# Völker Hospital Bed
# Instructions for use

## Model

S 961-1

&

S 961-2W

VÖLKER

Better Beds

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## Introduction

We are glad that you have opted for Völker hospital beds.

We also thank you for the trust you have put in our company and our products. This step you have taken was certainly preceded by a number of considerations and examinations of those demands you make on hospital beds on the basis of your previous experience.
When you now have opted for Völker hospital beds, you certainly had good reasons. We promise you that Völker hospital beds will not disappoint you.

Völker hospital beds are not internationally deemed extremely innovative medical aids for nothing. And this doesn't only apply to their construction principle developed by Völker from scratch. It also applies to the many product advantages which have always been checked for their practicability in practice and improved accordingly. These now increase the patients' comfort and make daily nursing much easier.

To be sure, all hospital beds have product qualities that benefit their users. But as far as we know only Völker hospital beds have such a number of advantages.

Thus, Völker hospital beds do not only look good, they also have functions adjusted mechanically, or mostly by an electric motor, and controlled electronically.
When you receive the beds, the responsibility for a proper use with due and diligent care is transferred to you. Therefore, please read the enclosed instructions carefully and inform yourself about their technical equipment, handling and use of all functions.

Good luck with your Völker hospital beds!

Heinrich Völker
CEO - Völker Aktiengesellschaft

# List of Contents

# 1. General

## 1.1 General notes

This hospital bed was manufactured according to national and international norms and standards and complies with the current state-of-the-art technology.

Völker hospital beds meet the demands on safety and functionality. They were tested against international norms and are designated with the CE seal, confirming that basic requirements for medical products are met.

Please read the basic safety regulations. Please also follow the additional notes given on the following pages (especially with regard to potential warranty claims).

## 1.2 Standard model

The S961-1/2W standard model can be delivered in different variants. The standard is as follows:

| Part | Standard model | | |
|---|---|---|---|
| Lifting pole fixation | There are two options available:<br>Lifting pole fixation located in the middle outside the lying surface.<br>Double lifting pole fixation. The fixations are located on the left and the right interior side of the head section (optional).<br>The safe working load of the lifting pole is 75 kg. | | |
| Hand control | The hand control unit is available with hooksin a vertical or horizontal version. | | |
| Castors | The diameter of the castors is by default 150 mm, but various customized kinds of castors can be delivered, so that the lifting adjustment range can vary about 20 mm. | | |
| Head and foot boards | With regard to our different variants of head and foot boards please take note of our brochure. | | |
| Bed extension piece | Not in standard | | |
| Side rails | The S961-1/2W bed is provided in different side rails variant: | | |
| | | Foot part: | Head part: |
| | 1. | Extendible side rail 24 to 34 cm * | Extendible side rail, 24 to 34 cm * |

* This dimension refers to the top edge of the side rail up to the lying surface.
The standard model is described in these instruction. If you would like to ask for spare parts it is essential that you first determine whether you have a standard model.
In the beds' order specification, you will find an overview of the variants delivered. If it is for a deviation of the standard specification, for example regarding the outer dimensions, it is also recorded here. If the original order specification is not available any more, please contact the Völker customer service.

## 1.3 Copyright protection

Providing a Third Party with the instructions for use is permissible only after prior written approval by the Völker AG. All the documents are protected by copyright laws.

Unless explicitly granted the right to do so, it is forbidden to pass on or duplicate any documents, also in parts, make use of them or communicate their contents. Violations against these regulations present an offence and oblige to damage compensation. We reserve all rights for exercising commercially protected privileges.

## 1.4 Warranty and liability

Within the bounds of the warranty obligations undertaken by the main contract, the Völker AG is liable for potential defects or omissions, excluding further claims. Compensation claims, no matter on which legal argument they are based, are excluded.

We reserve the right to technical changes within the bounds of further development of the hospital beds covered in this instructions for use.

We do not accept responsibility for damages and operational breakdowns which are caused by operating errors and non-compliance with these service instructions for use.

The accessories drawn do not necessarily correspond to the graphic illustrations.

# 2. Safety regulations

## 2.1 Explanation of symbols

### Warning notice

Information marked by this symbol must absolutely be read and adhered to!

DC

AC

Device acc. to safety class II (double protective insulation)

Type B device according to DIN EN 60601-1

These instructions for use shall provide practical information ensuring the safe use and maintenance of the bed in accordance with the regulations.
Everybody who is in charge of starting up, operating or servicing the bed must have these instructions for use to hand. In order to avoid operating errors and to ensure smooth operation of the bed, these notices must always be available to the nursing staff.

## 2.2 Testing the functional safety and condition of the bed

After carrying out maintenance work or repairs, the bed must be checked for its functional safety. Check whether the bed can be used in accordance with the specifications without any hazards for patients, users or any third party.
Performance control and technical check must be carried out at least once a year.

## 2.3 Medical device directive MDD 93/42/ECC

The hospital bed may only be set up, operated and used according to its intended use to be in compliance with the regulations of the MDD and related statutory orders issued and the recognised rules of engineering as well as the regulations for industrial safety and the prevention for industrial accidents. A hospital bed ***must not*** be operated if it is defective and might put patients, nursing staff or any third party at risk.
The hospital bed may only be operated by persons who can guarantee workmanlike handling on account of their training or skills and experiences.

## 2.4 Intended use

Völker's hospital beds, model S 961-1/2W, are intended for laying patients in sick rooms of hospitals, clinics and nursing homes.
Patients below the age of 12 years or less tall than 146 cm may only be bedded in the model S 961-1/2W hospital bed if the necessary safety measures, such as side rail protection covers, are used.
Any other use deviating from the intended use of the Völker hospital bed is excluded from potential liability.

## 2.5 Misuse

Misuse of the hospital bed may lead to potential dangers. These include, for example:

- improper operation of electric functions and uncontrolled positioning,
- using the hospital bed for children below the age of 12 years or persons which are less tall than 146 cm
- operating the hospital bed by patients without prior introduction,
- simultaneously operating electric functions by different persons, continuously pressing the buttons,
- using electrical appliances at the bed which are not intended for it (subject to the due diligence of the operator or accessories),
- pulling at cords or other accessories in order to move the bed,
- loosening electric connectors by pulling at the cord,
- using the bed on a sloping surface exceeding an inclination of 10 degrees (the bed's brake is designed for a maximum angle of tilt of 10 degrees),
- trying to move the bed, although the locking function in engaged,
- using the bed for ambulant services using a vehicle,
- overloading the bed beyond the specified safe load-bearing capacity.

If you can not avoid the use of the bed by children under 12 years or patients whose body height is lower than 146 cm protective covers for the side rails or other security measures should be used. This applies also when the bed is used by patients with exceptional physical weakness or diminished mental faculities.

## 2.6 Electromagnetic/electrostatic interferences

The S 961-1/2W hospital bed fulfils the EMV safety requirements (electromagnetic compatibility) according to the basic requirements of the MDD. It was tested to comply with the standard EN 60601-1-2.

## 2.7 Before initial start-up

Before initially putting the hospital bed into operation, these instructions for use must have been read in detail by the persons responsible for the nursing service.

Before the hospital bed is put into operation for the first time the following actions must have been carried out:

- Visual inspection of all important components on damage, abnormal wear, forming and contamination.
- Function control of all adjustable functions before start-up, after longer disuse and relocation of the bed.
- Function control of the brakes (safety, arrest, freewheel)
- Function control of all drives (checking the whole adjustable range, limit switch)
- Check of all jacks, connectors and LED-covers (before cleaning) on damages, which may cause an intrusion of wetness.
- Check all cables (electric supply and internal cabling) on damages, correct cable route and correct connection of all contacts.

Before the bed is put into operation, the nursing staff must have attended detailed training in the handling of the bed. In addition, it must be pointed to potential hazards which might occur in spite of properly operating of the bed.

## 2.8 Testing the functional safety and condition of the beds

Before the bed is used, the operator has to check that the hospital bed is in proper condition and a safe use is guaranteed. This check is not only to carried out prior to the first use but also during the current use of the bed. If necessary, the hospital bed has to be checked daily or with any change of shift in order to ensure that no one can be put at risk by its use. In order to reduce the maintenance of the bed to the necessary minimum level, the hospital bed should be cleaned, disinfected and tested as soon as possible after each use so that it can be used again immediately without any risk.
In case of a defective bed it may becomes necessary to provide the patient with an other hospital bed.

## 2.9 Position of the hospital bed

**“Danger of falling out”**
With unsupervised patients it is recommended to put the bed into its lowest position in order to minimize the risk of injury in case of the patient falling out of the bed. With mobile patients adjust the height of the bed in relation to the height of the patient.

## 2.10 Four castors central braking

**"Attention! Risk of accidents"**
Unless the bed is used for transport purposes, the castors must always be in parked condition, because the bed might be used by patients as a support when getting up or lying down. When the bed is not in parked condition, thus moving away, it may lead to the patient having a bad fall. After operating the central locking brake it must be checked whether the bed is actually fixed, that is whether the castors' brake is sufficiently engaged.

## 2.11 Height adjustment

**"Danger of getting stuck between undercarriage and frame when the bed is lowered"**
When the bed is adjusted it has to be ensured that no persons, limbs, bed linen or other objects are between the frame and undercarriage.

## 2.12 Side rail – "Danger of getting stuck"

With patients whose physical or mental condition seems to make it necessary to use the side rail in order to protect them against falling out of the bed, the following safety measures must be adhered to:

The side rail may be used only by trained nursing staff.

Make sure that the side rails – or parts thereof – are either completely raised up and locked or completely lowered down.

It has to be ensured that the patient is not getting into touch with the side rail elements when operating the electric lying surface adjustment. It is likewise important that no part of the body projects from the side rails.

If side rails are used for a child or a person whose mental condition appears to make it necessary to use such a device, it has to be ensured that the manual control unit is put out of their reach. In addition, it is recommended to use side rail protection covers.

If the above mentioned safety measures are ignored by the nursing staff, haematomas or other injuries might occur if patients get their hands, knees, fingers, feet, shins and hips caught.

## 2.13 Cleaning and disinfection

Dangers might occur by improper cleaning/disinfections of the bed (see chapter 9)

## 2.14 Locking of the bed

Note that all functions of the bed have to be locked by the nursing staff if the patient is endangered in a physical or mental way.

## 2.15 Service/Maintenance

The S 961-1/2W only requires little maintenance. All flexible parts of the height adjustment unit, the lying surface drives and side rail parts are provided with lifetime lubrication by the factory. When these parts are commonly used and cleaned, no repeated lubrication is necessary. However, the manufacturer assumes that the hospital beds will be examined in regular intervals, at least once per year and detected damages like signs of wear and tear, loose bolts or breaks have to be solved immediately. For further information please see the service manual.

Every person who is in charge of carrying out maintenance as well as services, must at least have read

### the Safety Regulations

and

### the Service Manual

and be qualified according to the requirements set out in German legal requirement MPBetreibV § 4 and 6 or other local laws or standards.

In order to avoid errors und to ensure trouble-free operation of our hospital beds, these papers must always be available to the service staff.

Before starting maintenance work, the service manual and the instructions for use must be read in detail by the persons in charge for these services.

The hospital beds are not flameproof which is why they may be serviced only in an environment that is free of combustible substances.

Every time the bed has not been used for a while a function control have to be done.

During the maintenance and technical control the following guidelines have to be strictly followed.

The electrical installation of the room must accord to the actual state of technology and the hospital bed have to be used as intended.

The brakes must be fully applied.

Main points of the functional control :

- Visual inspection of all important components on damage, abnormal wear, forming and contamination.
- Function control of all adjustable functions before start-up, after longer disuse and relocation of the bed.
- Function control of the brakes (safety, arrest, freewheel)
- Function control of all drives (checking the whole adjustable range, limit switch)
- Check of all jacks, connectors and LED-covers (before cleaning) on damages, which may cause an intrusion of wetness.
- Check all cables (electric supply and internal cabling) on damages, correct cable route and correct connection of all contacts.

Always secede the battery from the bed during maintenance !

After maintenance (repair) it is absolute required to check the bed for functional safety. You have to check if the bed can be used without causing damages to the patients and employees.

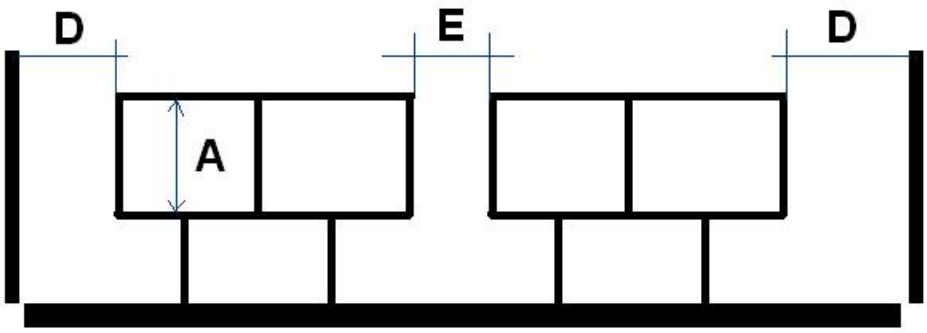
## Execution of the technical control :

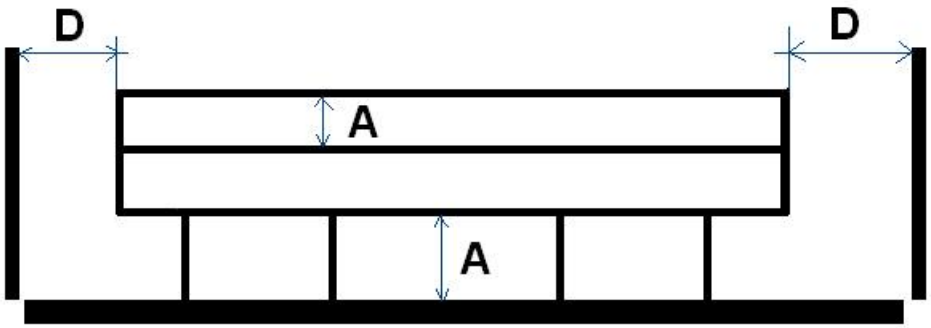
### 1. Visual inspection

Check the parts of the frame on plastically deformations and/or wear. (e.g. all elements of the mattress frame (back-, sitting-, upper leg- and lower leg section), hub, lifting receiver, castors) .

### 2. Functional check of the safety frames

Check if the locking mechanism of the safety frame is working faultless and if deformations or wear are observable.
Check if the mandatory distances are adhered while the safety frame is under load.






**A*** - The maximum dimension between elements inside of the perimeter of side rail in its raised/locked positions or perimeters created between the side rail and fixed parts of the bed < 120 mm

**D*** - Distance between head panel or foot panel and side rail at the upper edge of the side rail < 60 mm / >= 235 mm

**E*** - Distance between segmented side rails <=60mm or >=235mm

All dimensions have to be measured with mattress support platform in its flat position.
During this checkup possible accessoires like the middle disk for the safety frames have to be accounted !
The measurement should be done in accordance to the requirements of the standard DIN EN 60601-2-38.

## 3. Functional check brakes

Check the functional efficiency of the brakes (safety, arrest, freewheel).

## 4. Functional check of the drives

Check the whole adjustable range of each drive. Pay attention to abnormal noises, the speed, smooth running etc. and that the selected function drives in the right direction. Especially pay attention to the fact that the drives stops singly when reaching its end position*.

## 5. Electric supply

Check

- the electric supply cable including the grommet
- the cable relief including the bend protection mantle
- the main supply connector

on damages.

## 6. Internal cabling

Check the cable routing and the correct connection of the wrap connections on damages. Check the cables on damages.

## 7. Casing

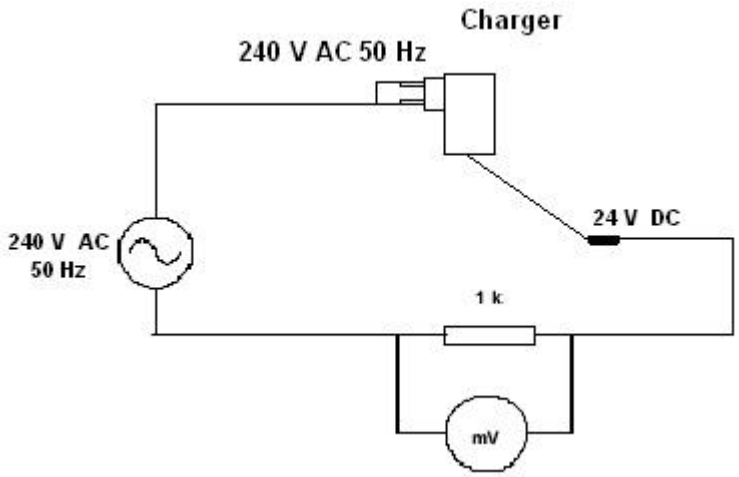
Check all casings on damages. All screws have to be tightened. The seals must not show any signs of visible damage.

## 8. Mechanical inspection

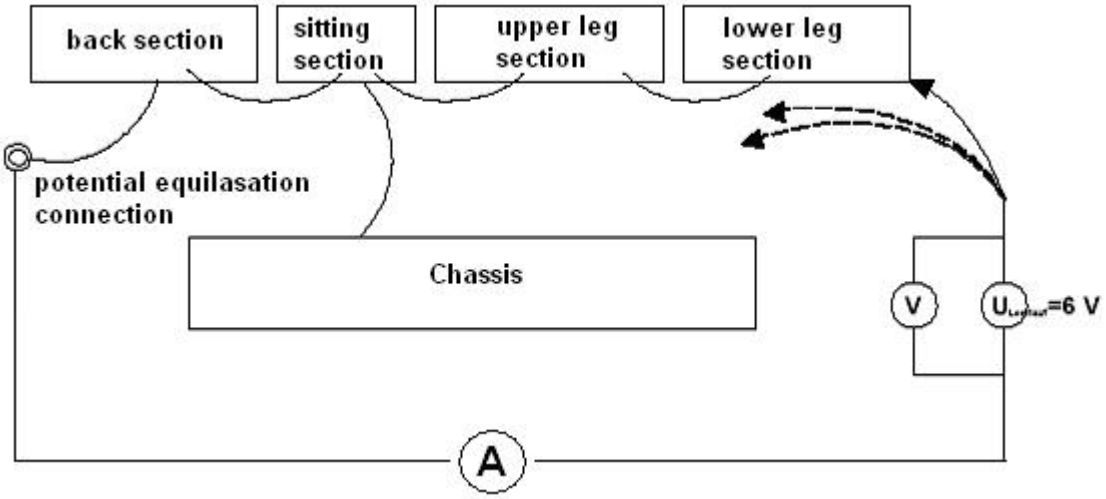
Check the functional efficiency of the raster and (if exisiting) the pneumatic spring, by bringing the foot section manual in its different positions.

## 9. Measurement according to VDE 0751

The electrical inspection of the bed has to be carried out (within germany) according to DIN VDE 0751-1 agreeable to the accident prevention regulation. You have to measure the leakage current. The limit in accordance to the standard is 5 mA.




Furthermore you have to measure the impedance between the back- , sitting- , upper leg- and lower leg section and the potential equalisation connection. The impedance must be lesser than 0,2 Ω . ( I=5...25 A, R=U / I < 0,2 Ohm).




## 10. Inspection of lifting pole and triangle grip

Check if the plastics and retaining belt of the triangle grip show any signs of damage and if the fixation bars of the lifting pole are in a good condition.

# 3. Technical specifications

## 3.1 Technical Data

| | S961-1 | S961-2W |
|---|---|---|
| Length | 230 cm | 220 cm |
| Width | 98 cm | |
| Height, top edge head-/foot board | 77,5 cm up to about 117,5 cm | |
| Castors | 4 , ∅ 150 mm, 100 kg lifting capacity, | |
| Height adjustment range (depends on the type of castor) | approx. 40 cm to 80 cm | |
| Lifting range | 40 cm | |
| Mattress displacement | 15 cm | |
| Dead weight | 158 kg | |
| Safe working load | 210 kg | |
| Safe working load lifting receiver | 75 kg | |
| Safe working load infusion pillar | 2 kg per clamp | |
| Battery | 4x6 V Block battery (lead-gel), 3,4 Ah | |
| Manual control unit | Völker | |
| Double drive unit Okimat 480 for back section + upper leg | Okin | |
| Lifting gear motor | Okin | |
| Mains voltage | AC 230 V , 110 V (depending on the version) | |
| Nominal current | 0,8 A | |
| Nominal frequency | 50 / 60 Hz (depending on the version) | |
| Fuse | T 2 A | |
| Temperature range, in operation | + 10°C to + 40°C | |
| Temperature range, in transport/storage | -20°C to +60°C | |
| Relative humidity | 30% to 75 % | |
| Atmospheric pressure range | 700 hPa to 1060 hPa | |

## 3.2 Classification

| | |
|---|---|
| Protection against electric shock | Safety Category II or appliance with internal power source.  |
| Type of protection by encasement according to EN 60259<br>Degree of protection of parts handled by users against electric shock according to DIN EN 60 601-1 | IP X6 suitable for the use in automatic washing machines<br>Type B  |
| Degree of protection against explosive materials and compounds | The bed is not explosion-protected and may not be used in environments in which there are flammable anaesthetics or cleaning agents (see leaflet ZH 1/200 of professional association. |
| Category in accordance to european medical device directive | Class I |
| Operation cycle | Interval 2 min / 10 min<br>Operational time max. 2 min.<br>Shut-off time 10 min. |
| Technical safety check | Recommended annualy |

# 4. Explanations for the nursing service

This documentation contains information that is required for the normal use of Völker hospital beds.
Völker does not accept any warranty claims for damages, injuries or accidents which are based on negligence, carelessness or improper use. Culpability is of no importance here.
A basic introduction of the nursing staff into the operation of the bed takes place by Völker or their representatives as required by the customer.
Participation in such a training by the nursing staff can be certified using a form designed for this purpose, including the participant's name, date and signature which are confirmed by Völker.
The safety regulations contained in this documentation (especially in chapter 2) must be adhered to.
Following the described behaviour patterns will ensure the safety of patients, the staff and third persons.
Functions designated as optional extras are available only with the correspondingly equipped beds.

# 5. General operating instructions

## 5.1 Power-on time

Maximum power-on time of the motodriven bed function is indicated on the bed (see identification plate) or the technical data sheet with Int 2 min/10 min, meaning that the motordriven functions can be operated uninterruptedly within 10 minutes / 2 minutes.

A time delay function is integrated into the bed in order to prevent continously changing button operations and movement operations by unintentionally touching a button for a short time. The operator must intentionally press and hold the function button. The bed function is then carried out with a time delay of about 0.5 seconds.

## 5.2 Batteries

The use of the battery is intended only for emergency operations.

The completely charged batteries in the bed have an electric charge capacity which is equivalent to an operation of 5 lift and lying space adjustments with a work load of 210 kg. After that, the emergency functions (Trendelenburg/Antitrendelenburg) can still be carried out.

If the bed is positioned at its location without connecting the battery charger to it, energy consumption and self-discharge will lead to the discharge of the battery!
If batteries are totally discharged, they may be damaged to such a degree that early replacement becomes necessary!
In order to achieve a long battery life, proper handling of batteries and battery charger is absolutely necessary!

## 5.3 Safety device

The bed is provided with an electronic safety device preventing the drives from being overstressed. In case of an overstress occurring, the bed will be automatically switched off.

## 5.4 Putting the bed into operation

### Installation conditions

The bed is approved for the operation in dry rooms only (Technical Data Sheet). In order for the bed to be operated, a power supply and potential equalisation outlet, if necessary, is required in the location where the bed is installed.

The bed is mobile without auxiliary transport facilities.

The bed can be moved on solid grounds only. It is not permissible to drive the bed on uneven surfaces greater than 2 cm. The maximum carriageway's angle of inclination is 10°.

The bed is delivered in complete condition and installed without the necessity of dismantling from transport devices.

## 5.5 Mechanical start-up

The provided head and foot boards have to be inserted into the corner joints of the bed frame.

### Connecting the manual control unit

The manual control units have to be inserted into the provided jacks and to be screwed on.

In case of improper connection, automatic washing machines capability cannot be guaranteed.

If the manual control unit is removed from the bed, the connection socket must be closed using the protective cap (in order to ensure safety level according to IP-X6).

## 5.6 Applying the bed's brake

After each initial start-up or renewed start-up, the bed may be in a condition where the brake is not applied.
Operate the red point on the brake bar in order to apply the brake:
30° downward position to the bed's end – fully applied brake.

## 5.7 Electric start-up

Take care for the correct connection between the main power cut-off and the okin drive.

Be aware that improper use of the main power cut off can cause damage to the unit, resulting in the batteries being unable to receive charge.

Do not drop the main power cut off unit. Do not pull or exert excessive strain on any electical cables or connections. Take care not to run over the mains power cable when moving the bed.

1. Connect the main power cut-off with a grounding receptacle.
2. Unlock the bed.
3. To put the hand control unit and the caregiver's console into operation, take care that the functions of the bed are not locked by the caregiver's console.
4. Check the state of charge of the battery.
   (Press the green button on the net free connector, so that the charging of the battery will be activated)
5. Check all functions.
6. ⇢ **The bed is now ready for use.**

## 5.8 Using the battery pack

The battery pack enables mains-free operation of the bed for at least 5 switch-on cycles.

The LED lights up in three colours:

| | | |
|---|---|---|
| **Green :** | Charge > 80 % | |
| **Green blinking :** | Charge > 80 % , Charging cycle is on. | |
| **Yellow :** | Charge 31 – 80 % | |
| **Yellow blinking :** | Charge 31 – 80 % , Charging cycle is on. | |
| **Red :** | Charge 0 – 30 % | **Caution:** Battery must be charged. Bed can not be used without being connected to the mains power supply. |
| **Red blinking :** | Charge 0 – 30 % , Charging cycle is on. | |
| **Lamp „V~“ off** | Battery is fully charged. Net interrupter activated. The bed is not supplied with current while „Standby“-mode. | |

The deactivation of the battery happens shortly before the total discharge. The charging of the battery happens when the bed is connected to the mains power supply or the charge has fallen to far.

If the bed is not connected to the mains for a longer period, the battery pack can become discharged. The level of discharge is depending on the ambient conditions.

During the charge cycles the battery pack is connected to the mains, thus being supplied with electricity. The LED shows the charge state of the battery pack during the charge cycle. The circuit breaker is disabled, with electric current flowing to the bed.

If electromagnetic disturbances occur in the bed's environment, please refrain from operating these appliances.
In case of transport, the device must always be treated carefully and protected against humidity.

The device is specified for an ambient temperature of 10°C to 40°C, for a relative air humidity of 30% to 40% and for a barometric pressure of 700 to 1060 hPa.

There is no maintenance required for the battery pack. Replacement of the battery pack may only be carried out by trained personnel of the Völker AG.
If the battery pack is faulty, this may lead to gas emissions of the same. This can be recognized by deformations of the battery pack case. In this case, please immediately put the bed out of operation and contact customer service at once!

The battery pack must be disposed of at suitable facilities to be compatible with the environment, or you are welcome to return it to the Völker AG.

Execute a function control.

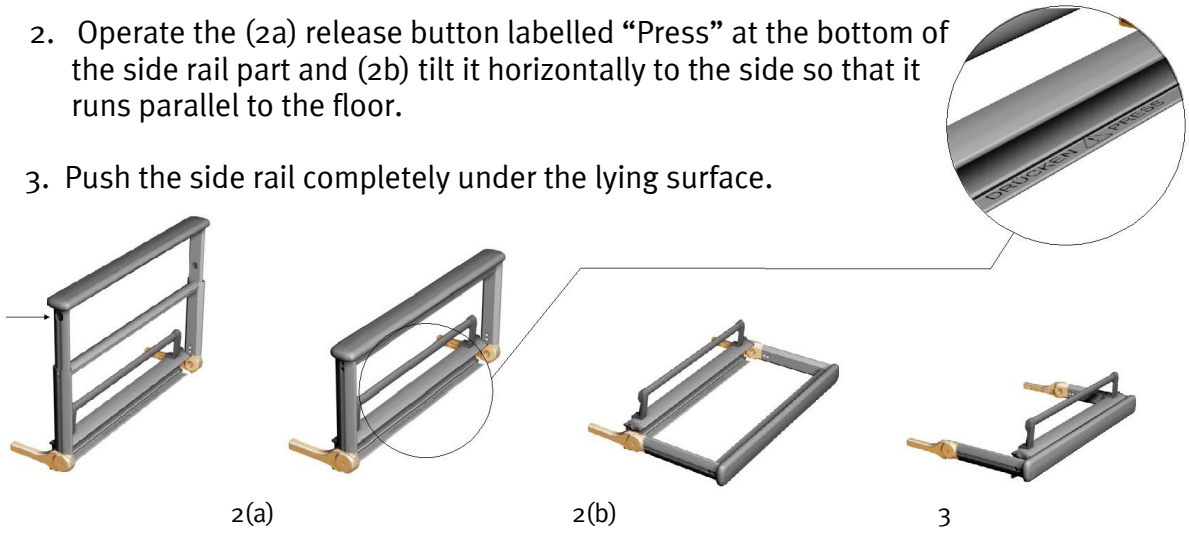
➔Bed is ready to use

## 5.10 Operating the side rails

To raise a side rail section, pull the side rail horizontally out of its location to end-stop and fold it upwards. In order to adjust the height of the side rail, pull the telescopic part up to the stop.

To lower a side rail section completely,

1. Press the two buttons on the outer side of the frame, right above the cross-member, so that the height-adjustable side rail section can be put into its lowest position.
2. Operate the (2a) release button labelled “Press” at the bottom of the side rail part and (2b) tilt it horizontally to the side so that it runs parallel to the floor.
3. Push the side rail completely under the lying surface.




1 2(a) 2(b) 3

One or more side rail parts can be inserted as required in order to safeguard the bed user.

Folding up all the four side rails provides the user of the bed with maximum protection.

Because of their exceptional stability, the side rail parts can also be used to deposit bed linen (maximum 15 kg) or as an additional support surface for clinically desired bearings as, for example, carrying out physiotherapeutic treatment.

Warning: All people who are responsible for handling the side rails must read and comply with the following information:

When operating the back, upper leg or lower leg adjustment, the lift or side rails, it is vital to ensure that the patient neither gets into contact with the side rail nor any part of the body is jutting out the side rail.

If side rails are used for a child or a person whose mental condition appears to make it necessary to use such a device, it has to be ensured that the manual control unit is stored beyond their reach.

Protection covers for the side rails are available as an accessory, providing additional protection against injuries through the contact with side rails. It is mandatory to use these protection covers with all persons where there is a high risk of injuries caused by unavoidable contacts with the side rails as children, persons less than 146 cm tall, persons with mental diseases. This, however, does not relieve the caregiver or patient from exercising reasonable care when operating the bed.

When using side rails, they must either be always led completely upward, so they will click into place, or be put into bottom location as far as they will go.

The side rails should always be held at the respective section ends using both hands and guided to the top/bottom.

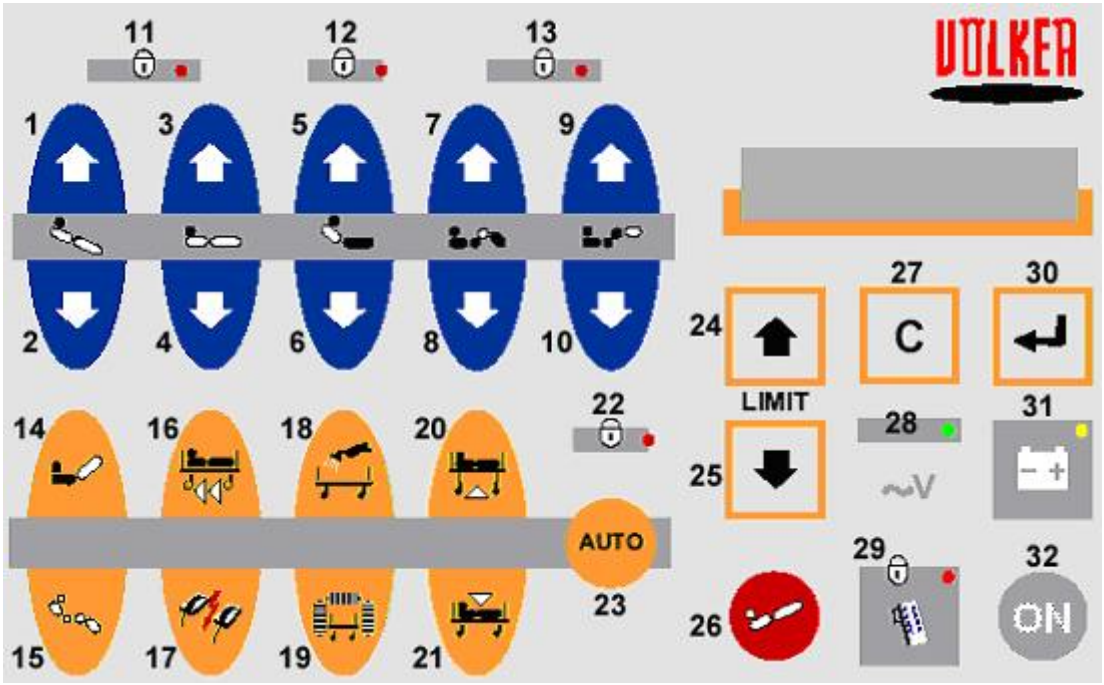
If the manual control unit is installed in a place where the patient can reach it, an exact healthcare documentation must be kept according to the rules (it must always be taken care of that no health hazards may occur).

## 5.11 Life expectancy / disposal

The average life expectancy of the hospital bed is approx. 10 years. To guarantee an environment-friendly disposal after putting the bed out of service, please contact your representative-in-charge.

# 6. Control functions S 961-1

## 6.1 Overview – Operation by means of personnel keyboard S 961-1




1 Reverse - Trendelenburg up
2 Reverse -Trendelenburg down
3 Height adjustment up *1
4 Height adjustment down *1
5 Back section up
6 Back section down
7 Upper leg section up
8 Upper leg section down
9 Lower leg section up
10 Lower leg section down
11 Lock heights adjustment
12 Locking back section
13 Locking upper and lower leg section
14 Shock position
15 Cardiac Chair
16 Transport position *2
17 Reanimation position
18 Cleaning
19 Position decontamination by autom. washing machines
20 Bed preperation
21 Zero position
22 Locking automatic functions
23 Automatic key for release Aut.-fct.
24 Menu up
25 Menu down
26 Trendelenburg - Position
27 Delete (Menu)
28 Mains voltage display
29 Locking hand control
30 Confirm (Menu)
31 Battery display *3
32 „On“ - Button

*1 use double click for automatic functions*4
*2 no change at lower and upper leg section, height of the matress frame: 70 cm, use double click for automatic function *4
*3 green : fully charged; orange : charge < 80%; red : battery unloaded; blinking : battery is charged
*4 “Automatic function” means that the caregiver press the Automatic button and the desired function simultaneously moves the bed to the defined position automatically.

All automatic functions can be stopped by pressing any key on the personnel keyboard or the manual control unit!
When using automatic functions, carers must remain at the bedside to ensure the safety of patients.

**Warning:**
When one of the powered adjustments is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person's parts of the body project from the side rails !

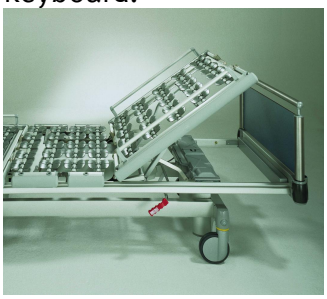
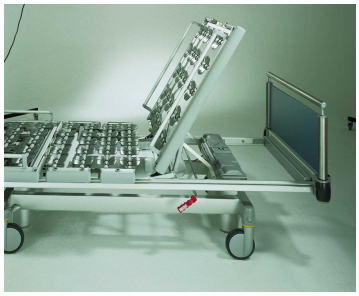
The personnel keyboard must be engaged by pressing the „ON" – button (32) to operate the bed.

If none of the functions of the bed reacts any more, press the green button on the net free connector.

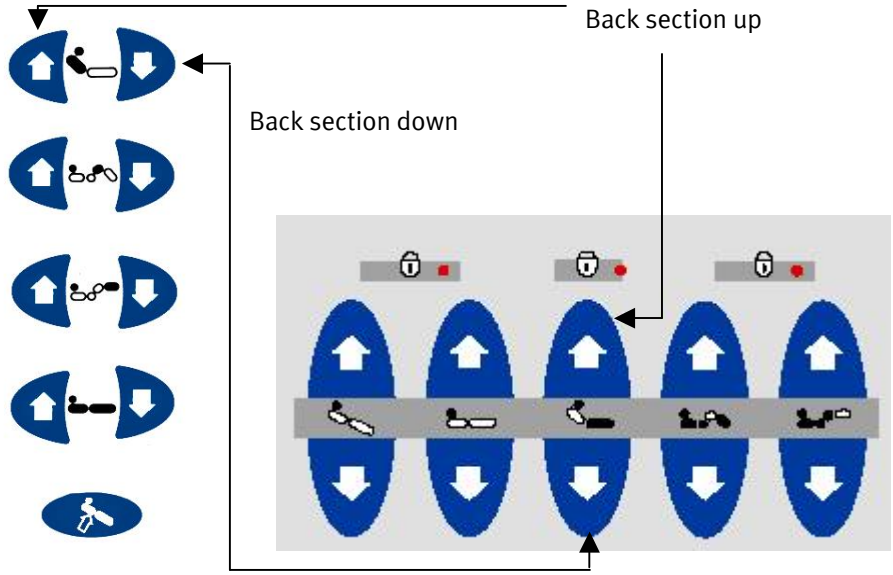
## 6.2 Electrical functions S 961-1

### 6.2.1 Back section adjustment S 961-1

The back section can be adjusted by means of the manual control unit or the personnel keyboard.

The corresponding buttons are as follows:




If necessary, unlock the back section using the personnel keyboard.

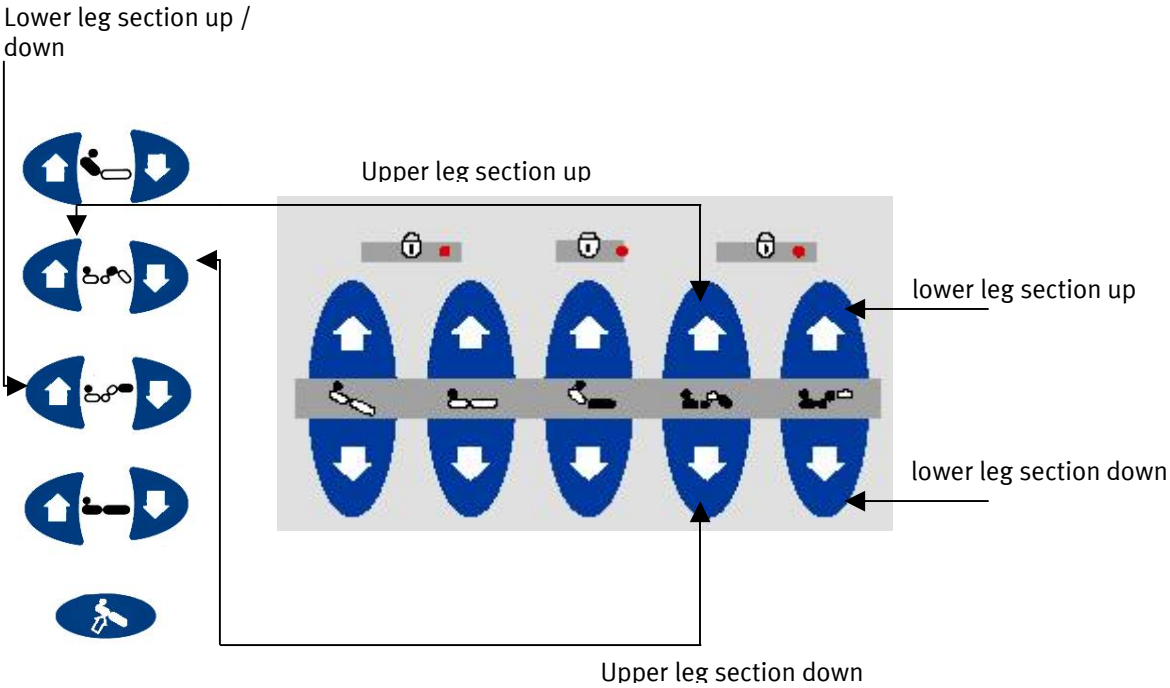
The back section of the lying surface can be folded up to an angle of tilt of up to 64° degrees.

When the back section is raised, it will be displaced by a maximum of 150 mm towards the headboard. This way, the lying comfort is increased, since the patient is stopped from sliding down the bed.

**Warning:** When the back section is raised, with the side rails being folded up, it has to be ensured that neither parts of the patient's nor any other person's body protect from or lie on the side rails!

### 6.2.2 Leg section adjustment S 961-1

The lower and upper leg section can be adjusted by means of the manual control unit or the personnel keyboard.
The corresponding buttons are as follows:



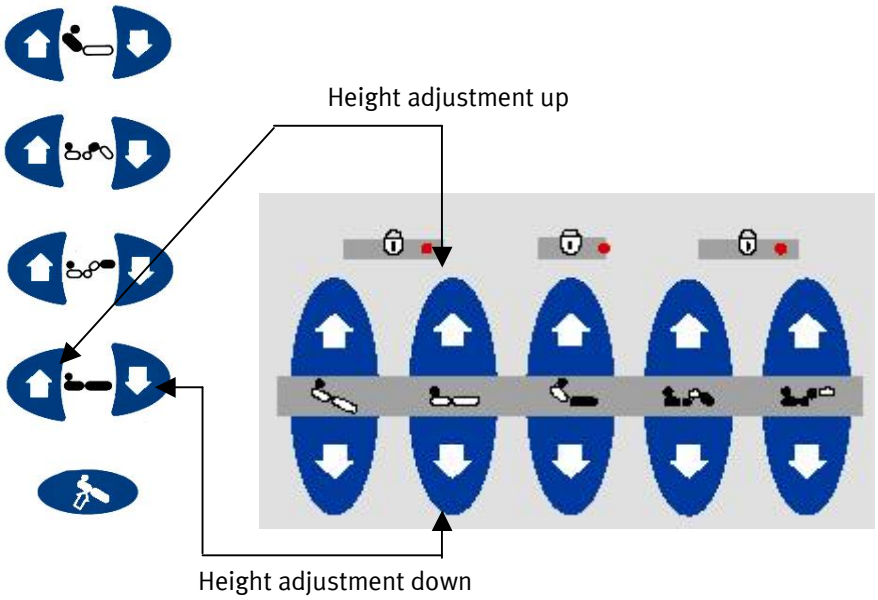

If necessary, unlock the leg section using the personnel keyboard.

The upper leg section of the lying surface can be folded up to an angle of tilt of up to 45° degrees.
The lower leg section of the the mattress frame can be folded up to an angle of tilt up to 30° by pulling on the matress bracket. (only at beds with a lower leg motor)

**Warning:** When the upper or lower leg section is raised, with the side rails being folded up, it has to be ensured that neither parts of the patient's nor any other person's body protect from or lie on the side rails!

### 6.2.3 Height adjustment S 961-1

The whole mattress frame can be adjusted by means of the manual control unit or the personnel keyboard.
The corresponding buttons are as follows:



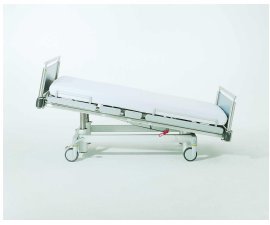

If necessary, unlock the height adjustment using the personnel keyboard.

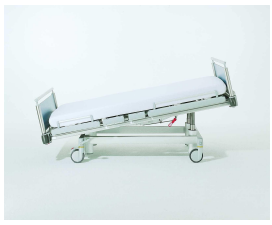
**Warning:** We recommend to lower the bed as far as it will go in order to prevent the patient from any danger caused by falling out of the bed!

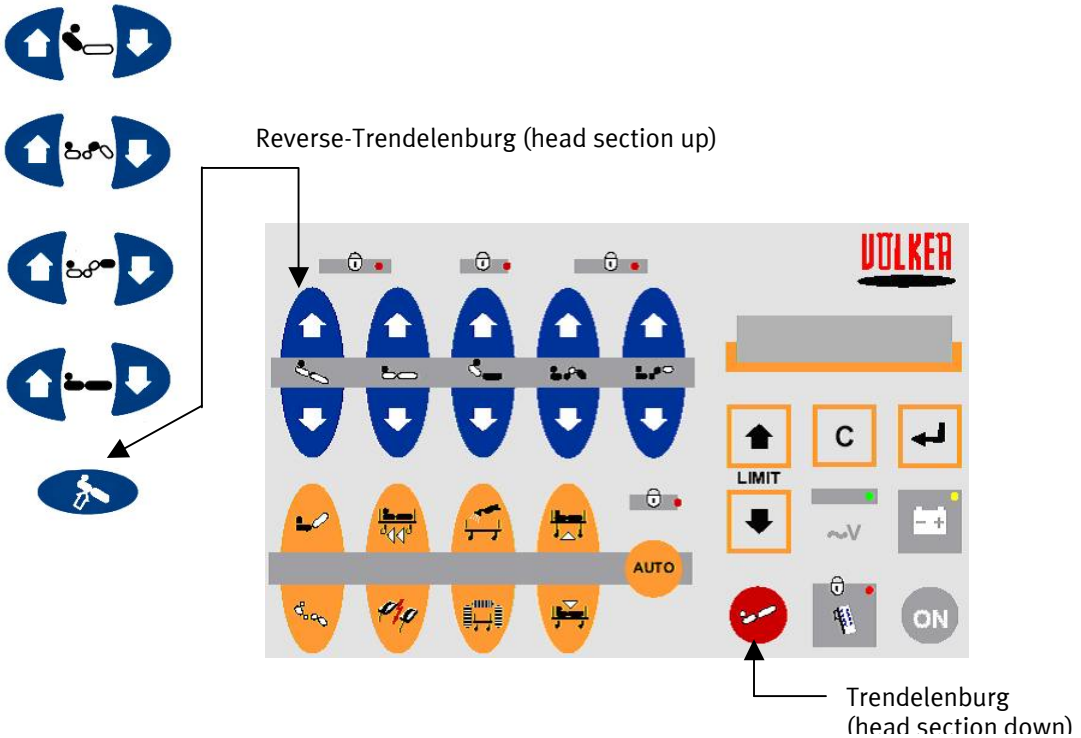
**Warning:** Before lowering the bed, it must be ensured that no persons, limbs or bed linen are between the lying surface and the undercarriage. Before any one gets into and out of the bed, it has to be ensured that the bed stands firmly on the ground (castors in parked position)!

**Warning:** When the height adjustment is operated, with the side rail being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person's parts of the body project from the side rails!

### 6.2.4 Trendelenburg / Reverse Trendelenburg S 961-1







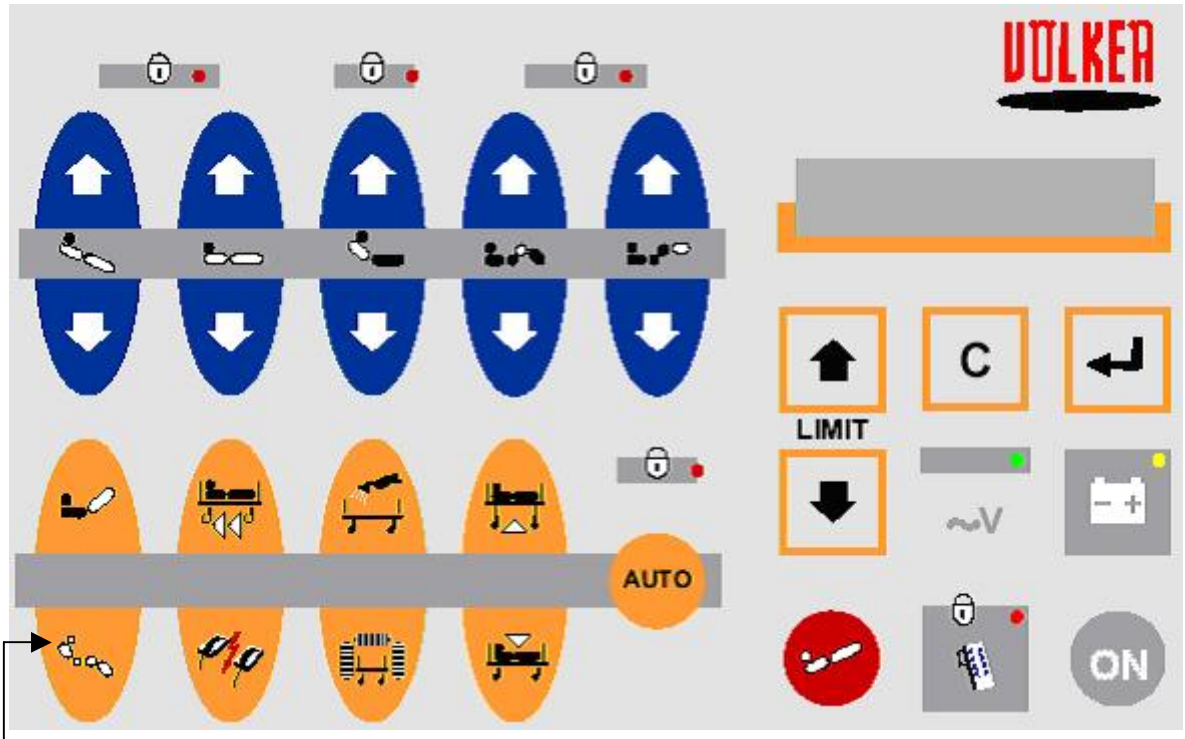

In case an error occurs with the lifting function or the battery is completely dead, the Trendelenburg function cannot be carried out any more. If necessary, the patient must then be moved to another bed!
As long as the batteries have a residual voltage, the function will still be available independent of what is shown in the display.

After locking the lifting function, the Trendelenburg/reverse Trendelenburg function will not be locked!

### 6.2.5 Sitting position (cardiac) S 961-1

Only to be carried out by qualified professionals!

The cardiac chair function can only be set by means of the personnel keyboard.
The corresponding buttons are as follows:




Sitting position

This function can be carried out as hold-to-run function or as automatic function.
“Automatic function” means that the caregiver press the Automatic button and the desired function simultaneously moves the bed to the defined position automatically.

**Warning:** When one of the powered adjustments is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person’s parts of the body project from the side rails!

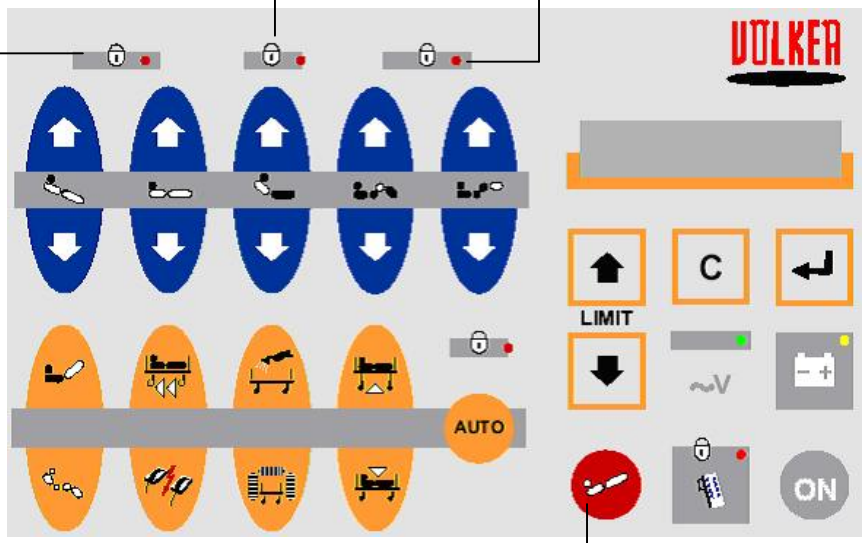
### 6.2.6 Locking of the hand control or the personnel keyboard S 961-1

The personnel keyboard offers you several options to lock functions of the hand control, to protect the patient for improper use:

**Lock height adjustment :**
locks the height adjustment on the hand control and the personnel keyboard

**Lock back section:**
locks the back section on the hand control and the personnel keyboard

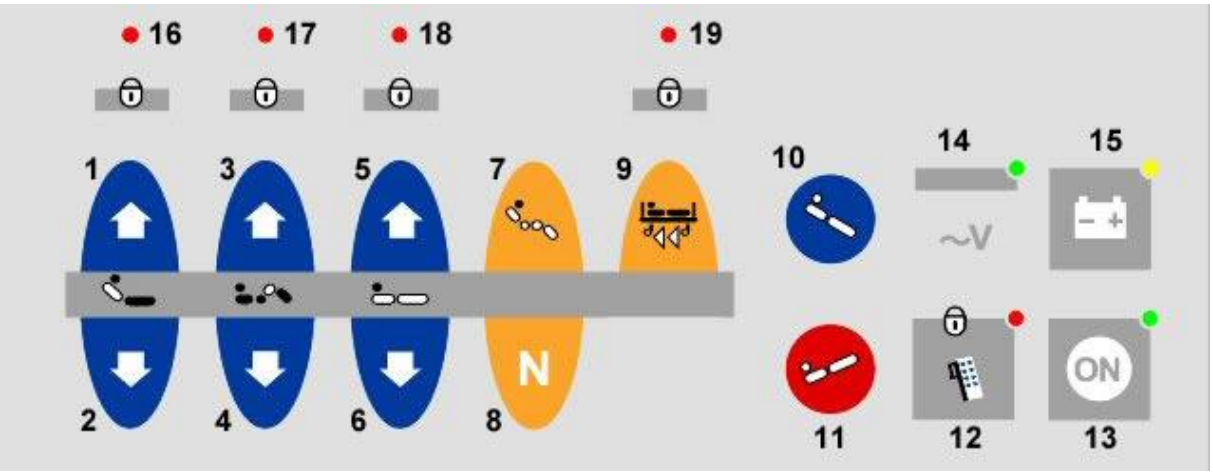
**Lock leg section :**
Locks the lower and upper leg section on the hand control and the personnel keyboard




**Deactivates** the hand control

**Warning:** When one of the powered adjustments is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person's parts of the body project from the side rails!

## 6.3 Overview – Operation by means of personnel keyboard S961-2W




| | | | |
|---|---|---|---|
| 1 | Back section UP | 11 | Trendelenburg position - *1 |
| 2 | Back section DOWN | 12 | Locking hand control (all functions on the hand control are locked) |
| 3 | Upper leg section UP | 13 | „ON“-Button (Engaging personnel keyboard) |
| 4 | Upper leg section DOWN | 14 | Mains voltage display |
| 5 | Height adjustment UP *1 | 15 | Battery display *3 |
| 6 | Height adjustment DOWN *1 | 16 | Locking back section |
| 7 | Cardiac Chair-Position *1 | 17 | Locking upper leg section |
| 8 | Zero position*1 | 18 | Locking height adjustment |
| 9 | Transport position *1 *2 | 19 | Locking automatic functions |
| 10 | Reverse Trendelenburg position | | |

*1 use double click for automatic functions*4
*2 no change at lower and upper leg section, height of the matress frame: 70 cm, use double click for automatic function *4
*3 green : fully charged; orange : charge < 80%; red : battery unloaded; blinking : battery is charged
*4 “Automatic function” means that the caregiver press the button twice (double click) and the bed moves to the defined position automatically.

All automatic functions can be stopped by pressing any key on the personnel keyboard or the manual control unit!

When using automatic functions, carers must remain at the bedside to ensure the safety of patients.

The personnel keyboard must be engaged by pressing the „ON“ – button (13) to operate the bed.

By pressing two of the locking-buttons (16-19) at the same time you can lock / unlock the whole bed.

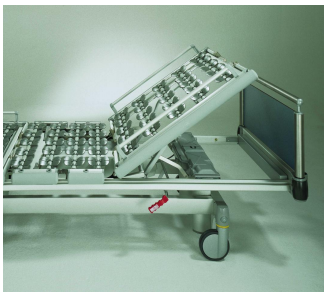
If none of the functions of the bed reacts any more, press the green key on the net free connector.

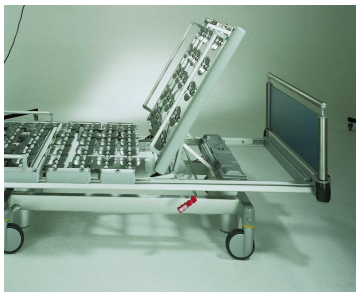
**Warning:**
When one of the powered adjustments is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person’s parts of the body project from the side rails!

## 6.4 Electrical functions S 961-2W

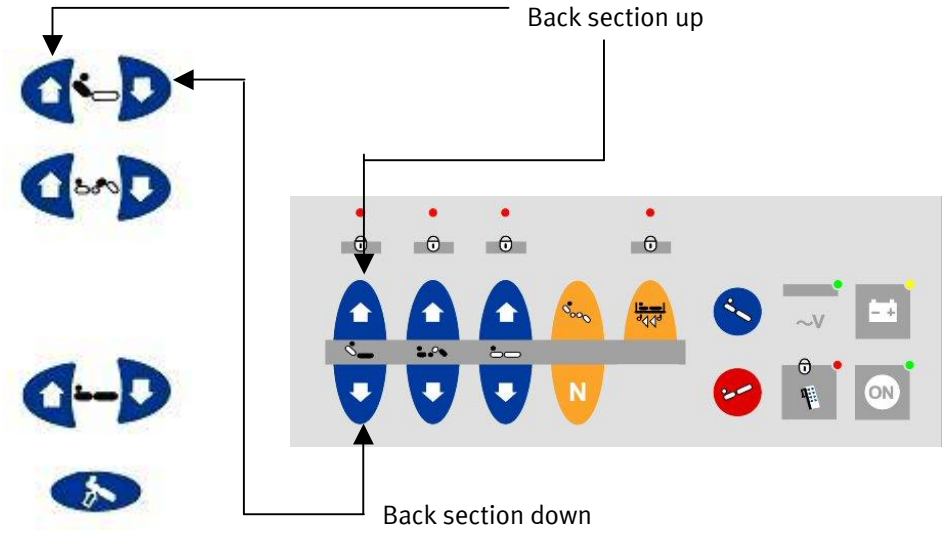
### 6.4.1 Back section adjustment S 961-2W

The back section can be adjusted by means of the manual control unit or the personnel keyboard.





The corresponding buttons are as follows:




If necessary, unlock the back section using the personnel keyboard.

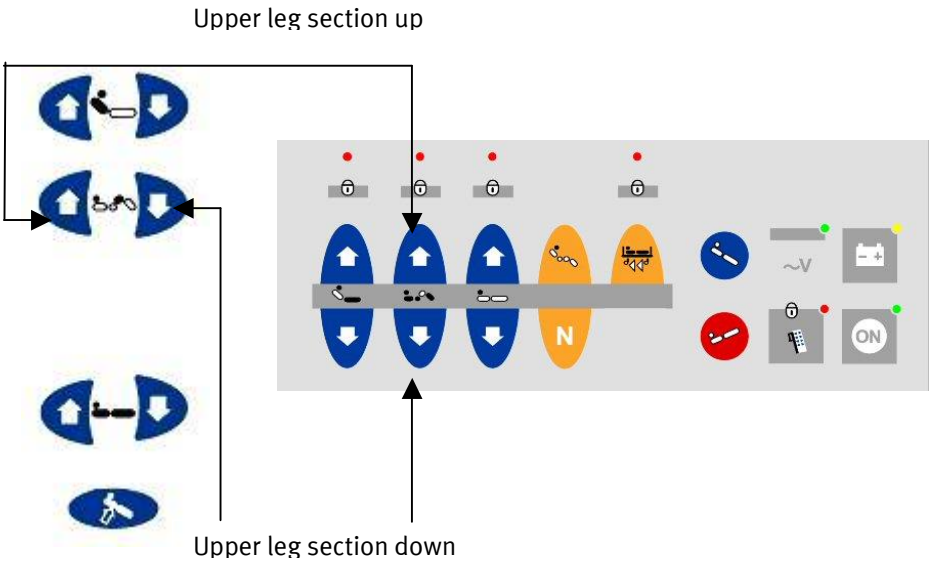
The back section of the lying surface can be folded up to an angle of tilt of up to 64° degrees.

When the back section is raised, it will be displaced by a maximum of 150 mm towards the headboard. This way, the lying comfort is increased, since the patient is stopped from sliding down the bed.

**Warning:** When the back section is raised, with the side rails being folded up, it has to be ensured that neither parts of the patient's nor any other person's body protect from or lie on the side rails!

### 6.4.2 Leg section adjustment S 961-2W

The lower and upper leg section can be adjusted by means of the manual control unit or the personnel keyboard.
The corresponding buttons are as follows:

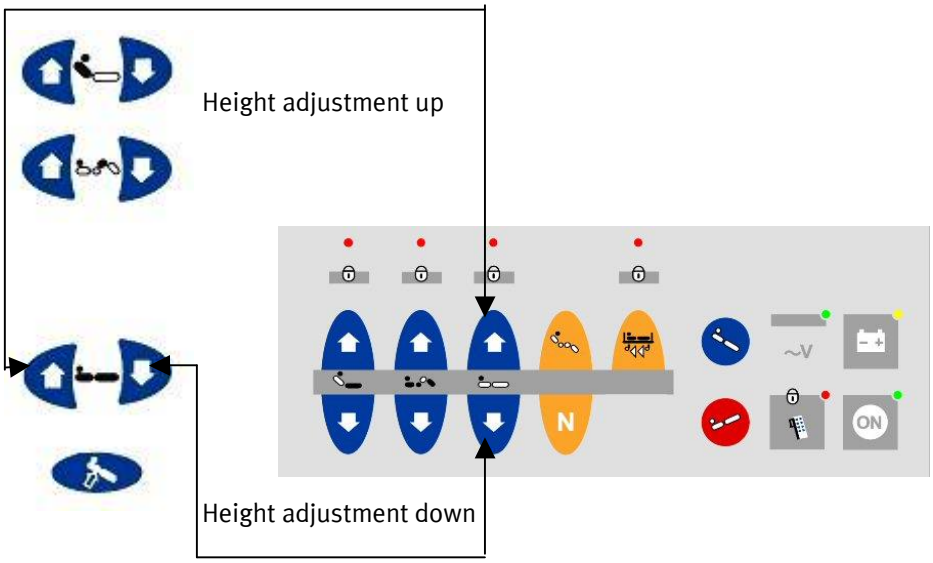



If necessary, unlock the leg section using the personnel keyboard.

The upper leg section of the lying surface can be folded up to an angle of tilt of up to 45° degrees.
The lower leg section of the the matress frame can be folded up to an angle of tilt up to 30° by pulling on the matress bracket

### 6.4.3 Height adjustment S 961-2W

The whole matress frame can be adjusted by means of the manual control unit or the personnel keyboard.
The corresponding buttons are as follows:



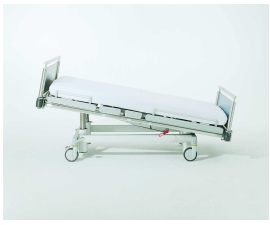

If necessary, unlock the height adjustment using the personnel keyboard.

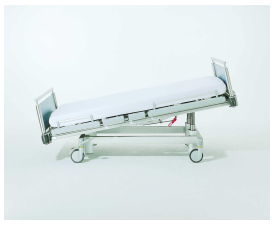
**Warning:** We recommend to lower the bed as far as it will go in order to prevent the patient from any danger caused by falling out of the bed!

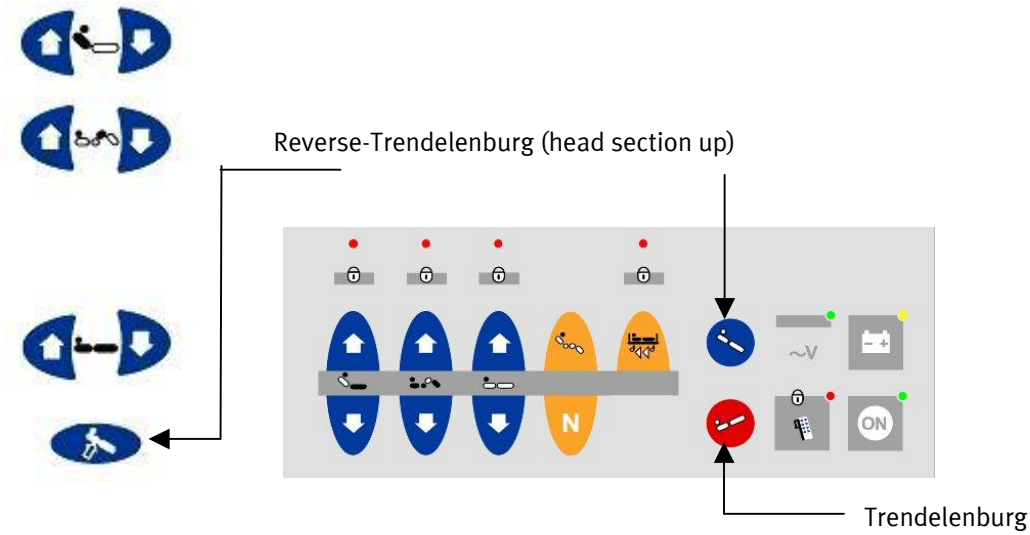
**Warning:** Before lowering the bed, it must be ensured that no persons, limbs or bed linen are between the lying surface and the undercarriage. Before any one gets into and out of the bed, it has to be ensured that the bed stands firmly on the ground (castors in parked position)!

**Warning:** When the height adjustment is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person's parts of the body project from the side rails!

### 6.4.4 Trendelenburg / Reverse Trendelenburg S 961-2W








The Trendelenburg function affects only the inclination of the mattress frame. The mattress frame stays in the adjusted position.

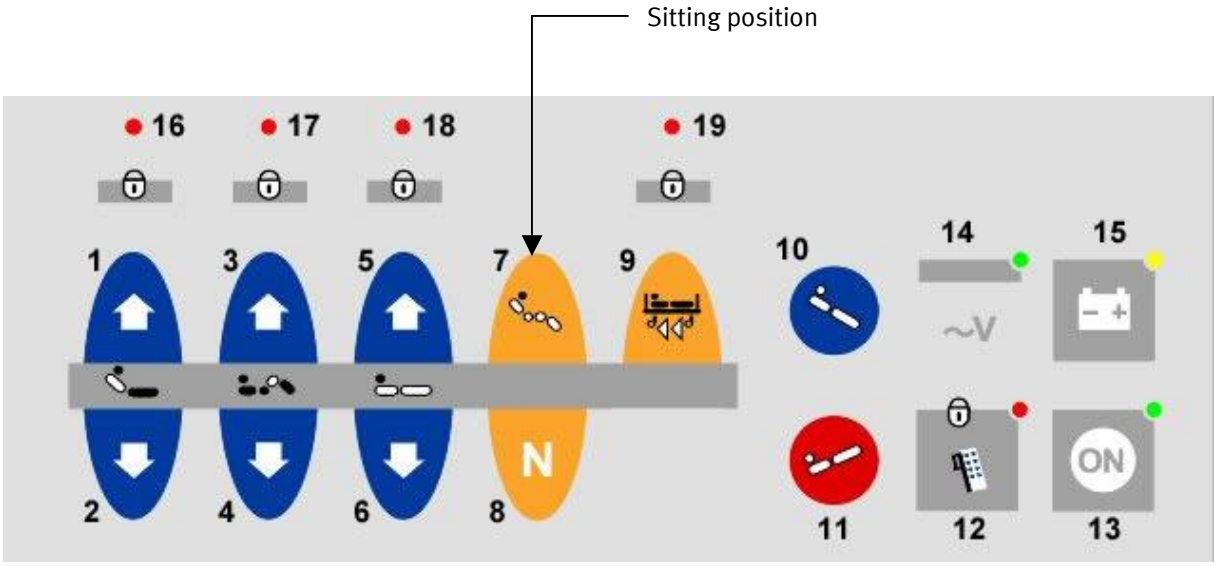
In case an error occurs with the lifting function or the battery is completely dead, the Trendelenburg function cannot be carried out any more. If necessary, the patient must then be moved to another bed!
As long as the batteries have a residual voltage, the function will still be available independent of what is shown in the display.

After locking the lifting function, the Trendelenburg/reverse Trendelenburg function will not be locked!

### 6.4.5 Sitting position (cardiac) S 961-2W

Only to be carried out by qualified professionals!

The cardiac chair function can only be set by means of the personnel keyboard.
The corresponding buttons are as follows:




This function can be carried out as hold-to-run function or as automatic function.
“Automatic function” means that the caregiver press the button twice (double click) and the bed moves to the defined position automatically.

**Warning:** When one of the powered adjustments is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person’s parts of the body project from the side rails!

### 6.4.6 Locking of the hand control or the personnel keyboard S 961-2W

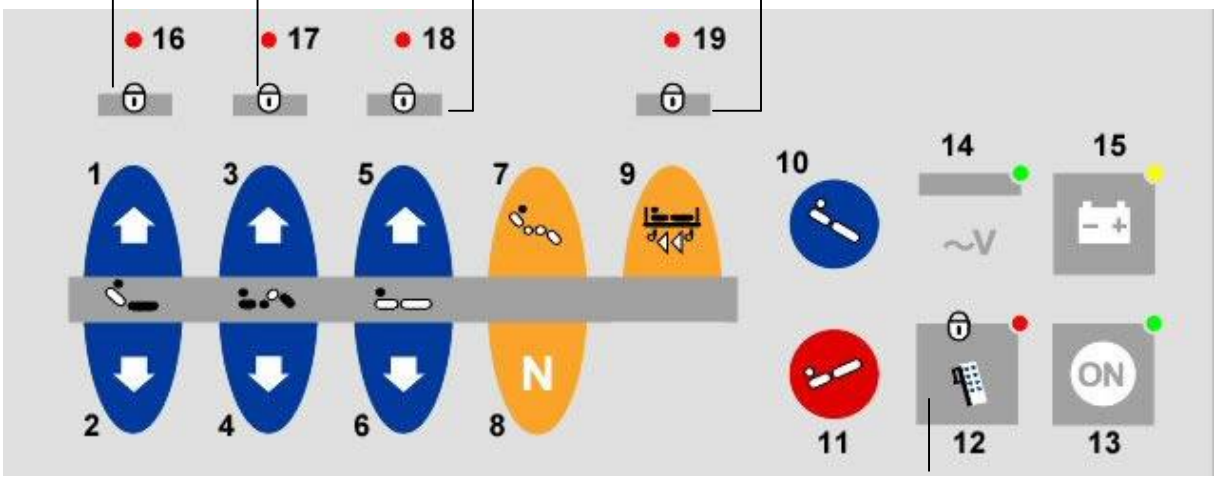
The personnel keyboard offers you several options to lock functions of the hand control, to protect the patient for improper use:

**Lock back section:**
locks the back section on the hand control and the personnel keyboard

**Lock leg section :**
Locks the lower and upper leg section on the hand control and the personnel keyboard

**Lock height adjustment :**
locks the height adjustment on the hand control and the personnel keyboard

**Deactivates all automatic functions**



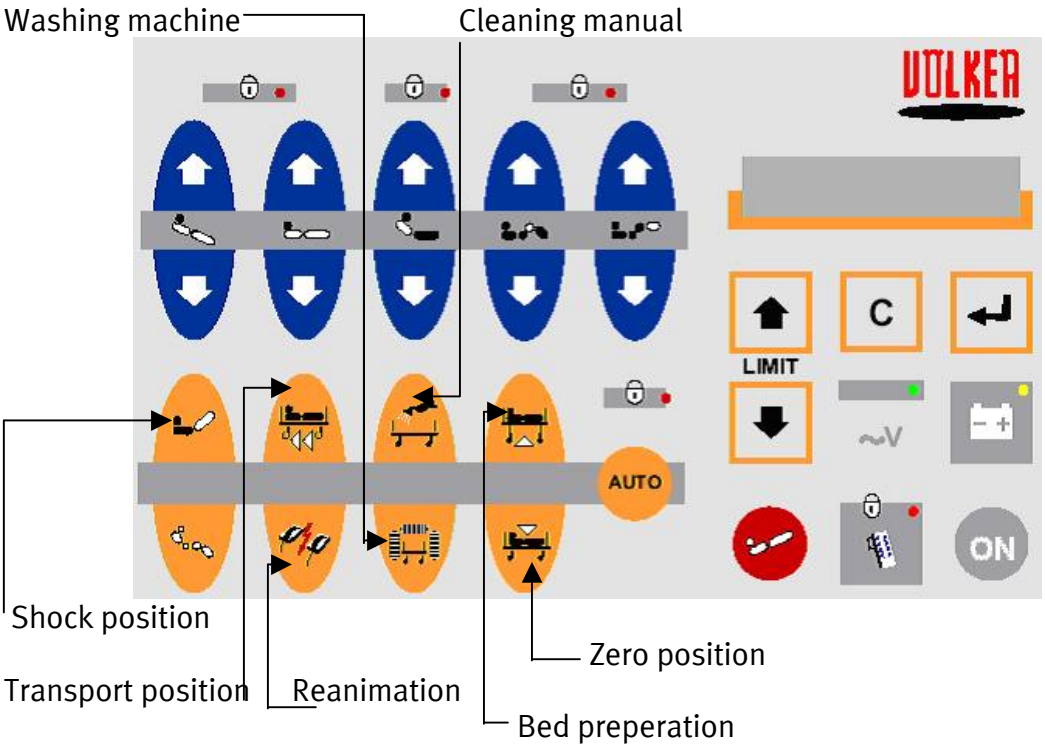

**Deactivates** the hand control

**Warning:** When the height adjustment is operated, with the side rails being folded up, it has to ensured that the patient neither gets into contact with the side rails nor his or any other person's parts of the body project from the side rails!

All automatic functions can be stopped by pressing any key on the personnel keyboard or the manual control unit!
When using automatic functions, carers must remain at the bedside to ensure the safety of patients.

## 6.5 Automatic functions S 961-1

In order to facilitate the work with patients, functions have been installed for the nursing staff enabling them to drive the bed into preset positions without having to press and continously hold a key.




To use the desired function release the relevant key in combination with the “Auto”-key and the bed goes into the required position automatically.

All automatic functions can be stopped by pressing any key on the personnel keyboard or the manual control unit!
When using automatic functions, carers must remain at the bedside to ensure the safety of patients.

## 6.5.1 Endposition of automatic functions

| | Position | Lift / tilting angle | Back section | Upper leg section*2 | Lower leg section*3 |
|---|---|---|---|---|---|
| 1 | Shock position | - | 0 ° | 30° | 0 ° |
| 2 | Transport position *1 | 65 cm | 0 ° | 0 ° | 0 ° |
| 3 | Manual cleaning | max. | max. | max. | max. |
| 4 | Bed preperation | max. | 0 ° | 0 ° | 0 ° |
| 5 | Zero position | min. | 0 ° | 0 ° | 0 ° |
| 6 | Automatic washing | min. | max. | max. | max. |
| 7 | Reanimation *1 | 60 cm | 0 ° | 0 ° | 0 ° |
| 8 | Cardiac Chair | 12° | 61 ° | 41° | 4 ° |
| | | | | | |

*1 The specified values comply with the settings at delivery. By using the personnel keyboard the bed can be configured to your requirements.

*2 If no value is specified, the upper leg section drives in a position parallel to the lower leg section.

*3 The value of the angle for the lower leg section is always related to the position towards the upper leg section.

## 6.6 Menu functions S 961-1

The menu can be called up by pressing the keys ENTER + C out of the start display.
With the keys LIMIT+ und LIMIT- you can navigate through the menue. The selection or confirmation is raised by the ENTER – key.
The values are changed by using the LIMIT+ und LIMIT- keys:

up = increase in value

down = decrease in value

This only possible when the value was choosen by using the ENTER – key before and the cursor is shown under the value.

Press the ENTER key to complete an alteration in value.

### Leaving the menu:

You can leave the menu from every level by repeated pressing of key C. Without operating the menu will be left after a few seconds. Potential changes are lost after that.

### Information to PIN – Codes :

In order to avoid unauthorized alterations of settings, some menu items are secured by having to enter the right PIN code.
In order to carry out certain menu functions, the user is prompted to enter a PIN code. The Carers' PIN code must then be entered to get to the next menu level, for example the menu item "limitation of travel":

**Carers' pin:** **Reverse-Trendelenburg up + height adjustment up + back section up + upper leg section up**

In some menu items, a technicians' PIN has to be entered. In those cases, the user is not prompted to enter a PIN in order to prevent unauthorized persons from trying to get access to those functions. Entering the technicians' PIN code will switch from display mode to alteration mode and has thus to be carried out from within the display mode. Menu items where alterations can be made by means of the technicians' PIN code are "Automatic mode, Last technical check and manual control unit comfort key".

**Technicians' -PIN:** **Reverse -Trendelenburg up + height adjustment up + height adjustment down+ upper leg section down**

**Note**: Values that have been changed are marked by an "asterisk" on the top right edge. In alteration mode, the value to be altered is preceded by the ">" sign.

### 6.6.1 Menu function “Limitation of travel”

The menu is called up by simultaneously pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Limitation of travel”.

| Menu<br>Limitation of travel |
|---|

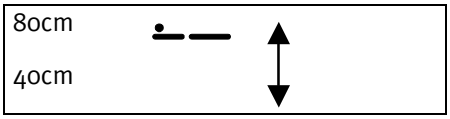
There you can navigate with the LIMIT + and LIMIT – keys between the travel limitations for the various gears. After pressing the ENTER – key you will asked for the carers’ – pin. Enter the pin to switch to alteration mode. By pressing the keys LIMIT + or LIMIT - keys the value can be altered. The value to be altered is preceded by the “>” sign and the alteration will take effect by pressing the ENTER key again. Through the confirmation of a value you will reach the next one. All values will be shown and can be changed. At the end you will reach the top menu level by pressing the C – key.

**Example :**

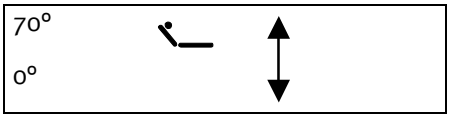

Travel limiations are active all the time. Automatic functions will not be executed and the message „FUNCTION LIMITED“ will be displayed.

**Limitation of travel displays**

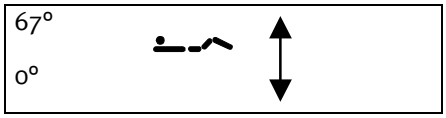
Height adjustment



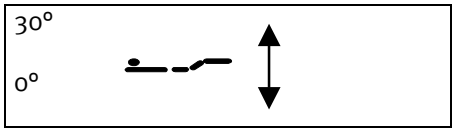

Back section



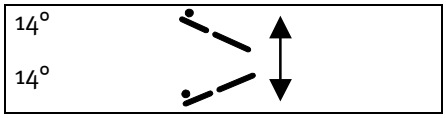

Upper leg section




Lower leg section




Trendelenburg/reverse Trendelenburg



### 6.6.2 Menu function "Language“

The menu is called up by simultaneously pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “language”.

| Menu |
| --- |
| language |

By pressing the ENTER key, you will switch to the display mode, and the language set will be shown. By pressing the ENTER key again, you will switch to the alteration mode. Using the keys LIMIT + or LIMIT -, you can now set a different language. By pressing the ENTER key, your selection will be accepted. You can leave the menu by pressing the C-key.

### 6.6.3 Menu function “Service”

The menu is called up by simultaneously pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Service”.

| Menü |
| --- |
| SERVICE |

By pressing the keys LIMIT + and LIMIT – the following informations will be shown :

Version
Bed identification number
Castor correction
Height of reanimation
Height of transport

The menu function “Castor correction” is for the readjustment of the height adjustment when other castors than the standard castors are used.

Only technicians of the Völker AG or persons assigned by the Völker AG are allowed to use this function!

### 6.6.4 Menu function „Version“

The menu is called up by entering the menu function “Service” and then pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Version”.

| Service |
| --- |
| Version |

With the keys LIMIT+ and LIMIT- the following infirmation can be displayed:

- Name of the hospital bed
- Software-Version of the head office
- Software-Version of the personnel keyboard

### 6.6.5 Menu function “Height of transport“

The menu is called up by entering the menu function “Service” and then pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “height of transport”.

| Service |
| --- |
| Height of transport |

By pressing the the ENTER key the adjusted value will be shown. To change this value you need a technicians-pin.

### 6.6.6 Menu function „Height of reanimation“

The menu is called up by entering the menu function “Service” and then pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “height of reanimation”.

| Service |
| --- |
| Height of reanimation |

By pressing the the ENTER key the adjusted value will be shown. To change this value you need a technicians-pin.

### 6.6.7 Menu function "Bed-id number"

The menu is called up by entering the menu function “Service” and then pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Bed ident number”.

| Service<br>Bed id - number |
|---|

Changes are not possible in this menu.

### 6.6.8 Menu function "Error"

The menu is called up by entering the menu function “Service” and then pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Errors”.

| Service<br><br>Errors |
|---|

By pressing keys LIMIT + and LIMIT – you can switch between the subitems “Error” and “errorbits”. The displayed error-codes will help our technicians to isolate the problem in the case of trouble.

### 6.6.9 Menu function "Comfort"

The menu is called up by simultaneously pressing the keys ENTER + C and the LIMIT + and LIMIT – keys to reach the menu “Comfort”.

| Menu<br><br>Comfort |
|---|

By pressing the ENTER key the menu is called up.

| COMFORT<br><br>ON |
|---|

By pressing the ENTER key again, you will switch to the alteration mode. By pressing the LIMIT+ und LIMIT- keys you can adjust the different options. To confirm the adjusted value press the ENTER – key again.

# 7. Fault finding

The following table contains notes on potential malfunctions. The causes for such failures may be improper use or wear and tear. These malfunctions may lead to injuries of patients and staff.

Before carrying out any trouble shooting ensure that the battery is charged (The charge state is inidcated about the colour of the LED (red / yellow / green)) and the bed is connected to the mains supply (power plug inserted to an outlet which is live).

Before starting any repair work make sure to disconnect the bed from the mains supply and to separate the battery pack from the circuit, if necessary.

### Service F4 – Error Codes

Bed will be locked. For details look at error code. Technician required.

| Error | reason |
|---|---|
| Service F4 | |
| No reference | Actual position of axis is unstable |
| Error 89 | timeout |
| Error 90 | Overcurrent (by deadlock? ) |
| Error 91 | Actual position of axis is unstable |
| Error 92 | No calibration |
| Error 93 | No reverb impulse available, motor only runs for a moment |

| Diagnosis | Possible cause | Trouble shooting |
|---|---|---|
| Time lock | Allowed uptime was exceeded. | Wait for 10 minutes or RESET |
| Stopage ON | Stopages was set | Turn stopages off |
| Battery damaged | Battery is defective | Reset or call Service |
| Operation lock | Hardware / Arithmentic error | Reset or call Service |
| Position unknown | Control was turned off, Reset was executed | Drive alle gears to lowest possible position or call service |
| Drive against blocked axis | Repsective axis rough-running or blocked | Drive gear in opposite direction or call service |
| Overcurrent | Starting current of the gear is to large (Antrieb is defective/hot wired) | Reset or call Service |
| No hall impuls available | Gear send no impulses or impulses are not recognized | Call Service |
| No communication | Personnel keyboard is not recognized | Check wrap connection or call service |
| Temperature excursion | Battery defective | Disrupt bed from the mains power supply and wait or call service |
| Temperatur sensor defective | Temperatur sensor of battery is defective | Reset or call Service |
| 24VDC motor operation is missing | Cable/warp connection is defective, mainboard is defective | Call Service |
| 24VDC motor operation wrong | Factory error | Call Service |
| Not calibrated | Control was not calibrated | Call Service |
| Read - / Write error EEPROM | Hardware / Arithmentic error | Reset or call Service |
| Bed does not function at all | - Plug not inserted or outlet is not live<br>- Battery is not connected or dead<br>- Mains connection relay got stuck<br>- Entire drive unit is faulty<br>- Power cable is damaged | (1) Insert plug or check outlet<br>(2) Press green button of the mains connection while simultaneously operating any function of the hand control unit<br>(3) Check battery and replace it, if necessary<br>(4) If there is no fixed cable link to the motor, replace the power cable |
| Lifting/lowering function of the lying surface is faulty | - Lying surface motor is faulty<br>- Hand control unit is defective<br>- Mattress retraction lever is faulty<br>- Slider for mattress compensation is defective<br>- Bearing support for slider/bolt is faulty | (1) Replace the respective drive<br>(2) Replace hand control unit<br>(3) Replace mattress retraction lever<br>(4) Replace slider for mattress compensation<br>(5) Replace bearing support for slider/bolt |
| Height adjustment is faulty – bed height cannot be adjusted | - Hand control unit is defective<br>- Lift is locked / drive is faulty<br>- supervisor is defective | (1) Replace hand control unit<br>(2) Replace the respective drive<br>(3) Replace supervisor /unlock lift |
| Height adjustment is faulty – bed can be adjusted on one side only | - Drive is defective<br>- Cable harness running to functioning motor is faulty<br>- Signal transmitter at the functioning side is defective<br>- Limit switch is maladjusted (at the functioning side) | (1) Replace the drive<br>(2) Replace the cable harness<br>(3) Replace control motor<br>(4) Adjust limit switch |
| Bed can hardly be moved | - Castor is faulty<br>- Directional roll is defective | (1) Replace castor<br>(2) Replace directional roll |

* After a „RESET“ you have to drive the bed always in zero position.

## 7.1 Reset

By a reset noncritical error conditions can be set back. Before executing a reset the error display should be written down, to initiate remedial actions if necessary. After a reset all gears must be driven in the deepest possible position.
**Attention!!** A reset may only be executed if the the error is turned off. The reset-pin should only be hand over to technicians.

**Reset ST**
S961-2W

(Delivery till KW82006 = SW00.30.03)
**TA15** (Battery display) + **TA3** (Upper leg section up) + **TA4** (lower leg section down)
Simultaneous pressing till all LED`s are off

(Delivery since KW82006 = SW00.30.07)
**TA15** (Battery display) + **TA1** (Back section up) + **TA4** (Upper leg section up)
Simultaneous pressing till all LED`s are off

**Reset PT**
S961-1

**TA27** (C-key) + **TA23** (Auto-key) + **TA7** (Upper leg up) + **TA8** (Upper leg down)
Simultaneous pressing till is off

## 7.2 Error display S961-1

„Error – bit“ / personnel keyboard
field 1

| 0x0000 |
|---|

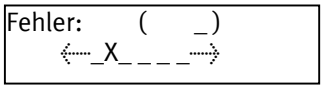
In field one the id number of the respective error is displayed
In field two a detailed information to the respective error is displayed

## Error displays

| error | reason | After reset |
|---|---|---|
| 0x0001 | Motor voltage 24 V is existent, although it should be off | Remains |
| 0x0002 | Overcurrent was identified (CPLD or SW) | Remains |
| 0x0004 | Motor Voltage 24 V is missing | Remains |
| 0x0008 | Rotating direction of a motor is wrong | Remains |
| 0x0010 | A motor-H-bridge is defect | Remains |
| 0x0020 | ADC – converter is defect | Deleted |
| 0x0040 | EEPROM does not response | Deleted |
| 0x0080 | CRC error in the EEPROM | Remains |
| 0x0100 | CRC error in Flash (Code) | Remains |
| 0x0200 | Storage cell in the ram is defect | Deleted |
| 0x0400 | Motor voltage of an used motor is missing | Remains |
| 0x0800 | Slow Clock or REF Clock of the CPLD is missing | Deleted |
| 0x0C00 | CPLD WD has been activated | Deleted |
| 0x1000 | The deviations of the two reverbaration emitters are too large | Deleted |
| 0x2000 | Reverbaration impulse without movement | Remains |
| 0x4000 | The required motor is not existent (both end switches are operated) | Deleted |
| 0x8000 | Problems with the end switch | Deleted |

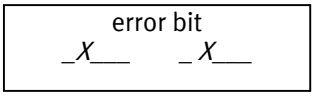
### 7.2.1 Readout the errors with the personnel keyboard (S961-1)

1. **Press TA32** (On key)
2. Open the menu with **TA27**(C-key) and **TA30**(Enter-key)
3. Press **TA25**(Limit-key) until „Service“ is displayed (press TA25 for two times)
4. Open the menu item „Service“ with **TA30** (Enter-key)
5. Press **TA25**(Limit-key) until “Error” is displayed (press TA25 for two times)
6. Open the menu item „Error“ with **TA30** (Enter-key)
7. The following will be displayed :




8. Please note the displayed code

By pressing **TA25** (Limit-key) the exact error description will be displayed. Please note the displayed code.



## 7.3 Error display S961-2W

| | Inhib. LED BS | Inhib. LED ULS | Inhib. LED Hub | Inhib. LED Autom. | Inhib. LED HS | status LED net | status LED battery |
|---|---|---|---|---|---|---|---|
| Time lock | Blinks when pressing a key. | | | | | | |
| Stoppages ON | ON? | ON? | ON? | ON? | ON? | | |
| Defect battery | OFF | OFF | OFF | ON | BLINKING | ON | OFF |
| Operation stoppage * | OFF | OFF | OFF | OFF | BLINKING | ON | OFF |
| Unknown position | BLINKING? | BLINKING? | BLINKING? | | | | |
| Run against blocked arbor | BLINKING? | BLINKING? | BLINKING? | BLINKING? | OFF | | |
| Overcurrent | ON | OFF | ON | OFF | BLINKING | ON | OFF |
| No reverberation impulse available | ON | ON | OFF | ON | BLINKING | ON | OFF |
| No communication * | OFF | OFF | OFF | OFF | OFF | Pulse | OFF |
| Excess temperature | OFF | OFF | ON | ON | BLINKING | ON | OFF |
| Defect temperature sensor * | OFF | ON | OFF | OFF | BLINKING | ON | OFF |
| 24VDC Motor operation is missing * | OFF | ON | OFF | ON | BLINKING | ON | OFF |
| 24VDC Motor operation is wrong* | OFF | ON | ON | OFF | BLINKING | ON | OFF |
| Not calibrated | BLINKING? | BLINKING? | BLINKING? | | | | |
| Read-/ Write- error EEPROM | aus | ON | ON | ON | Blinkt | ON | OFF |
| ? = respective arbor | Inform service | | | | | | |

# 8. Spare parts

Please take the name as well as the order number of the required component from the chapter “Presentation of Assemblies” in your service manual.

# 9. Cleaning and disinfection

## 9.1 Wipe and spray disinfection

The disinfection cleaners specified in the DGHM (German Association for Hygiene and Microbiology) list dated 4. February 2002 can be used in concentrations in accordance with the requirements as wipe and spray disinfection. The thinning ratio recommended in the respective instructions for use must be applied.
Solvents are not permitted.
Abrasives, scrubbing sponges or other substances making the surface blunt must not be used.

Organic solvents, such as halogenated/aromatised hydrocarbons and ketones, must not be used.

Following instructions have to be followed with regard to detergents and disinfectants:

The decontamination solutions in prescribed solution concentrations must not exceed or fall short of the ph value ranging between 6 and 8.
They must not contain corrosive of caustic matter.
They must not contain substances which modify the surface structure or the attachment features of the materials.
Lubricants must not corrode.
Water must not exceed a total water hardness of 0.9 mmol/l (up to 5 degrees d).

(Completely demineralized water must not be used).

| | |
|---|---|
| Chlorides | < 100 ppm |
| Silicates as Sio2 | < 15 ppm |
| Iron | < 0.05 ppm |
| Manganese | < 0.01 ppm |
| Copper | < 0.05 ppm |

These indications are based on our current knowledge and experiences. They do not release the user from carrying out their own examinations and tests, because the conditions (e.g. water hardness) may vary locally. A legally binding pledge for certain features cannot be derived from this.

If unsuitable washing powder or disinfectants are used or used in incorrect mixing ratio or in case of insufficient maintenance, there might occur damages to the surface coating of beds for which we do not take responsibility.

Electric shock / fire hazards and functional deficiency
Generally, the bed has to be cleaned and disinfected, with the net plug disconnected from the bed.
The plug and socket of the manual control unit are waterproof only if they are in plugged-in condition. If the plug is taken off, both units are not waterproof so that the plug has to be protected against penetrating water. The socket must be closed using the cap.

### 9.2 Spray lances

Cleaning and disinfecting the bed using spray lances of high-pressure cleaning apparatuses is not permitted.

### 9.3 Automatic washing machines

During mechanical decontamination please pay attention to the following guidelines :

the temperature must not exceed 65° C
the pressure on the final nozzle may not exceed 6 bar

The wipe disinfectants recommended by the RKI (Robert-Koch-Institute) can be used in the concentrations recommended in the relevant manufacturers instructions.

## 10. Accessoires

Völker supplies an extensive range of easy-to-fit accessories to achieve the greatest possible flexibility. The hospital beds are equipped with holding fixtures for accessories like drip-feed holders, grab-handles or bed lamps so that you can extend the functional scope of your bed.
In addition mattresses, lamps as well as an extensive programme of bedside cabinets and servers, tables, chairs, easy chairs and cupboards are available to match Völker hospital beds. Please ask for our information brochures.

### 10.1 Mattresses

To minimize the risk of injuries please only use matresses of the following size. If you are not using a mattress of Völker please contact your local specialised dealer.

| Size of mattress | Size of mattress frame |
|---|---|
| 88.5 x 200 x 12 cm | 90 x 200 cm |
| 88.5 x 220 x 12 cm | 90 x 220 cm |
| 98 x 200 x 12 cm | 100 x 200 cm |
| 98 x 220 x 12 cm | 100 x 220 cm |

### 10.2. Usage of fixation systems

The use of fixation systems like belts is only allowed in observance of the regulations of the producer.

It is not allowed to move the mattress frame during a fixation.
The mattress frame have to be in the lowest possible position.
Deactivate all functions of the mattress frame during a fixation and keep the manual control unit out of range of the patient

## 11. List of tools

Ring spanner WS 17, WS 13
Open-end spanner WS 13, WS 10
Set of angled screw drivers
Set of Torx Bits
Set of cross recess Bits

## 12. Service points

If required, please contact the responsible person in your sales organisation. You will then immediately receive all necessary information on the comprehensive service.

## 13. Forms

This is an example for ordering spare parts for your hospital bed:

The identification plate and the model name of your bed are located at the inner side of the head part. Please note down the data on the order form.
By using the “Bed Data” menu item, the following information is shown in the display:

ID number
Hardware version
Software version

Please note down the data on the purchase order form.

Please locate the desired spare parts in the respective illustration.

Please enter the order numbers according to the indications given in the tables:

Quantity
Item number
Part designations

**Völker AG**
Wullener Feld 79
58454 Witten
GERMANY

**Fax: +49-(0)2302-96196-66**

**Place and date**

**Company/stamp of the hospital**

**Signature**

| | |
|---|---|
| ID number: | |
| See identification plate | |
| See display (bed data) | |
| Model | |
| Hardware version:<br>See display (bed data) | |
| Software version:<br>See display (bed data) | |

Contact person:

Phone number:

Purchase order:

| | Number of pieces | Order number | Name |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |

# Konformitätserklärung

## Konformitätserklärung
**Anhang VII**
**EU-Richtlinie 93/42/EWG**

Der Unterzeichnende
Völker AG
Wullener Feld 79
58454 Witten

bestätigt, dass die nachfolgend bezeichneten Produkte in der von uns in Verkehr gebrachten Ausführung die grundlegenden Anforderungen des Anhangs I der EU-Richtlinie 93/42/EWG erfüllen. Es wurden die folgenden Normen angewendet :
DIN EN 60601-1,
DIN EN 60601-1-2,
DIN EN 60601-1-4,
DIN EN 60601-2-38.

Damit sind die Anforderungen des Medizinproduktegesetzes zur Anbringung einer **CE Kennzeichnung** erfüllt.

Bei einer nicht mit dem Hersteller abgestimmten Änderung des Produktes verliert diese Konformitätserklärung ihre Gültigkeit.

Bezeichnung der Produkte :
Klinikbetten S 960-1, S 960-2,
S 960-2 W, S 961-1, S 961-2W, S 280 und S 380.

EG-Richtlinien :
Richtlinie 93/42/EWG vom 14.06.1993 über Medizinprodukte (Anhang I „Grundlegende Anforderungen“).
Die Produkte sind Produkte der Klasse I gemäß Anhang VII des Medizinproduktegesetzes MPG vom 02.08.1994

## Declaration of conformity
**Appendix VII**
**EU Directive 93/42/EEC**

The signatory
Völker AG
Wullener Feld 79
58454 Witten/Germany

confirms that the products described below and in the form distributed by ourselves meet the basic requirements of Appendix Iof EU Directive 93/42/EEC.
The followind standards are applied :
DIN EN 60601-1,
DIN EN 60601-1-2,
DIN EN 60601-1-4,
DIN EN 60601-2-38.

The requirements of the medical products law pertaining to the display of a **CE seal** of approval are thereby fulfilled.

This declaration of conformity becomes invalid if the products are altered without the agreement of the manufacturer.

Description of products Type/Article No.:
Hospital beds S 960-1, S 960-2,
S 960-2 W, S 961-1, S 961-2W, S 280 and S 380.

EU Directives :
Directive 93/42/EEC of 14.06.1993 concering medical products (Appendix I, Basic requirements). The design and construction of this product conforms to Class I (Appendix VII) Medical products law (MPG) of 02.08.1994.

## Déclaration de conformité
**Annexe VII**
**Directive EU 93/42/CEE**

La soussignée
Völker AG
Wullener Feld 79
58454 Witten/Allemagne

confirme que les produits spécifies ci-dessous sont conformes, dans le modèle mis en circulation, aux exigences fondamentales de L’annexe L de la directive européenne 93/42/CEE.
Les standards suivants sont appliqués :
DIN EN 60601-1,
DIN EN 60601-1-2,
DIN EN 60601-1-4,
DIN EN 60601-2-38.

Les exigences de la loi sur les produits médicaux concernant leport de la **marque CE** sont ainsi satisfaites.

Cette déclaration de conformité est invaledée en cas de modification des produits, non autorisée par le fabricant.

Désignation des produits
Modèle/Référence :
Lits hospitaliers S 960-1, S 960-2,
S 960-2 W, S 961-1, S 961-2 W, S 280 et S 380.

Directives européennes :
Directive 93/42/CEE du 14.06.1993 sur les produits médicaux (annexe I « Exigences fondamentales »). La conception du produit est conforme à la classe I (annexe VII). Loi sur les produits médicaux (MPG) du 02.08.1994.

Witten 01.07.2005

ppa. Heinrich Völker
*Vorstandsvorsitzender / Executive board (chair) / Directoire (Président)*

| Guidance and manufacturer´s declaration – electromagnetic emission for all equiqment AND systems (see 6.8.3.201 a) 3)) | | |
|---|---|---|
| The S961-1/2W is intended for use in the electromagnetic environment specified below. The customer or the user of the S961-1 should assure that it is used in such an environment. | | |
| **Emissions test** | **Compliance** | **Electromagnetic environment - guidance** |
| Harmonic emissions<br><br>IEC 61000-3-2 | Class A | The S961-1 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. |
| Radiated emissions<br><br>CISPR 11 | Class A | |
| Voltage fluctuations / flicker emissions<br><br>IEC 61000-3-3 | Complies | |

| Guidance and manufacturer´s declaration – electromagnetic immunity for all equiqment and systems (see 6.8.3.201 a) 6)) | | | |
|---|---|---|---|
| The S961 is intended for use in the electromagnetic environment specified below. The customer or the user of the S961-1should assure that it is used in such an environment. | | | |
| **Immunity test** | **IEC 60601 test level** | **Compliance level** | **Electromagnetic environment - guidance** |
| Electrostatic discharge (ESD)<br><br>IEC 61000-4-2 | ± 6 kV contact<br><br>± 8 kV air | ± 6 kV contact<br><br>± 8 kV air | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %. |
| Electrostatic transient / burst<br><br>IEC 61000-4-4 | ± 2 kV for power supply lines<br><br>± 1 kV for input/output lines | ± 2 kV for power supply lines<br><br>Not applicable! | Mains power quality should be that of a typical commercial or hospital environment. |
| Surge<br><br>IEC 61000-4-5 | ± 1 kV differential mode<br><br>± 2 kV common mode | ± 1 kV differential mode<br><br>Not applicable! | Mains power quality should be that of a typical commercial or hospital environment. |
| Voltage dips, short interruptions and voltage variations on power supply input lines<br><br>IEC 61000-4-11 | < 5 % $U_T$<br>(>95 % dip in $U_T$)<br>for 0,5 cycle<br><br>40 % $U_T$<br>(60 % dip in $U_T$)<br>for 5 cycles<br><br>70 % $U_T$<br>(30 % dip in $U_T$)<br>for 25 cycles<br><br>< 5 % $U_T$<br>(>95 % dip in $U_T$)<br>for 5 sec | < 5 % $U_T$<br>(>95 % dip in $U_T$)<br>for 0,5 cycle<br><br>40 % $U_T$<br>(60 % dip in $U_T$)<br>for 5 cycles<br><br>70 % $U_T$<br>(30 % dip in $U_T$)<br>for 25 cycles<br><br>< 5 % $U_T$<br>(>95 % dip in $U_T$)<br>for 5 sec | Mains power quality should be that of a typical commercial or hospital environment. If the user of the S961-1 requires continued operation during power mains interruptions, it is recommended that the S961-1 be powered from an uninterruptible power supply or a battery. |
| Power frequency (50/60 Hz) magnetic field<br><br>IEC 61000-4-8 | 3 A/m | 3 A/m | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |
| NOTE $U_T$ is the a. c. mains voltage prior to application of the test level. | | | |

## Guidance and manufacturer´s declaration – electromagnetic immunity for EQUIPMENT and SYSTEM that are not LIFE-SUPPORTING (see 6.8.3.201 b))

The S961 is intended for use in the electromagnetic environment specified below. The customer or the user of the S961 should assure that it is used in such an environment.

| Immunity test | IEC 60601 test level | Compliance level | Electromagnetic environment - guidance |
|---|---|---|---|
| Conducted RF<br>IEC 61000-4-6 | 3 Vrms<br>150 kHz to 80 MHz | 3 V | Portable and mobile RF communications equipment should be used no closer to any part of the S961-1, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.<br>**Recommended separation distance**<br>$d = 1{,}17\sqrt{P}$<br>$d = 1{,}17\sqrt{P}$ 80 MHz to 800 MHz<br>$d = 2{,}33\sqrt{P}$ 800 MHz to 2,5 GHz<br>where $p$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and $d$ is the recommended separation distance in metres (m).[b]<br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b]<br>Interference may occur in the vicinity of equipment marked with the following symbol:<br>  |
| Conducted RF<br>IEC 61000-4-3 | 3 V/m<br>80 MHz to 2,5 GHz | 3 V/m | |

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic is affected by absorption and reflection from structures, objects and people.

[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 S961-1 is used exceeds the applicable RF compliance level above, the S961 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the S961.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

## Recommended separation distances between portable and mobile RF communications equipment and the equiqment or systems - for equiqment and systems that are not life-supporting (see 6.8.3.201 b))

The S961 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the S961 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the S961 as recommended below, according to the maximum output power of the communications equipment.

| Rated maximum output of transmitter W | Separation distance according to frequency of transmitter m | | |
|---|---|---|---|
| | 150 kHz to 80 MHz $d = 1{,}17\sqrt{P}$ | 80 MHz to 800 MHz $d = 1{,}17\sqrt{P}$ | 800 MHz to 2,5 GHz $d = 2{,}33\sqrt{P}$ |
| 0,01 | 0,12 | 0,12 | 0,23 |
| 0,1 | 0,37 | 0,37 | 0,74 |
| 1 | 1,17 | 1,17 | 2,33 |
| 10 | 3,69 | 3,69 | 7,38 |
| 100 | 11,67 | 11,67 | 23,33 |

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

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.