse reactions.

Cautions given in this manual identify possible hazards in procedures or conditions, which if not correctly followed, could result in equipment damage or failure.

Notes given in this manual (indicated by \mathbb{R}) are used to explain or amplify a procedure or condition.

★ Items marked with this symbol refer to optional features that are not available on all beds.

General Warnings

WARNING

Do not use accessories that have not been designed or approved for use with this bed.

Electrical equipment can be hazardous if misused.

Do not use electrically powered beds in the presence of flammable gases such as anesthetic agents.

Do not use electrically powered beds in operating suites.

To disconnect the bed from the electrical supply for cleaning or maintenance, remove the power cord from the wall socket.

WARNING

ELECTROMAGNETIC COMPATIBILITY (EMC)

This product complies with the requirements of applicable EMC standards. However, medical electrical equipment requires special precautions regarding electromagnetic compatibility and should be installed and used in accordance with the EMC information in the product Service Manual.

Medical electrical equipment can be affected by portable and mobile RF communications equipment, e.g. cellular telephones.

1. Introduction

This manual contains instructions for the installation, use and maintenance of the ArjoHuntleigh *Enterprise*® range of acute care hospital beds. These beds have multiple functions to provide the optimum nursing position for both patient and caregiver.

The features available on the various models in the *Enterprise*® range are shown in the table:

	Model Number						
	8000+ Range 9000+ Range			nge			
	85	86	87	88	96	97	86
Feature	8500	8600	8700	8800	9600	700	9800
Infra red anti-entrapment system (AES)	✓	✓	✓	✓	✓	✓	\checkmark
Bed exit detection		✓	✓	✓			
VariZone patient movement detection					✓	✓	✓
Standard nurse call connection		\checkmark			✓		
Two-way nurse call connection			✓	✓		✓	✓
Integrated patient weighing scale					✓	✓	✓
Controls for lighting, radio and TV				✓			✓

All beds in the *Enterprise*® range have the following standard features:

- Electrical adjustment of bed height, thigh section angle and kneebreak angle
- Electrically operated retracting backrest
- Bio-Contour[®] advanced profiling system
- Electrical adjustment of head down tilt (Trendelenburg) and foot down tilt (reverse Trendelenburg)
- Fowler (chair) or Vascular position selectable by caregiver
- Mattress support surface with removable plastic panels
- Integrated mattress platform extension
- Pull-out linen shelf
- Drainage bag rails below mattress platform

2. Clinical applications

Areas of use	General medical and surgical floors, care of the elderly, ICU, coronary care and oncology.		
Indications	The bed is appropriate for patients who pose a movement and handling risk and / or whose clinical condition requires that they be positioned with minimal physical handling.		
	Patients with a moderate amount of independence can, at the caregiver's discretion, use the controls to adjust their own position.		
Contra- indications	The total safe working load of the bed is 550 lbs. (250 kg).		
	The bed is intended for use by patients over the age of twelve years.		

WARNING

The use of head down tilt (Trendelenburg) or foot down tilt (reverse Trendelenburg) may be contraindicated for certain medical conditions.

The tilt facility should only be used under the guidance of a clinically qualified person after assessment of the patient's condition.

3. Installation

- **All models** Position the bed on a flat, level surface and apply the brakes (refer to Chapter 4).
- 9000+ range Remove the four transport locking bolts (A) and washers (B); there are two bolts at the head end of the bed and two at the foot end.



Removing the transport locking bolts

Caution

To prevent damage to the weighing mechanism, replace the transport locking bolts and washers before transporting the bed by road. This is not necessary when moving the bed short distances over smooth surfaces. *All models* Connect the power cord to a suitable outlet socket.

The power cord is equipped with a plastic hook. When not in use or before moving the bed, clip the hook (C) onto the head end panel, coil up the cable and place it over the hook.



Cables and equipotential terminal



An equipotential terminal (D) is located at the head end of the bed, above the roller buffer on the patient's right side.

When other electrical equipment is within patient / user reach, the potential difference between this equipment can be equalized by interconnecting the equipotential terminals of each piece of equipment.

Nurse call connection *



Connect one end of the nurse call cable to the 37-pin socket (E), located below the head end of the bed on the patient's right.

Connect the other end of the nurse call cable (F) to the socket on the headwall panel. The type of connector will vary depending on the nurse call system.



Connecting the nurse call cable

WARNING

Make sure that the coiled power cord is not stretched excessively.

Do not allow the cables to trail on the floor where they may cause a trip hazard.

Make sure that the cables do not become entangled with the moving parts of the bed.

Before moving the bed, disconnect both cables and store the power cord as shown on the previous page.

Connection to a nurse call system★ must be made with the correct cable. Use of the wrong cable may cause malfunction of the bed and/or nurse call system.

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

Caution

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

4. Operation

Safety o	• Always use a mattress of the correct size and type. A range of suitable pressure redistributing mattresses is available from ArjoHuntleigh.
•	• To reduce the risk of injury due to falls, leave the bed at minimum height when the patient is unattended.
·	• Where risk assessment indicates that a patient is at high risk of entrapment owing to their medical condition or other circumstances, and where there is no medical benefit from their being left in a contoured position, place the mattress platform in the flat position when the patient is left unattended.
•	• Patients should not be left in the Trendelenburg position when unattended.
	• It is recommended to use the Function Lockout facility on the Attendant Control Panel (ACP) to prevent unintended movement.
•	• When the bed is operated, make sure that obstacles such as bedside furniture do not restrict its movement.
·	• Before operating the bed, make sure that the patient is positioned correctly to avoid potential entrapment or imbalance.
•	• Always apply the brakes when the bed is stationary.
•	• Keep these instructions in a safe place for reference.

WARNING

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

Brakes and steering

The pedals have three positions as shown below:

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



BRAKE



STEER

Using the
steeringPosition the bed so that all the castors line up in the direction of
travel. Raise the pedals to lock the steering castor and move the
bed by pushing it from the opposite end of the steering castor.



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

Head end Brake pedals can be fitted at the head end of the bed. These*brake pedals* operate in the same way as the foot end pedals.

Side rails

WARNING

Side rails must only be used with a mattress of the correct size and which is approved for use with the bed.

The maximum recommended mattress thickness for use with side rails is 7 ins. (180 mm).

The decision to use or not use side rails must be made by the clinician(s) overseeing the care of the individual patient, and within the framework of the individual patient assessment in ensuring a safe bed environment.

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

Ensure that the locking mechanism is securely engaged when the side rails are left in the raised position.

When choosing bed and mattress combinations, it is important to assess the use of side rails based on clinical assessment of each individual patient. Side rail safety should be implemented in compliance with federal, state and local regulations and in accordance with the healthcare facility's own policies and procedures.

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 up to 7 ins. (180 mm) thick.
- Powered air / foam replacement mattresses will typically envelop the patient when loaded and can generally be deeper than a foam mattress without compromising safety. All ArjoHuntleigh mattress replacements will maintain sufficient clearance between patients and side rail tops to preserve the function of the side rail. Other makes of mattress replacement systems must be assessed individually prior to use to verify sufficient clearance is maintained.
- When using a powered mattress overlay on top of a foam mattress, it may be necessary (based on risk assessment) to use a lower profile foam mattress to maintain a 7 ins. (180 mm) combination height.

Side rails -
operationTo lower the side:
Hold either side rail handle (G). Pull the release lever (H)
and lower the side rail. The side rail folds down below
the mattress platform.

To raise the side:

Hold either side rail handle (G). Pull the side rail up and away from the bed until it locks in the raised position.



Side rail operation – head end



Both the head end and foot end side rails operate in the same way.

Caution

Do not use the side rails to lift or move the bed.

Linen shelf The linen shelf is used for supporting clean linen when the bed sheets are being changed.

To prepare the linen shelf for use, pull it out from below the foot end panel (J).

After use, push the linen shelf back under the foot end panel until it latches in the closed position.



Linen shelf – extended

Caution

The linen shelf load should not exceed 44 lbs. (20 kg)



Make sure the bed is level before using the linen shelf.

Ŭ	To extend the mattress platform:
mattress platform	If the bed is tilted, use the bed controls to level the mattress platform - refer to Chapter 5, Power Operation.
	D -11 denote the extension (W) on the conductive of the constance

Pull down the catches (K) on the underside of the mattress platform and rotate them a quarter turn to unlock the extension.

Pull the extension out as far as it will go (L).

Rotate the catches (K) until they spring back up into the locked position.



Mattress platform - extended

To retract the mattress platform:

Pull down the catches (K) on the underside of the mattress platform and rotate them a quarter turn to unlock the extension.

Push the extension back in as far as it will go.

Rotate the catches (K) until they spring back up into the locked position.

WARNING

Always install a suitable mattress extension (squab) when the bed is extended.

EmergencyManual CPR release handles are situated on either side ofCPR functionthe bed, below the calf section.

To lower the backrest in an emergency, pull the CPR release handle (M).

Alternatively, press and hold the CPR button on the Attendant Control Panel - refer to Chapter 5, Power Operation.



The backrest will lower quicker when using the manual CPR release lever.



CPR emergency release handle

WARNING

The backrest can fall quickly. Keep hands and other objects clear to avoid trapping.

End panels -The end panels can be easily lifted off the bed for fast
access to the patient.

 \star One or both end panels may be held in place with spring catches. To remove this type of panel:

- 1. Foot end panel only: pull out the linen shelf to gain access to the catches (N).
- 2. Pull out the two catches and rotate them a quarter turn.
- 3. Lift the end panel away from the bed (O).



4. Return the linen shelf to the closed position.

End panel removal

To replace the end panels:

- 1. Replace the end panels on the bed.
- 2. Foot end panel only: pull out the linen shelf to gain access to the catches (N).
- 3. Rotate the catches until they spring back into the locked position.
- 4. Return the linen shelf to the closed position.

Lifting pole and accessory sockets

Two lifting pole sockets are located at the head end of the mattress platform (P). They can also be used for other approved accessories.

Two smaller accessory sockets (for monitor shelves, etc.) are provided at the foot end of the bed (Q).



Lifting pole/accessory sockets (head end)

Accessory sockets (foot end)

Angle
indicatorsThe backrest hinges and thigh section hinges are
equipped with angle markings. These provide an
approximate indication of backrest or thigh section
angle.



Backrest angle indicator



★ Bed section angles and tilt angle are also shown on the weighing system display – refer to Chapter 5.

Drainage bagDrainage bag rails are located on either side of the bed,
below the mattress platform.



Drainage bag rail

WARNING

Do not exceed the rail's safe working load of 11 lbs. (5kg) total weight.

Patient Patient restraints can be attached to either side of the mattress platform frame. Attachment points are provided restraints on the backrest, thigh and calf sections.



Patient restraint attachment points (circled)

Restraint straps should be attached as shown below to prevent them sliding along the mattress platform frame.

Backrest and calf section: feed the strap between the bracket (R) and the frame of the backrest or calf section.

Thigh section: feed the strap between the two thigh section cross-members.



calf section



Restraint strap – backrest and Restraint strap – thigh section

WARNING

Follow the instructions for use provided with the patient restraint device(s).

Patient restraints should be used in compliance with 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, e.g. end panels or side rails.

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

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

X-ray cassette	The X-ray cassette tray allows thoracic X-ray
tray ★	photography with the backrest at any angle and without
	the patient moving from the bed.

WARNING

Position the mattress platform at an ergonomic height to allow easy loading and removal of X-ray cassettes.

Return the X-ray cassette tray to its closed position below the backrest before raising or lowering the backrest.

Do not sit or place heavy objects on the X-ray cassette tray.

Ensure the X-ray cassette tray is held securely in place by the catch at all times.

Operation

Apply the brakes. Remove the head end panel from the bed.

Pull the knob (S) to release the catch and slide the tray out (T) as far as will go.



X-ray cassette tray operation

Release the knob to hold the tray in the fully open position (U). Position the X-ray cassette (V) on the tray with its bottom edge against the lip at the foot end of the tray.



Positioning the X-ray cassette

Pull the knob and slide the tray underneath the backrest. Release the knob to hold the tray in one of the five latching positions.

The bottom edge of the X-ray cassette at each latching position is indicated by labels below the backrest; use these to determine which position provides best coverage of the area to be X-rayed.



Position indicator label (patient's right hand side)

After use, pull the tray out to the fully open position and remove the X-ray cassette. Return the tray to the closed position below the backrest and replace the head end panel.

Anti-entrapment system

Overview On the base of the bed, an infra red transmitter/receiver is located above each castor (W). These generate an invisible beam around the perimeter of the bed that forms the basis of the anti-entrapment system.



Anti-entrapment beam

Operation



The anti-entrapment indicator on the Attendant Control Panel (see Chapter 5) is normally lit green. If the antientrapment beam is interrupted, the indicator changes to red and downward movement of the mattress platform is prevented until the obstruction is removed.

If the anti-entrapment indicator is lit red when no obstruction is present, this may indicate a fault. Contact the ArjoHuntleigh Service Department.



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

WARNING

Clean the lenses of the infra red receiver/transmitter units regularly using a soft dry cloth.

5. Power operation

Patient controls

The Patient controls are located on the inside panel of both head end side rails. They operate bed functions as shown below.



Patient controls (patient's right hand side)

Caregiver controls

The Caregiver controls are located on the outside panel of both head end side rails. They operate bed functions as shown below.



Caregiver controls (patient's right hand side)

- 1 Bio-Contour® (simultaneously adjusts the backrest and thigh section angles)
- (2) Backrest Angle
- Nurse Call ★
- 4) Direction Up/Down
- 5 Mattress Platform Height

Separate patient handset *

For patients who have difficulty in using the side rail controls, an optional separate handset is available. The controls on this handset operate in the same way as those on the side rails.

WARNING

When not in use the handset must be stored on the side rail, using the clip on the back. This will help to prevent accidental operation of the controls.



Attendant Control Panel (ACP)

Attendant Control Panels are located on the outside panel of the foot end side rails.

The Attendant Control Panel operates bed functions as shown below.



Attendant Control (patient's right hand

- Power on indicator. Lit green when the bed is connected to the (1)electrical supply.
- Battery indicator. Refer to Battery operation later in this (2)chapter.
- Anti-entrapment indicator. Refer to Anti-entrapment system in (3) Chapter 4.
- $(\mathbf{4})$ Emergency CPR
- $(\mathbf{5})$ Underbed Lights
- $(\mathbf{6})$ Fowler / Vascular Mode Selection
- (7)Direction Up/Down
- (8) Mattress Platform Height
- (9)Backrest Angle
- (10)Kneebreak Angle
- (11)Tilt
- (12)Thigh Section Angle
- (13)**Function Lockout**

Adjusting the mattress platform

The control keys are backlit to assist operation in darkened rooms.

Press the appropriate key to select the function required; the indicator above the key will light green.

Mattress platform height Backrest angle Thigh section angle Kneebreak angle Bio-Contour[®]



Only functions that are not disabled can be selected – refer to the section Function Lockout.



Press and hold either Direction key until the required position is achieved. Movement will continue until the Direction key is released or the limit of travel is reached.



If neither Direction key is pressed within ten seconds of pressing a function key, the indicator above the function key will go out and the function must be selected again.



If a warning tone (beep) sounds when pressing either Direction key, this indicates that the bed is operating on the backup *battery* – *refer to the section* **Battery operation**.

Head down tilt (Trendelenburg) and foot down tilt (reverse Trendelenburg) can be applied using the Attendant Control Panel.



Tilt

Press the Tilt Function key. The indicator above it will light green.

Press and hold either Direction key until the required tilt angle is achieved. The mattress platform will continue to move until the Direction key is released or the limit of travel is reached.



When returning from a tilted position, the mattress platform will pause at the horizontal position before continuing.

Extra-low
heightWhen the mattress platform is at low height, the bed can
be lowered by a further 3 ins. (8cm) as follows:



Press and hold the Mattress Platform Height key; at the same time, press and hold the Direction Down key. Hold down both keys until the mattress platform stops moving.

Caution

At extra-low height, clearance below the bed is reduced. Take care when using patient lifts or similar equipment with the bed in this position.

Bed angle indication ★ (9000+ range)

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



Angles are shown relative to the ground, so the displayed values of backrest, thigh or kneebreak angle change when the bed is tilted.



The tilt angle is shown as a positive value when the bed is in foot down tilt and negative when in head down tilt.

Nurse call *



Ensure that the bed is connected to the hospital nurse call system – refer to Chapter 3.



Press the Nurse Call key to request assistance. The indicator above the key will light to confirm operation.

At the nurse's station, the call location will be displayed and an audible alert will sound.

Models 8700,
8800, 9700 &
9800 onlyAfter the call is acknowledged, the indicator below the
Nurse Call key will light to reassure the patient that their
request has been received.When the indicator below the Nurse Call key is lit, a

When the indicator below the Nurse Call key is lit, a microphone/loudspeaker in each head end side rail allows voice communication between the patient and caregiver.

All modelsTo cancel nurse call:Reset procedures vary from one nurse call system to
another. Refer to the manufacturer's instructions for use.

WARNING

The nurse call function should be checked periodically for correct operation; as a minimum, ArjoHuntleigh recommends that this should be done before each new patient uses the bed and whenever the nurse call cable has been disconnected. Failure to carry out this check may result in alarms not being indicated at the nurse's station.

Attendant Control Panel additional features

Function lockout

Under certain circumstances it may be necessary to prevent operation of the bed controls, e.g. when traction equipment is being used.

To selectively disable bed functions:



Press the Function Lockout key on the Attendant Control Panel. The indicator above the key will light.



Press the Attendant Control Panel function key corresponding to the function to be disabled. The indicator above the key will light yellow.



To disable ALL bed functions simultaneously:

Press and hold the Function Lockout key for five seconds.



If no function key is pressed within five seconds of pressing the Function Lockout key, the indicator above the key will go out and the Lockout function must be selected again.



Function Lockout settings are retained when the bed is disconnected from the electrical supply.

To reinstate previously disabled bed functions:



Press the Function Lockout key on the Attendant Control Panel. The indicator above the key will light.

Press the Attendant Control Panel function key corresponding to the function to be reinstated. The indicator above the key will go out.

Emergency CPR



Press and hold the Emergency CPR key. This will flatten, and if necessary lower, the mattress platform to enable cardiopulmonary resuscitation to be carried out.

Underbed lights



Press this key to turn the underbed lights on or off. The indicator above the key will light when the underbed lights are on. When the bed is first connected to the electrical supply, the underbed lights are turned off.





In *Fowler* (chair) mode, the calf section is angled down and the legs are lowered below the mattress platform.



In *Vascular* mode, the calf section remains horizontal and the legs are raised above the mattress platform.



Press the appropriate key to select Fowler or Vascular mode.

The indicator above the key will light to show the selected mode.

Lighting, radio and TV controls \star

Pushbutton controls for lighting and radio/TV are located on the head end side rails, facing the patient. The side rails also contain loudspeakers for radio and TV sound.



Lighting, radio and TV controls

- (1) Reading lamp on/off
- 2 Main room light on/off
- 3 TV closed caption on/off
- (4) TV or radio channel up
- 5 TV or radio channel down
- (6) TV or radio volume up
- (7) TV or radio volume down
- (8) Radio on/off
- (9) TV on/off
- (10) Loudspeaker and microphone **★**

TV controls – automatic setup

In most cases, the bed will recognize the type of TV set in use and configure the TV controls automatically when the bed is connected to a compatible nurse call system.

TV controls - manual setup

If the TV controls are not set up automatically, the bed can be manually configured to suit the TV set in use.

The TV controls are pre-programmed with codes to operate TV sets manufactured by Philips, RCA and Zenith, with the option of a relay output for use with older analog sets. The bed can also "learn" codes for other TV sets by using their remote control.

Using preset TV codes To use one of the preset TV codes, simultaneously press the three control keys shown in the table below for 10 seconds.

The bed will *beep* several times as indicated in the righthand column; the same number will also appear on the weighing system display \bigstar .

Philips (RC5)		(1 beep)
RCA		(2 beeps)
Zenith 1	+	(3 beeps)
Zenith 2	♦ + ♦ + ♦	(4 beeps)
Relay output		(5 beeps)

The symbol denotes the Direction Up key on the Attendant Control Panel, NOT the Patient or Caregiver controls

Learning new TV codes 1. To enter Learning mode, simultaneously press these four keys for ten seconds:





The bed will *beep* once and the weight display \star will show Λ (Learning mode).



2. Repeat Step 1. The indicators above and below the Nurse Call key will light.



- 3. Press the key on the bed's TV control panel (e.g. Channel Up) that corresponds to the function to be learned. The indicator below the Nurse Call key will go out.
 - 4. Point the TV remote control at the sensor window (X), located next to the bed nurse call connector. Press the remote control button for the required function.



Remote sensor window



- 5. When the code is accepted, the bed will *beep* twice and the indicator below the **Nurse Call** key will light.
- 6. Repeat Steps 2 to 5 until all the required codes have been learned.
- 7. To exit Learning mode: at Step 3, instead of pressing one of the TV control keys, simultaneously press these four keys for ten seconds:



Battery operation

The backup battery is automatically switched on if the bed is disconnected from the electrical supply. The battery provides emergency operation of all powered functions for short periods of time, e.g. while the bed is being moved between units or floors.

When the bed is operating from the backup battery, the control system indicates the battery status as follows.





If a continuous warning tone sounds when operating the bed, the battery is at low charge.



In this condition, all functions except CPR and Tilt will be disabled five seconds after the last key is pressed. The other functions can be temporarily reinstated by pressing the Function Lockout key <u>once.</u>



If the battery indicator on the Attendant Control Panel lights red, the battery is fully discharged. In this condition, all functions are disabled.

Recharging the backup battery

To recharge the battery, connect the bed to the electrical supply.



While the battery is charging, the battery indicator lights amber. The indicator will go out when the battery is fully charged.

Caution

To ensure that battery is kept fully charged, and prevent damage to the battery, the bed should be connected to the electrical supply at all times during normal use.
6. Bed exit detection (*Enterprise*® 8000+ range)

Overview The mattress platform sheets for the backrest and thigh sections incorporate switches (Y) that detect when the patient gets off the bed.



Bed exit detection switches (top view)

WARNING

To ensure reliable operation of bed exit detection, always use an approved mattress – refer to Chapter 10 for a list of suitable types.

The switches are not sealed against the ingress of liquids. Take care not to wet the switches, e.g. when cleaning the bed.

The minimum patient weight to ensure reliable operation of bed exit detection is 121 lbs. (55 kg).

The bed exit function should be checked periodically for correct operation; as a minimum, ArjoHuntleigh recommends that this should be done before each new patient uses the bed and whenever the nurse call cable has been disconnected. Failure to carry out this check may result in alarms not being indicated at the nurse's station.

Controls

The controls for bed exit detection are located on the outside of the foot end side rail.



Bed exit detection controls





To enable bed exit detection:

Press the Enable key then the On/Off/Reset key. The indicator above the key will light green.

If the patient leaves the bed, the indicator above the On/Off/Reset key will light red and an alarm will sound on the bed.

If the bed is connected to a suitable nurse call system, the alarm will also be indicated at the nurse's station. Refer to the instructions for use provided with the nurse call system.

To cancel the alarm or disable bed exit detection:



Press the Enable key then the On/Off/Reset key. The indicator above the key will go out and all alarms and indications will be cleared.

7. Patient weighing and VariZone movement detection (Enterprise® 9000+ range)

Controls The controls for the weighing system and VariZone patient movement detection are located on the outside of the foot end side rail.



Patient weighing and VariZone movement detection controls

- 1 Weight display (also shows bed section angles)
- 2 Pounds/kilograms indicators
- 3 Enable
- 4 Weigh
- 5 Auto-Compensation
- (6)Zero
- $\overline{7}$ Select Units
- 8 In Bed
- 9 Egress
- (10)VariZone movement detection sensitivity indicators



If no function key is pressed within ten seconds of pressing the Enable key, the indicator above the Enable key will go out and the operator must press the Enable key again.

Patient weighing system

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

- Install the bed on a flat, level surface.
- Remove the transport locking bolts and washers before use refer to Chapter 3, Installation.
- Position the bed so that it is clear of obstructions, e.g. walls, furniture, cables and curtains.
- Ensure the patient is positioned centrally on the bed.
- While weighing is taking place, the patient should keep as still as possible and other persons should keep clear of the bed.

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

Place the mattress, bed linen and all necessary accessories on the bed.



Press the Enable key followed by the Zero key.



The indicator above the **Zero** key will light green for a few seconds before the display reads zero (0.0).

Place the patient on the bed.



The zero point can only be set if the load on the bed is less than 77 lbs. or 35kg above the factory calibrated zero.



Weight readings can be viewed in pounds or kilograms by pressing the Select Units key. An indicator adjacent to the display will light to show the selected units (lbs or kg).



In kg *mode, weights are shown correct to the nearest 500g. In* lbs *mode, weights are shown correct to the nearest pound.*

Weighing



Press the Enable key followed by the Weigh key.

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



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

Auto compensation



The Auto compensation facility allows weight to be added to or removed from the bed, without affecting the indicated patient weight.

With the patient on the bed, press the Enable key followed by the Auto Compensation key.



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



The display will now indicate AYTO.

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



Press the Enable key followed by the Auto Compensation key. The indicators above the keys will go out.



The display will show a moving circular pattern for a few seconds then revert to showing the patient weight as described above.



Auto Compensation allows the addition or removal of weights up to 220 lbs. or 100kg.

Error codes are shown on the display. They are used to Error codes 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 codes with their meanings and possible causes.

Display	Condition	Probable cause
	Zero error	User attempted to set a zero point more than 77 lbs. or 35 kg above the factory calibrated zero
	Overload error	The total load on the bed exceeds 559 lbs. or 254.5 kg
	Underload error	The total load on the bed is more than 22 lbs. or 10 kg below the zero point
E003	Auto Compensation negative error	Auto Compensation was attempted for a weight decrease greater than 220 lbs. or 100 kg.
E003	Auto Compensation positive error	Auto Compensation was attempted for a weight increase greater than 220 lbs. or 100 kg.
E 102	Unstable weight reading	A stable weight reading was not obtained within 10 seconds of pressing the Weigh key



If the display shows an error code other than those given above, contact the ArjoHuntleigh Service Department.

VariZone patient movement detection

- **Overview** VariZone movement detection can be set to alarm for undesired movement of the patient. The sensitivity of movement detection, relative to the center of the mattress platform, can be varied incrementally.
- **Operation** Before setting and activating movement detection, make sure the patient has been weighed, all additional accessories have been accounted for using the Auto Compensation function, and the weighing display is blank.



Press the Enable key then press and hold either the Egress key or In Bed key. The indicators between the keys will flash to show the selected movement detection threshold.

The further towards the right the flashing indicator is, the higher the movement threshold and the greater the patient movement allowed before triggering the alarm. As a guide, a scale is provided, where "0" represents the safe "in bed" position and "1" represents the "out of bed" position.



Increasing movement detection threshold



To increase the threshold, press and hold the **Egress** key. The flashing indicator moves to the right.

To decrease the threshold, press and hold the In Bed key. The flashing indicator moves to the left.

When the required threshold is reached, release the key. After a few seconds the indicator stops flashing and remains lit to show that movement detection is activated. If movement detection is triggered, a local alarm will sound and the threshold indicator will flash. If the bed is connected to a suitable nurse call system, the alarm will also be indicated at the nurse's station.



To cancel the patient movement alarm, press either the **Egress** or **In Bed** key *once*. The threshold indicator will go out and the system is deactivated.



To deactivate movement detection without triggering the alarm, press the Enable key then press either the Egress key or In Bed key.

The threshold indicator will go out to show that movement detection is deactivated.



The degree of mattress platform profile adjustment before triggering the alarm depends on the threshold setting.

The Auto Compensation function can be used while movement detection is activated.

WARNING

The movement detection function should be checked periodically for correct operation; as a minimum, ArjoHuntleigh recommends that this should be done before each new patient uses the bed and whenever the nurse call cable has been disconnected. Failure to carry out this check may result in alarms not being indicated at the nurse's station.

8. Decontamination

WARNING

Disconnect the bed from the electrical supply before carrying out decontamination procedures.



These instructions also apply to accessories but not to mattresses or side rail pads.

Cleaning Wearing suitable protective clothing, clean all surfaces with a disposable cloth soaked in a neutral detergent and hand hot water.

The head and foot end panels, and mattress platform sheets, can be removed from the bed for cleaning.

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.

Rinse with clean water and dry with disposable paper towels.

Allow the cleaned parts to dry before replacing the mattress.

Disinfecting 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.

In the 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.

Caution

Do not use abrasive compounds or pads.

Do not use phenol-based disinfectant solutions.

Use of other disinfectants ArjoHuntleigh recommends sodium dichloroisocyanurate (NaDCC) as a disinfectant because it is effective, stable and has a fairly neutral pH. Many other disinfectants are used in healthcare facilities, and it is not possible for ArjoHuntleigh to test each one to determine whether it may affect the appearance or performance of the bed. If facility protocols require the use of a disinfectant other

If facility protocols require the use of a disinfectant other than NaDCC (e.g. diluted bleach or hydrogen peroxide), it should be used with care and in accordance with the manufacturer's instructions.

9. Maintenance

The following preventive maintenance procedures should be carried out every 12 months.

All service and repair activities must be carried out by suitably qualified and trained personnel approved by ArjoHuntleigh.

Disposal of product and components should be compliant with local procedures.

WARNING

Disconnect the bed from the electrical supply before starting any maintenance activity.

The bed will still operate on battery backup power if control buttons are pressed and the function has not been disabled using the Attendant Control Panel. If required the backup battery can be easily unclipped from the bracket below the head end of the bed.

- 1. Check that all electrical functions work correctly when operated using the patient controls.
- 2. Check that all electrical functions work correctly when operated using the caregiver controls.
- 3. Check that all electrical functions work correctly when operated using the Attendant Control Panel, including CPR and underbed lights.
- 4. Make sure the backrest and thigh sections operate over their full range of movement (refer to Chapter 12).
- 5. Make sure the mattress platform can be adjusted over the full range of height and tilt, including extra low height (refer to Chapter 12).
- 6. Use the Attendant Control Panel to disable each bed function. Ensure that the functions are disabled on both the patient and caregiver controls and the Attendant Control Panel.
- 7. Check that downward motion of the mattress platform is prevented when the anti-entrapment beam is interrupted.
- 8. ★ *Beds with patient weighing:* ask a person of known weight to lie on the bed. Check that their weight is indicated correctly on the weighing system display.

- 9. ★ Ask a person to lie on the bed and turn on the bed exit detection system. Check that when the person gets off the bed, the bed exit alarm is triggered.
- 10. ★ Ask a person to lie on the bed and turn on the VariZone patient movement detection system. Check that when the person gets off the bed, the patient movement alarm is triggered.
- 11. Check that the manual CPR release mechanism works correctly.
- 12. Check that the bed extension can be extended and retracted, and locks correctly in either position.
- 13. Check that linen shelf extends and retracts, and latches securely in the closed position.
- 14. Apply the brakes and attempt to push the bed forwards. If any of the braking castors rotates it should be adjusted or replaced as necessary refer to the product Service Manual.
- 15. Check that the steering lock operates effectively. Adjust or replace the brake/steering castor as necessary refer to the product Service Manual.
- 16. Raise the side rails. Check that the side rails move smoothly and lock securely in the raised position.
- 17. Examine the power cord and plug. If either is damaged they must be replaced as a complete assembly. Do not use rewireable plugs or extension cords.
- 18. Examine all other visible flexible cables for damage and deterioration.
- 19. Check that all nuts, bolts and other fasteners are present and adequately tightened.
- 20. Visually examine all bed accessories for damage, paying particular attention to fastenings and moving parts. On lifting poles, examine the strap and handle carefully; if loose stitching or fraying is found replace the strap and handle as a complete assembly.

If the result of any of these tests is unsatisfactory, contact the ArjoHuntleigh Service Department.

10. Accessories

A full range of accessories, including mattresses, is available from ArjoHuntleigh. Details are available on request.

Accessories currently available for the *Enterprise*® range are shown in the table below.

DESCRIPTION	PRODUCT CODE
Lifting pole with strap & handle	ENT-ACC01
IV pole	ENT-ACC02
Two-position lifting pole with strap & handle	ENT-ACC03
Angled IV pole	ENT-ACC04
Syringe pump holder	ENT-ACC07
Oxygen bottle holder for E size cylinders	ENT-ACC08
Double bottle holder	ENT-ACC12
Lifting pole mounted IV bag holder	ENT-ACC13
Folding monitor shelf	ENT-ACC20
Servicing kit	ENT-ACC23
Heavy duty IV pole	ENT-ACC24
Transducer mounting pole	ENT-ACC26
Integral IV pole (factory fitted)	ENT-ACC29
Side rail pads *	ENT-ACC31
Head end traction assembly	ENT-ACC32
Fracture frame adapter for <i>Enterprise</i> ® 9000+ range	ENT-ACC33
ICU head end panel	ENT-ACC34
Wide folding monitor shelf	ENT-ACC36
Oxylog [®] equipment bracket	ENT-ACC40
Push bar	ENT-ACC41
Additional patient handset	ENT-ACC49
Patient handset with bed height controls	ENT-ACC50
Base buffer kit	ENT-ACC57

DESCRIPTION	PRODUCT CODE
Fracture frame adapter for <i>Enterprise</i> ® 8000+ range	ENT-ACC60
Pentaflex pressure reducing foam mattress	250PM202088
ConformX foam mattress (refer to WARNING below)	150CX202088
Pentaflex mattress squab	PM-SQB1
Nimbus® 3 Professional dynamic flotation system	NIMBUSPRO/3/SYS
DFS® 3 dynamic flotation system	DFS/3/SYSTEM
Breeze® low air loss system	BREEZE

* Suitable for use with *Enterprise*® 8500, 8600 and 9600 ONLY.

Certain accessories may not be available in some countries. ArjoHuntleigh reserves the right to alter accessory details and availability without notification.

WARNING

ConformX mattresses are not suitable for use with *Enterprise*® 8600, 8700 and 8800, as they contain high density foam that may prevent reliable operation of the bed exit detection switches.

11. Warranty and service

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

For service, maintenance and any questions regarding this, or any other ArjoHuntleigh product, please contact your local ArjoHuntleigh office or authorized distributor. A list of ArjoHuntleigh offices can be found at the back of this manual.

12. Dimensions and technical data

Dimensions

Mattress size

Overall length	89.8 ins. (228 cm)
Extended	94.5 ins. (240 cm)
In-bed length	80 ins. (203 cm)
Extended	84.6 ins. (215 cm)
Overall width	39 ins. (99 cm)
With side rails raised	40.9 ins. (104 cm)

80 x 34.6 x 5 ins. (203 x 88 x 12.5 cm)

Height of mattress platform	
5 ins. (125mm) single castors	
6 ins. (150mm) single castors	
6 ins. (150mm) twin castors	
Head down tilt (Trendelenburg)	
Foot down tilt	

Foot down tilt (reverse Trendelenburg)

Mattress platform angles (max.)

Min.	Max.	Extra low
15 ins.	30.3 ins.	11.8 ins.
(38cm)	(77cm)	(30cm)
15.8 ins.	31.1 ins.	12.6 ins.
(40cm)	(79cm)	(32cm)
15.8 ins.	31.1 ins.	12.6 ins.
(40cm)	(79cm)	(32cm)

0 to 12°

0 to 12°



Product weight (approx.)

Safe working load

Operating temperature

407 lbs. (185kg)

550 lbs. (250kg)



41°F to 104°F (5°C to 40°C)

Electrical data



5.8A max. at 120V a.c. 60Hz. Intermittent 10% (2 min. / 18 min.)

With respect to electric shock, fire and mechanical hazards only in accordance with UL60601-1, CAN/CSA C22.2 No 601.1, IEC 60601-2-38 and CAN/CSA C22.2 No 2.38

Type B

Electric shock protection Class I

EMC

Equipotential terminal

Liquid ingress protection Backup battery Complies with EN 60601-1-2: 2001

Complies with IEC 60601-1

IPX4

2 x 12V series connected, sealed, rechargeable lead/acid gel, 1.2Ah.

Weighing system ★	Imperial units	Metric units
Minimum verification interval (scale division, <i>e</i>)	1 lb.	500g
Minimum capacity	22 lbs.	10kg
Maximum capacity	550 lbs.	250kg

Transportation & Storage

Handle with care. Do not drop. Avoid violent impact.

This equipment should be stored in a clean, dry and well-ventilated area which meets the following conditions:

Storage temperature	14°F to 122°F (-10°C to 50°C)
Relative humidity	20% to 90% at 86°F (30°C), non-condensing
Air pressure	700 to 1060hPa

Environmental Protection

Incorrect disposal of this equipment and its component parts, particularly gas springs, actuators, batteries and other electrical devices, may produce substances that are hazardous to the environment. To minimize these hazards, contact ArjoHuntleigh for information on correct disposal. AUSTRALIA ArjoHuntleigh Pty Ltd 78, Forsyth Street O'Connor AU-6163 Western Australia Tel: +61 89337 4111 Free: +1 800 072 040 Fax: + 61 89337 9077

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GETINGE GROUP

Getinge Group is a leading global provider of products and systems that contribute to quality enhancement and cost efficiency within healthcare and life sciences. We operate under the three brands of ArjoHuntleigh, Getinge and Maquet. Getinge provides solutions for infection control within healthcare and contamination prevention within life sciences. Maquet specializes in solutions, therapies and products for surgical interventions, interventional cardiology and intensive care.

ARJOHUNTLEIGH GETINGE GROUP

ArjoHuntleigh focuses on patient handling and hygiene, disinfection, DVT prevention, medical beds, therapeutic surfaces and diagnostics.

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